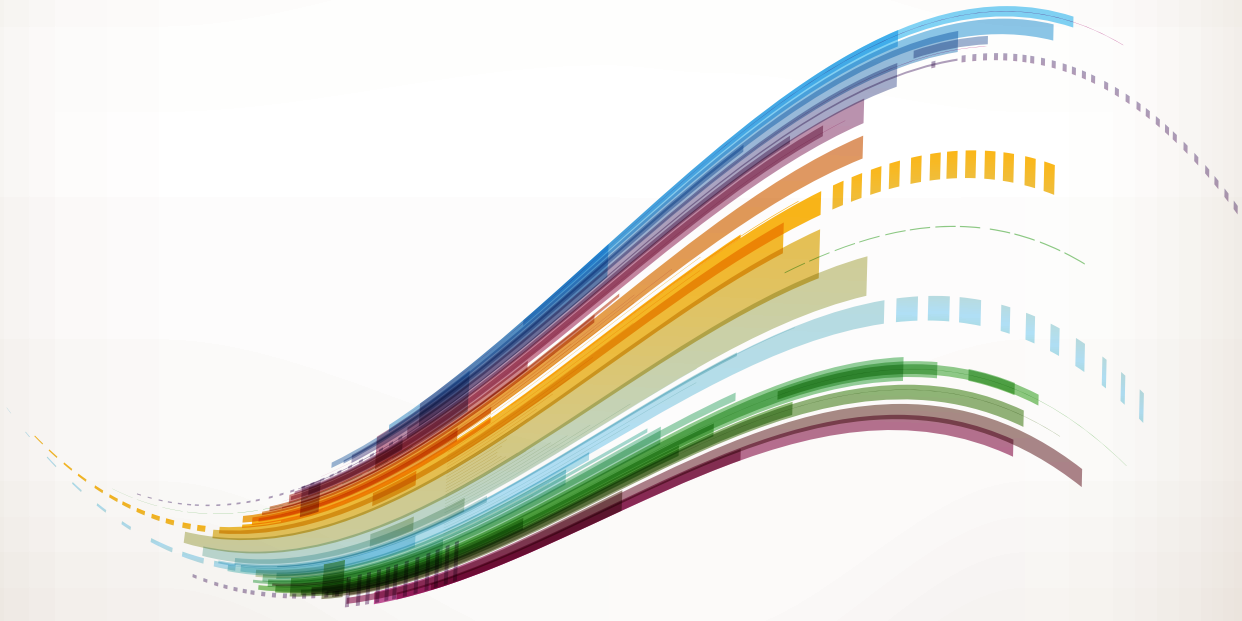
European Commission

Horizon 2020
Energy and Transport

COMPENDIUM
of projects implemented by INEA



Innovation and Networks Executive Agency

Foreword

Dirk Beckers

INEA's Director

With nearly €80 billion of funding for the period 2014 to 2020, Horizon 2020 is the European Union's biggest Research and Innovation programme ever. It promises more discoveries, more innovative solutions and more world-firsts - by taking great ideas from the laboratory to the market.

In view of the challenges involved in managing thousands of projects supported by Horizon 2020, the European Commission chose to delegate management of parts of the programme to its executive agencies. INEA, the Innovation and Networks Executive Agency, is one of them - established to implement EU funding programmes for transport, energy and telecommunications. This includes parts of Horizon 2020; the Connecting Europe Facility (CEF) - a key EU funding instrument that supports the development of high-performing, sustainable and interconnected Trans-European Networks in the fields of transport, energy and telecommunications; and projects that are the legacy of the 2007-2013 TEN-T and Marco Polo (freight performance) programmes. In the 2014 to 2020 period, INEA will manage a total budget of up to €34.9 billion: €6.7 billion for Horizon 2020 and €28.2 billion for CEF.

INEA's main aim is to provide stakeholders with expertise and high-level programme management, whilst promoting synergies among programmes, in order to benefit economic growth and EU citizens. The Agency uses its expertise to increase efficiency of technical and financial management for all programmes and beneficiaries. This applies to the entire project lifecycle — from the calls for proposals and evaluation of projects to be awarded financial support, to the follow-up of project implementation and control of the use of funds allocated. INEA provides a single access point for funding for all potential beneficiaries, allowing them to benefit from the Agency's long-standing experience and proven high-level performance. The Agency is expected to manage a total of over 2000 projects by 2020.

Managing research and innovation projects was a new and exciting task that was added to INEA's portfolio in 2014, and since then the Agency's Horizon 2020 Department has grown significantly. In particular INEA supports two societal challenges: Secure, clean and efficient energy, and Smart, green and integrated transport. So far, the Agency has selected for funding 343 Horizon 2020 projects – and another 400 are yet to come.

The publication of this compendium follows INEA's efforts to promote additional platforms for projects communication and dissemination. The compendium presents, for the first time, a full overview of INEA's diverse Horizon 2020 project portfolio covering the first three years of H2020 operation.

Alan Haigh

Head of Horizon 2020 Department at INEA

Looking back, it feels almost inconceivable that when I arrived at INEA in 2014 there were no other staff members in the Horizon 2020 Department. The first project was handed to the Agency by the European Commission in August 2014. Then the hard work began to build up the department and select the first projects for funding.

Today, INEA manages 343 Horizon 2020 projects[1] in the areas of secure, clean and efficient energy and smart, green and integrated transport. The Horizon 2020 Department consists of two units: the Energy Unit (H1) and the Transport Unit (H2). Altogether, the department employs 44 dedicated staff members from 16 countries, experts in all areas covered by INEA's Horizon 2020 project portfolio.

Around €3.8 billion from INEA's overall Horizon 2020 budget of €6.7 billion has been earmarked for funding energy projects and €2.9 billion has been allocated to support transport projects in 2014 – 2020. We are now almost halfway in distributing these EU funds. From the 343 currently running projects, 169 are carried out in the field of clean energy (overall EU funding: €1.28 billion) and 174 focus on sustainable transport (overall EU funding: €1.06 billion). More projects will be selected in upcoming calls for proposals. By 2020, INEA expects to have funded roughly 800 Horizon 2020 projects. The projects are carried out across the whole research and innovation chain, from the laboratory to full-scale demonstrations in the real world. Their overarching aim is to develop and bring closer to the market new technologies, products, processes and services that could mitigate climate change and boost Europe's energy security while creating new jobs and making the European economy more competitive.

INEA holds a crucial role in organising the evaluation and managing the projects selected for funding. To facilitate the work done in the projects, we also organise thematic workshops to allow projects to meet and exchange know-how, and participate in topical conferences across Europe to inform about funding opportunities.

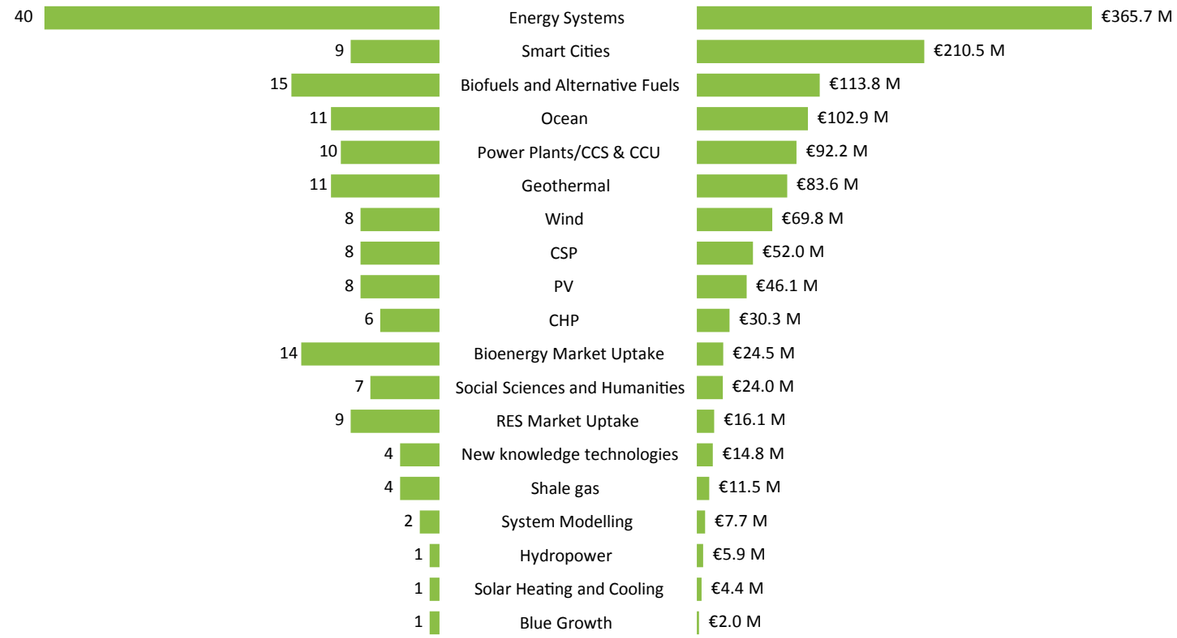
This compendium features all H2020 Energy and Transport projects that have been selected for EU funding and that have signed a grant agreement with INEA by 30 June 2017. The projects are divided in two categories, energy and transport, and are listed under the main areas of their focus, such as smart grids, biofuels, aviation or urban mobility. The factsheets include information about the scope of the project, as well as the EU funding. Individual factsheets of all the projects can be also downloaded from INEA's website (www.ec.europa.eu/inea). The projects are available in the Horizon 2020 section of the website; they are grouped under energy and transport themes, and are listed under the main areas of their focus. A pdf version of each project factsheet, with all participants, can be downloaded by clicking on a pdf icon in the bottom right corner of each project factsheet on the website.

[1] Projects that signed the grant agreement by 30.06.2017

Charts

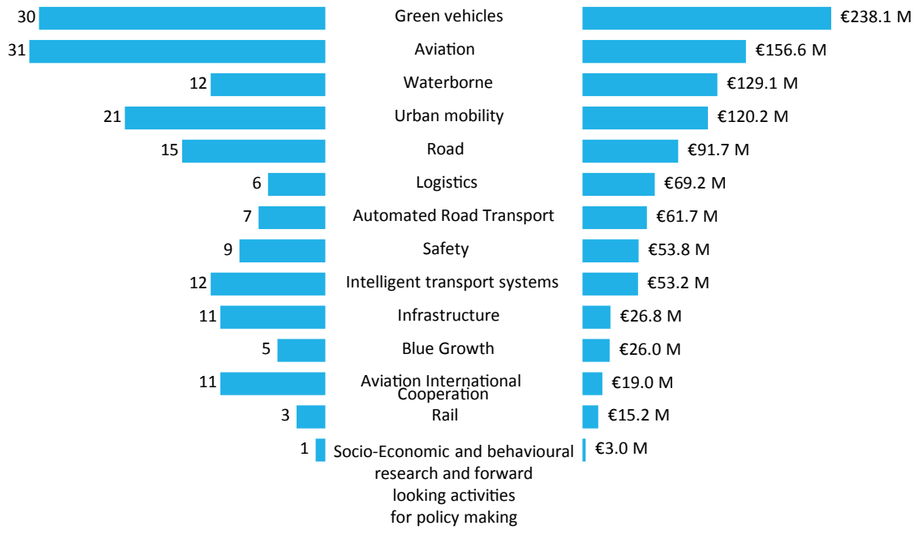
Horizon 2020 energy

number of ongoing projects and EU funding per topics area



Horizon 2020 transport

number of ongoing projects and EU funding per topics area



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Energy

Photofuel

Biocatalytic solar fuels for sustainable mobility in Europe

640720

Programme:

H2020 Energy

Topic:
LCE-11-2014

Call for proposals:
H2020-LCE-2014-1

Duration:
01/05/2015 to 30/04/2019

Funding scheme:
RIA

Total cost:
€5,998,252

EU contribution:
€5,998,251

Coordinator:
VOLKSWAGEN AG

Project website:
http://www.photofuel.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193744_en.html

The Photofuel project develops a next generation technology for the sustainable production of alternative, liquid transportation fuels. The concept is developed by fuel and automotive companies, innovation drivers and universities from seven countries.

Photofuel advances the base technology of microalgae cultivation in closed bioreactors by enabling phototrophic algae or cyanobacterial microorganisms to produce alkanes and alcohols, which are excreted to the culture broth for direct separation without cell harvesting. This turns the microbial cells into self-reproducing biocatalysts allowing the process to directly convert solar energy, water and CO2 into engine-ready fuel instead of being used to form biomass.

The primary objective of Photofuel is to further develop the direct fuel technology using photosynthetic microbiological cells, which is currently only implemented in small culture volumes in laboratory conditions at technology readiness level (TRL) 3, to cultivation of robust photobioreactors of pilot-size volume outdoors in southern Portugal, reaching the final TRL 4 or 5.

The project aims to obtain an innovative cost-copetitive alternative fuel from a non-food feedstock with a favourable energy balance.

SUN-to-LIQUID

SUNlight-to-LIQUID: Integrated solar-thermochemical synthesis of liquid hydrocarbon fuels

654408

Programme:

H2020 Energy

Topic:
LCE-11-2015

Call for proposals:
H2020-LCE-2015-1-two-stage

Duration:
01/01/2016 to 31/12/2019

Funding scheme:
RIA

Total cost:
€6,150,031

EU contribution:
€4,450,618

Coordinator:
BAUHAUS LUFTFAHRT EV

Project website:
http://www.sun-to-liquid.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199438_en.html

Liquid hydrocarbon fuels are ideal energy carriers for the transportation sector thanks to their exceptionally high energy density. In addition, the fuels do not require any changes in the existing global infrastructure.

Currently, virtually all renewable hydrocarbon fuels originate from biomass. Their feasibility to meet the global fuel demand and their environmental impact are controversial.

The SUN-to-LIQUID technology establishes a radically different non-biomass non-fossil path to synthesize renewable liquid hydrocarbon fuels from abundant feedstocks of H2O, CO2 and solar energy. Concentrated solar radiation drives a thermochemical redox cycle, which inherently operates at high temperatures and utilises the full solar spectrum. Thereby, it provides a favourable path to solar fuel production with high energy conversion efficiency and, consequently, improves its economic competitiveness.

Recently, the first-ever production of solar jet fuel has been experimentally demonstrated at the laboratory scale. SUN-to-LIQUID aims to advance this solar fuel technology to the next field phase, with expected key innovations. The project is completing an integrated fuel production chain that will be experimentally validated at the pre-commercial scale and with a record high energy conversion efficiency.

The ambition of SUN-to-LIQUID is to advance solar fuels well beyond the state of the art and to guide the further scale-up towards a reliable basis for competitive industrial exploitation.

Bin2Grid

Turning unexploited food waste into biomethane supplied through local filling stations network

646560

Programme:

H2020 Energy

Topic:
LCE-14-2014

Call for proposals:
H2020-LCE-2014-3

Duration:
01/01/2015 to 31/12/2017

Funding scheme:
CSA

Total cost:
€709,469

EU contribution:
€709,468

Coordinator:
ZAGREBACKI HOLDING DOO

Project website:
http://www.bin2grid.eu/en/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194456_en.html

The overall objective of Bin2Grid is to promote a segregated collection of food waste from various waste products (food and beverage industry, catering, residential) in order to produce biomethane, which can be used through a network of local filling stations. The project will increase renewable energy production through sustainable management of food waste in four cities: Malaga, Paris, Skopje and Zagreb.

One of the biggest advantages of such a concept of energy production is having two issues covered at the same time: environmental protection with sustainable management of food waste and the production of renewable energy with its utilization as a biofuel. The project is defining strategies for establishing efficient network of food and beverage waste collection methods and practices. A whole range of food waste producers is considered, i.e. manufacturing entities, catering/food services, retail stores.

The main expected impact of the project is to increase renewable energy production with the goal of reaching up to 5,000 tonnes by the end of the project.

Bioenergy4Business

Uptake of Solid Bioenergy in European Commercial Sectors (Industry, Trade, Agricultural and Service Sectors) – Bioenergy for Business

646495

Programme:

H2020 Energy

Topic:
LCE-14-2014

Call for proposals:
H2020-LCE-2014-3

Duration:
01/01/2015 to 31/08/2017

Funding scheme:
CSA

Total cost:
€1,540,714

EU contribution:
€1,540,714

Coordinator:
OSTERREICHISCHE ENERGIEAGENTUR
AUSTRIAN ENERGY AGENCY

Project website:
http://www.bioenergy4business.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194448_en.html

The goal of the Bioenergy4Business project is to support and promote the (partial) substitution of fossil fuels (coal, oil, gas) used for heating in European commercial sectors, by available bioenergy sources (industrial waste, forest biomass, straw and other agricultural biomass) in the partner countries and beyond.

The project aims to contribute to an increase in much-needed security of energy supply through lower dependence on fossil fuels from politically volatile sources. Target groups are, on one hand, owners and operators of industrial scale heating plants for private or district heating. On the other hand, actors who play an important role with regards to the value chain and to framework conditions crucial for the use of bioenergy heat will also be involved.

Activities are tailored to the needs of actors relevant to promising market segments in the industrial, commercial, services and agriculture sectors. The main achievements of the project so far have been identifying relevant market sectors where such activities could be implemented, including producing a series of materials and reports that can be used for capacity building, with the aim to convince target actors in identified sectors to switch from fossil fuels to solid biomass.

The project partners include energy agencies, national biomass associations and research-oriented partners with specialised knowledge on biomass from Northern, Southern, Central and Eastern Europe (Finland, Denmark, the Netherlands, European Biomass Association, Germany, Austria, Slovakia, Croatia, Greece, Poland, Romania, Bulgaria and Ukraine).

BioRES

Sustainable Regional Supply Chains for Woody Bioenergy

645994

Programme:

H2020 Energy

Topic:
LCE-14-2014

Call for proposals:
H2020-LCE-2014-3

Duration:
01/01/2015 to 30/06/2017

Funding scheme:
CSA

Total cost:
€1,865,411

EU contribution:
€1,865,411

Coordinator:
DEUTSCHE GESELLSCHAFT FUR INTERNATIONALE ZUSAMMENARBEIT (GIZ) GMBH

Project website:
http://bioresproject.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194408_en.html

BioRES aims to promote the implementation of biomass trade and logistic centres (BTLCs) in Serbia, Slovenia and Bulgaria, with the support of technology leaders from Austria, Slovenia, Germany and Finland. The project follows the successful implementation in other European countries based on Intelligent Energy - Europe (IEE) projects Biomass Trade Centres and BiomassTradeCentreII.

BTLC is a local or regional centre with optimised logistics and trading organisation where different bioenergy products (firewood, wood chips, wood/straw pellets) are marketed at standardised quality. BTLC can also be involved in the collection of the bio-resources and fabrication of the bioenergy products. The creation of BTLCs will help increasing the demand for woody bioenergy products (processed fire wood, wood chips, wood pellets, and wood briquettes) in these countries and contribute to the achievement of EU targets set out in the Renewable Energy Sources Directive (2009/28/EC).

BioRES plans to identify priority locations for new BLTCs, assess the regional potentials for production and use of woody bioenergy, initiate local stakeholder dialogues involving both producers and potential users of woody bioenergy products, conduct feasibility studies and provide support for BLTC business plans as well as for sale agreements on supply and demand side, and help the start of operations of new BLTCs.

BioRES aims to have six to eight new BTLC up and running by the end of the project leading to 8,000 tonnes of bioenergy sales. Nine partners from eight different countries are involved in this project.

BIOSURF

BIOmethane as SUstainable and Renewable Fuel

646533

Programme:

H2020 Energy

Topic:
LCE-14-2014

Call for proposals:
H2020-LCE-2014-3

Duration:
01/01/2015 to 31/12/2017

Funding scheme:
CSA

Total cost:
€1,872,912

EU contribution:
€1,872,912

Coordinator:
ISTITUTO DI STUDI PER L'INTEGRAZIONE DEI SISTEMI (I.S.I.S) - SOCIETA'COOPERATIVA

Project website:
http://www.biosurf.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194453_en.html

The objective of BIOSURF is to increase the production and use of biomethane from animal waste, other waste materials and sustainable biomass), for grid injection and as transport fuel. The project will remove non-technical barriers and by paving the way towards a European biomethane market.

This project's founding pillars are:
- national biomethane registries;
- cooperation among the national biomethane registries;
- European mass-balancing system for biomethane;
- free market biomethane trade;
- sustainable raw material supply;
- methodology for entitlement to CO2 certificates;
- regional specificities;
- networking and cooperation;
- transferability of results beyond the project's countries.

The BIOSURF's goals are:
- to develop a value chain analysis from production to use depending on the territorial, physical and economic features (specified for different areas, i.e., biofuel for transport, electricity generation, heating & cooling);
- to analyse, compare and promote biomethane registering, labelling, certification and trade practices in Europe, in order to favour cooperation among the different countries and cross border markets on the basis of the partner countries involved;
- to address traceability, environmental criteria and quality standards, so aiming to reduce GHG emissions and indirect land-use change (ILUC), to preserve biodiversity and to assess the energy and CO2 balance; to identify the most prominent drivers for CO2-emissions along the value chain as an input for future optimization approaches;
- to exchange information and best practices all along Europe concerning biomethane policy, regulations, support schemes and technical standards.

In September 2016 the 1st European biomethane register was founded thanks to the BIOSURF project.

greenGain

Supporting Sustainable Energy Production from Biomass from Landscape Conservation and Maintenance Work

646443

The greenGain project investigates whether biomass waste from landscape conservation and maintenance can be used to provide a new source of renewable energy.

It assesses whether the concept is feasible, testing in two pilot regions in Italy and Spain, and develops know-how on the full chain of such waste, from the logistics of collection to storage.

This will result in a guidance document providing political, legal and environmental analysis in the pilot regions that will be a useful guide for both stakeholders and public entities.

Programme:

H2020 Energy

Topic:
LCE-14-2014

Call for proposals:
H2020-LCE-2014-3

Duration:
01/01/2015 to 31/12/2017

Funding scheme:
CSA

Total cost:
€1,829,391

EU contribution:
€1,829,391

Coordinator:
Fachagentur Nachwachsende Rohstoffe e.V.

Project website:
http://greengain.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194429_en.html

SECURECHAIN

Securing future-proof environmentally compatible bioenergy chains

646457

The SecureChain project's goal is to ensure that the bioenergy supply chains in six EU regions meet the highest environmental, quality and financial viability standards through the implementation of sustainable supply chain management (SSCM).

SecureChain targets complementary European model regions where bioenergy is well established, yet which still struggle to make use from major biomass resources from agriculture and forest land. Mobilisation of these locally available resources provides an opportunity to upgrade existing and new supply chains with more standardised, synergetic uses of biomass.

The main achievement of the project so far has been attracting 38 SMEs from Germany, the Netherlands, Sweden, Spain, Estonia and Greece, out of which 19 are mentored in terms of financing and sustainability certification, to use innovation vouchers. The target supply chains undergo a full life-cycle assessment of material and energy fluxes to ensure that they meet international sustainability standards for high efficiency and low-carbon footprint. Finally, a risk assessment tool, including data on market opportunities, financing schemes and investors for pilot projects is developed with a goal to disseminate it broadly among the target groups....

Programme:

H2020 Energy

Topic:
LCE-14-2014

Call for proposals:
H2020-LCE-2014-3

Duration:
01/04/2015 to 31/03/2018

Funding scheme:
CSA

Total cost:
€1,809,586

EU contribution:
€1,809,586

Coordinator:
B.T.G. BIOMASS TECHNOLOGY GROUP BV

Project website:
http://www.securechain.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194442_en.html

4REFINERY

Scenarios for integration of bio-liquids in existing REFINERY processes

727531

Programme:

H2020 Energy

Topic:
LCE-08-2016-2017

Call for proposals:
H2020-LCE-2016-RES-CCS-RIA

Duration:
01/05/2017 to 30/04/2021

Funding scheme:
RIA

Total cost:
€5,965,474

EU contribution:
€5,965,474

Coordinator:
STIFTELSEN SINTEF

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/209939_en.html

4REFINERY will develop and demonstrate the production of next generation biofuels from more efficient primary liquefaction routes integrated with upgraded downstream (hydro)refining processes to achieve overall carbon yields of >45%. The consortium will aim for successful deployment into existing refineries, including delivering a comprehensive toolbox for interfacing with existing refinery models.

The main objectives of 4REFINERY are:

• to develop new biofuels production technology while at the same time increase understanding and control of the entire value chain;

• to scale up testing procedures and define scenarios for the best further implementation in existing refineries;

• to develop solutions to answer key societal & environmental challenges. T

he project is focused on the transformation of bio-liquids from fast pyrolysis and hydrothermal liquefaction into advanced biofuels, through intermediate process steps combined with downstream co-processing technologies. The goal is to bring these technologies from TRL3-4 to TRL4-5. The project will establish relations between product's properties, the quality of renewable feedstocks and all relevant process parameters along the value chain. The study of these combinations will allow a full understanding of the influence of feedstock and treatment processes on product characteristics.

4REFINERY will (i) use inexpensive biomass, (ii) require low capital cost processes at small scale, (iii) reduce costs for further treatment due to scaling up and reduction in OPEX and (iv) leverage existing infrastructure, ensuring the new developments can be rapidly implemented at a commercial scale for production of biofuel with competitive prices compared to its alternatives.

BABET-REAL5

New technology and strategy for a large and sustainable deployment of second generation biofuel in rural areas

654365

Programme:

H2020 Energy

Topic:
LCE-11-2015

Call for proposals:
H2020-LCE-2015-1-two-stage

Duration:
01/02/2016 to 31/01/2020

Funding scheme:
RIA

Total cost:
€5,995,199

EU contribution:
€5,573,644

Coordinator:
INSTITUT NATIONAL POLYTECHNIQUE DE TOULOUSE

Project website:
https://www.babet-real5.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199585_en.html

The business model currently under development for second generation (2G) bioethanol is a replication of the model used for first generation which is plants with massive annual production capacity. Such high production rates require high capital investment and huge amounts of biomasses (250-350,000 tons per year) concentrated in small areas (distance up to 50 km) to afford transportation costs. Under such conditions, opportunities for installing plants in most rural areas in Europe and worldwide are scarcer.

The objective of the project is to develop an alternative solution for the production of 2G bioethanol, competitive at smaller scale and therefore applicable to a large amount of countries, rural areas and feedstocks. The target is to reach technical, environmental and economic viability in units processing at least 30,000 tons equivalent dry biomass/year. This approach enlarges the scope of biomass feedstock exploitable for the production of biofuel and creates better conditions for the deployment of production sites, to the benefit of rural areas.

The main concept underpinning the project relies on a new biomass conversion process able to run all the steps from the pre-treatment of the raw material to the enzymatic pre-hydrolysis in one-stage-reactor under mild operating conditions.

This new process offers the most integrated and compact solution for the conversion of lignocellulosic biomass for the production of bioethanol developed so far, and it will lead to reduced capital and operation expenditures.

The project investigates and selects business cases for installations of demonstration of first-of-a-kind small-scale industrial plants in different European and Latin American countries.

BECOOL

Brazil-EU Cooperation for Development of Advanced Lignocellulosic Biofuels

744821

Programme:

H2020 Energy

Topic:
LCE-22-2016

Call for proposals:
H2020-LCE-2016-RES-IA

Duration:
01/06/2017 to 31/05/2021

Funding scheme:
RIA

Total cost:
€4,999,955

EU contribution:
€4,999,955

Coordinator:
ALMA MATER STUDIORUM - UNIVERSITA DI BOLOGNA

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/210282_en.html

The BECOOL (Brazil-EU Cooperation for Development of Advanced Lignocellulosic Biofuels) project aims to provide solutions for highly efficient and sustainable value chains encompassing the whole range of activities from biomass production and diversification to logistics, conversion pathways and exploitation.

The project addresses three sub-challenges:
- two alternatives gasification pathways to produce advanced biofuels, including aviation fuels;
- insights into pre-treatment and biochemical conversion of lignocellulosic feedstock (fermentation pathway)
- feedstock diversification through the integration of conventional and new lignocellulosic crops without reducing food crops land and through the cultivation of perennial lignocellulosic crops in marginal/idle lands.

The BECOOL project and its Brazilian counterpart BioVALUE benefit from the complementarities of expertise and experience in the EU and Brazil. On one hand, they can draw on Brazil's long experience in sugarcane bioethanol production, and on the other, they can profit from the EU's know-how in terms of biomass production logistics and advanced conversion technologies.

If successful, the project will develop innovative cropping systems, including annual and perennial lignocellulosic crops, that would increase lignocellulosic feedstock availability by at least 50% without reducing food crops land.

ButaNexT

Next Generation Bio-butanol

640462

Programme:
H2020 Energy

Topic:
LCE-11-2014

Call for proposals:
H2020-LCE-2014-1

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
RIA

Total cost:
€4,599,414

EU contribution:
€4,599,414

Coordinator:
Green Biologics Ltd.

Project website:
http://www.butanext.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193725_en.html

Bio-butanol is an advanced biofuel with superior fuel properties: it has similar characteristics to petrol and fits with existing fuel infrastructure. In ButaNexT, this alternative fuel is produced from woody residues and wastes, minimising any environmental impact, while ensuring a competitive cost of production. Individual stages of the process supply chain are developed, validated and optimised at lab-scale and then integrated and demonstrated at pilot scale. Tests are performed to check the engine performance, and an assessment is carried out to define societal impacts related to waste minimisation, air pollution and GHG emission reductions, and job creation.

The main achievements of the project so far have been a prototype of a two-stage pre-treatment, testing of a butanol tolerant strains for the fermentation and butanol in situ product recovery from the fermentation broth. Finally, conclusions have been drawn from the butanol-diesel and butanol-gasoline blends under ambient and cold conditions.

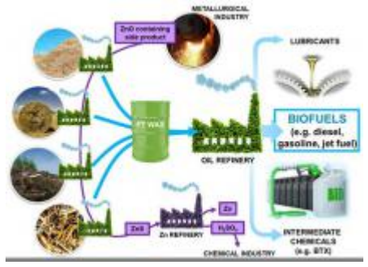
The project expects to achieve significant impacts in terms of cost reductions (target $800/T which equates to 50% of current first generation production in China) as well as enhanced energy balances and reduced greenhouse gas emissions vs. conventional biofuel production (target of 85% reduction).

The project output (a technically and economically-validated process) provide the EU with a tremendous opportunity to build an advanced biofuel business from sustainable feedstock. This is strategically important to contribute to the European 10% target for renewable transportation fuels for 2020.

COMSYN

Compact Gasification and Synthesis process for Transport Fuels

727476



Programme:

H2020 Energy

Topic:
LCE-08-2016-2017

Call for proposals:
H2020-LCE-2016-RES-CCS-RIA

Duration:
01/05/2017 to 30/04/2021

Funding scheme:
RIA

Total cost:
€5,096,660

EU contribution:
€5,096,660

Coordinator:
Teknologian tutkimuskeskus VTT Oy

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/209938_en.html

The aim of the project is to develop a new biomass-to-liquid (BTL) production concept that will reduce biofuel production cost up to 35% compared to alternative routes. This means < 0,80 €/l production cost for diesel.

The production concept is based on distributed primary conversion of various kinds of biomass residues to intermediate liquid products with small-to-medium scale (10-50 kt/a FT products) units located close to biomass resources. The primary conversion will be integrated to local heat and power production resulting in 80% energy efficiency in biomass utilisation.

The FT products will be refined to high quality drop-in liquid transport fuels at existing oil refineries. The novel gasification technology will enable the use of wider feedstock basis than the current gasification processes. In addition to woody residues, the process is able to use straw and other agricultural residues, and various waste-derived materials.

The produced FT-wax will be transported to existing large scale oil refinery, which will be gradually converted into biofuel refinery as the number of primary conversion plants increases.

MacroFuels

Developing the next generation Macro-Algae based biofuels for transportation via advanced bio-refinery processes

654010

Programme:

H2020 Energy

Topic:
LCE-11-2015

Call for proposals:
H2020-LCE-2015-1-two-stage

Duration:
01/01/2016 to 31/12/2019

Funding scheme:
RIA

Total cost:
€5,999,893

EU contribution:
€5,999,893

Coordinator:
TEKNOLOGISK INSTITUT

Project website:
http://www.macrofuels.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199672_en.html

MacroFuels aims to produce advanced biofuels from seaweed or macro-algae. The targeted biofuels are ethanol, butanol, furanics and biogas.

Seaweed does not need fresh water, arable land or fertilizers to grow, which provides environmental benefits, and in addition has a high carbon dioxide reduction potential. The technology offers many novel opportunities for employment along the entire value chain.

MacroFuels plans to develop a technology for the production of fuels which are suitable as liquid fuels or precursor thereof for the heavy transport sector as well as potentially for the aviation sector.

The project goals are:
• increasing the biomass supply by developing a rotating crop scheme for cultivation of seaweed, using native, highly productive brown, red and green seaweeds. Combined with the use of advanced textile substrates this is planned to result in a year round biomass yield of 25 kg seaweeds (wet weight) per m2 per year harvested at 1000m2/hr
• improving the pre-treatment and storage of seaweed and to yield fermentable and convertible sugars at economically relevant concentrations
• increasing the bio-ethanol production to economically viable concentrations
• increasing the bio-butanol yield by developing novel fermenting organisms which metabolize all sugars at 90% efficiency for ethanol and butanol
• increasing the biogas yield to convert 90% of the available carbon in the residues
• performing an integral techno-economic, sustainability and risk assessment of the entire seaweed to biofuel chain

STEELANOL

Production of sustainable, advanced bio-ethANOL through an innovative gas-fermentation process using exhaust gases emitted in the STEEL industry

656437

Programme:

H2020 Energy

Topic:
LCE-12-2014

Call for proposals:
H2020-LCE-2014-2

Duration:
01/05/2015 to 31/10/2018

Funding scheme:
IA

Total cost:
€14,560,737

EU contribution:
€10,192,516

Coordinator:
ARCELORMITTAL BELGIUM NV

Project website:
http://www.steelanol.eu/en

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/195267_en.html

The STEELANOL project's goal is to produce biofuels from the exhaust gases from the steel-making. It particularly aims to demonstrate the possibility to produce biofuels through an innovative gas fermentation process using exhaust gases emitted by the steel industry. The blast furnace to basic oxygen furnace (BF/BOF) gaseous emissions are an unavoidable residue from the steelmaking process and are currently either used for electricity production or flared. Nevertheless, they can be used to produce bioethanol, thereby reducing the usage of fossil fuel molecules and thus significantly reducing greenhouse gases (GHG) emissions.

The process that STEELANOL wishes to demonstrate consists of using a microorganism to ferment the CO contained in the exhaust gases. The microorganism will be able to produce both bioethanol and bio-based raw materials. The steel industry exhaust gases present a high concentration of CO (24%-56%). The STEELANOL technology is expected to uptake around 90% of the CO to produce around 50 kg of biomass (mainly bioethanol) per tonne of steel produced.

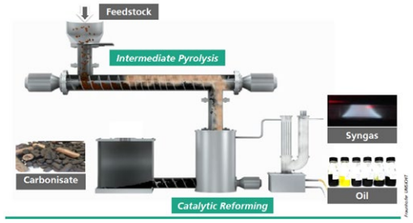
A demonstration plant of approximately 25,000 tons of ethanol per year will be built in the ArcelorMittal facilities in Belgium; the first of its kind in Europe, and the largest facility built to date utilising this technology globally. The technology is supplied by LanzaTech and the engineering work will be performed by Primetals. E4Tech develop a sustainability life-cycle assessment of the product.

If fully deployed, this technology could entail the production of 2.5 million tonnes of bioethanol in Europe with emission reductions of 65% compared to fossil fuels and at a competitive cost

TO-SYN-FUEL

The Demonstration of Waste Biomass to Synthetic Fuels and Green Hydrogen

745749



Programme:

H2020 Energy

Topic:
LCE-19-2016-2017

Call for proposals:
H2020-LCE-2016-RES-IA

Duration:
01/05/2017 to 30/04/2021

Funding scheme:
IA

Total cost:
€14,511,923

EU contribution:
€12,250,528

Coordinator:
FRAUNHOFER GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V.

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/209765_en.html

TO-SYN-FUEL will demonstrate the conversion of organic waste biomass (Sewage Sludge) into biofuels. The project is implementing a new integrated process combining Thermo-Catalytic Reforming (TCR©), with hydrogen separation through pressure swing adsorption, and hydro deoxygenation, to produce a fully equivalent gasoline and diesel substitute (compliant with EN228 and EN590 European Standards) and green hydrogen for use in transport.

TO-SYN-FUEL will be the platform for deployment of a subsequent commercial scale facility, which will be the first of its kind in the world processing organic industrial wastes directly into transportation grade biofuels. This project will mark the first pre-commercial scale deployment of the technology processing up to 2100 tonnes per year of dried sewage sludge into 210,000 litres per year of liquid biofuels and up to 30,000 kg of green hydrogen. The scale up of 100 of such plants installed throughout Europe would be sufficient to convert up to 32 million tonnes per year of organic wastes into sustainable biofuels, contributing towards 35 million tonnes of GHG savings and diversion of organic wastes from landfill.

Torero

TORrefying wood with Ethanol as a Renewable Output: large-scale demonstration

745810

Programme:

H2020 Energy

Topic:
LCE-19-2016-2017

Call for proposals:
H2020-LCE-2016-RES-IA

Duration:
01/05/2017 to 30/04/2020

Funding scheme:
IA

Total cost:
€15,849,490

EU contribution:
€11,472,916

Coordinator:
ARCELORMITTAL BELGIUM NV

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/209957_en.html

The Torero project aims to demonstrate a cost-, resource-, and energy-efficient technology concept for producing bioethanol from a wood waste feedstock, fully integrated in a large-scale functional steel mill.

The steps of Torero's process:
1. Wood waste is converted to biocoal by torrefaction
2. Biocoal replaces fossil powdered coal in a steel mill blast furnace
3. Carbon monoxide in blast furnace exhaust fumes is microbially fermented to bioethanol
4. Material and energy loops of the process are closed to a very large degree

According to the project, a steel mill implementing this concept will be able to produce at least 80 million litres of bioethanol per year.

Torero's objective is to create a value chain for wood waste, which currently has no attractive applications. The technology concept is open-ended: in the future, stakeholders may replicate the concept with other feedstocks and in order to produce other types of fuels.

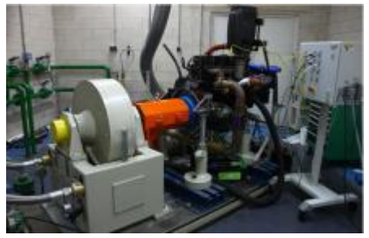
The project aims to develop a competitive process for non-food feedstock bioethanol production. Compared with the current first generation production-based cellulosic bio-ethanol solution, the OPEX of Torero will be 1/3 lower with a same CAPEX. This will allow to scale up of torrefaction technology when successfully demonstrated.

Together with its sister project Steelanol, Torero is so far the only Horizon 2020 project that aims to demonstrate a biofuel production process which is integrated in an existing, fully functional large-scale industrial facility.

WASTE2FUELS

Sustainable production of next generation biofuels from waste streams

654623



Programme:

H2020 Energy

Topic:
LCE-11-2015

Call for proposals:
H2020-LCE-2015-1-two-stage

Duration:
01/01/2016 to 31/12/2018

Funding scheme:
RIA

Total cost:
€5,989,744

EU contribution:
€5,989,743

Coordinator:
INNOVACIO I RECERCA INDUSTRIAL I SOSTENIBLE SL

Project website:
http://www.waste2fuels.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/200420_en.html

WASTE2FUELS aims to develop next generation biofuel technologies capable of converting agro-food waste (AFW) streams into high-quality biobutanol. Biobutanol is one of the most promising biofuels thanks to its superior fuel properties. In addition to its ability to reduce carbon emissions, its higher energy content (almost 30% more than bioethanol), its ability to blend with both gasoline and diesel, its lower risk of separation and corrosion and its resistance to water absorption, it offers very exciting advantages for adoption as engines require almost no modifications to use it.

The main WASTE2FUELS innovations include:
• development of novel pre-treatment methods for converting AFW to an appropriate feedstock for biobutanol production thus dramatically enlarging current available biomass for biofuels production;
• improvement of the production process with the use of systems enhancing techniques achieving higher conversion efficiencies and allowing the valorisation of by-products, hence reducing production costs.

The project is conducting engine tests and ecotoxicological assessments of the produced biobutanol, process environmental and techno-economic impact analyses and biomass supply chain studies. It also designs waste management strategies for rural development. Valorising 50% of the unavoidable AFW as feedstock for biobutanol production could divert up to 45 million tonnes of food waste from EU landfills, preventing 18 million tonnes of greenhouse gases (GHG) and saving almost 0.5 billion litres of fossil fuels.

BiogasAction

BiogasAction: Promotion of sustainable biogas production in EU

691755

Programme:

H2020 Energy

Topic:
LCE-14-2015

Call for proposals:
H2020-LCE-2015-3

Duration:
01/01/2016 to 31/12/2018

Funding scheme:
CSA

Total cost:
€1,999,885

EU contribution:
€1,999,885

Coordinator:
ENERGY CONSULTING NETWORK APS

Project website:
http://www.biogasaction.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199320_en.html

BiogasAction serves as vehicle for an unbiased and rapid development of the European biogas and biomethane sectors based on manure and other waste.

Biogas and biomethane are parts of the strategy to achieving the EU targets set out in the Renewable Energy and Fuel Quality Directives and certain actions are needed to support the development of this increasingly sustainable bioenergy sector. The EU farmers are encouraged to produce energy intermediaries, like biogas from co-digestion of manure and various digestible waste, and to contribute in this way to the de-carbonisation of the energy sector. Furthermore, there is a need to improve market conditions for these sustainable bioenergy technologies.

Central drivers of the project are cooperation between different policy levels at EU at national and regional levels and replication of good practises in different regions in the EU.

The project focuses on three main actions:

• identification and dissemination of proven support strategies and guidelines;
• definition and implementation of a specific biogas and biomethane intervention strategy in eight target countries or regions: Rhône-Alpes and Western part of France, Wales/UK, Croatia, Czech Republic, Netherlands, Denmark, Latvia and South East Sweden;
• exchange of knowledge and experience within and beyond the target areas and the project life time.

BiogasAction will trigger substantial and measurable reductions in the transaction costs for project developers as well as for the permitting authorities, and it will help developing better policy, market support and financial frameworks at national, regional and local levels.

Biomasud Plus

Developing the sustainable market of residential Mediterranean solid biofuels.

691763

Programme:

H2020 Energy

Topic:
LCE-14-2015

Call for proposals:
H2020-LCE-2015-3

Duration:
01/01/2016 to 31/12/2018

Funding scheme:
CSA

Total cost:
€1,971,610

EU contribution:
€1,971,610

Coordinator:
ASOCIACION ESPANOLA DE LA VALORIZACION ENERGETICA DE LA BIOMASA

Project website:
http://biomasudplus.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199960_en.html

The overall goal of the Biomasud Plus project is the improvement, dissemination and market development of the Biomasud label in order to promote the sustainable use of the Mediterranean autochthonous solid biofuels in the domestic sector.

The Biomasud certification system for the quality and sustainability of solid biofuels was created within the BIOMASUD INTERREG IV project in 2013 with the aim to cover all typical Mediterranean biomass resources used as solid biofuels in small and medium heating installations: domestic, commercial, institutional, etc. The label is owned by several partners established in Spain, Portugal and France.

Some companies are already producing solid biofuel under the Biomasud quality label in Spain, and others have also shown the interest to adopt it in Spain and Italy, but there is a strong need for development of the label along the whole Mediterranean area where the biomass and solid biofuels are widely produced and used in the domestic sector market without any standards. Presently, the label includes wood chips and pellets, olive stones and some types of nut shells.

There is a need to extend the label to new biomasses that are used in the Mediterranean area and which are not covered by the label, making combustion in stoves or small-medium size boilers more difficult. In order to improve the label, research is needed to develop new and/or review the existing Biomasud label analytical limits and sustainability tools along the value chain, including, the greenhouse gases (GHG) calculation procedure.

BioVill

Bioenergy Villages (BioVill) - Increasing the Market Uptake of Sustainable Bioenergy
691661

Programme:

H2020 Energy

Topic:
LCE-14-2015

Call for proposals:
H2020-LCE-2015-3

Duration:
01/03/2016 to 28/02/2019

Funding scheme:
CSA

Total cost:
€1,998,918

EU contribution:
€1,998,918

Coordinator:
DEUTSCHE GESELLSCHAFT FUR INTERNATIONALE ZUSAMMENARBEIT (GIZ) GMBH

Project website:
http://biovill.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199956_en.html

The objective of BioVill is to promote, develop and accompany regional bioenergy concepts up to the investment stage in Slovenia, Serbia, Croatia, Macedonia and Romania by means of promoting “bioenergy villages”. Technology leaders from other European countries, in particular Austria and Germany, are supporting the market uptake.

A bioenergy village is a village or settlement, which produces and uses most of its energy needs from local agricultural and forestry biomass. The ultimate goal of such a village is usually to become energy-independent and self-sufficient in heat and power supply. This will contribute to strengthening rural development and the local economy as well as to mitigating climate change through a reduction of CO2 emissions. Each bioenergy village is therefore a local, strategic sustainability project, which protects the climate and environment, increases the security of energy supply, as well as fosters competitiveness and market uptake along the value and supply chains.

In BioVill, the concept of bioenergy villages is expanded to address the need of increasing the bioenergy market-share whilst ensuring sustainability from a life-cycle perspective.

The project is developing the institutional set-up and energy management concept for the creation of five bioenergy villages up to investment stage for physical infrastructure, providing in total 62 GW/y of heat and power based on solid biomass and 150 new jobs. Furthermore, BioVill raises public awareness on commercial opportunities of sustainable biomass among farmers, foresters and the bioenergy value chain as a whole.

FORBIO

Fostering Sustainable Feedstock Production for Advanced Biofuels on underutilised land in Europe
691846

Programme:

H2020 Energy

Topic:
LCE-14-2015

Call for proposals:
H2020-LCE-2015-3

Duration:
01/01/2016 to 31/12/2018

Funding scheme:
CSA

Total cost:
€1,941,581

EU contribution:
€1,941,581

Coordinator:
WIRTSCHAFT UND INFRASTRUKTUR GMBH & CO PLANUNGS KG

Project website:
http://www.forbio-project.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/200560_en.html

The FORBIO project demonstrates the viability of using land for sustainable bioenergy feedstock production that does not disturb the supply of food and feed, nor affect the land currently used for recreational and conservation purposes.

The project builds up and strengthens local bioenergy value chains that are competitive and that meet the highest sustainability standards, thus contributing to the market uptake of sustainable bioenergy in the EU.

Competition with other uses of land is only one component of the sustainability of bioenergy and a number of other environmental, social and economic aspects may present challenges to the sustainable deployment of modern bioenergy technologies.

In order to enable the establishment of competitive bioenergy value chains and ensure that bioenergy sustainability standards are met, the environmental, social and economic aspects need to be properly analysed and addressed.

The FORBIO project develops a methodology to assess the sustainable bioenergy production potential on available “underutilised lands” in Europe (contaminated, abandoned, marginal, fallow land etc.) at local, site-specific level. Based on this methodology, the project produces feasibility studies in case study locations in Italy, Germany and Ukraine.

The FORBIO applies a series of innovative approaches to develop roadmaps for the removal of economic and non-economic barriers to sustainable bioenergy deployment and to facilitate the formation of partnerships between farmers, bioenergy producers and local institutions. To give an example, project developers receive necessary information for ascertaining the feasibility of bioenergy supply chains, thus they lower their search and information costs by approx. 10%.

ISAAC

Increasing Social Awarness and ACceptance of biogas and biomethane

691875

Programme:

H2020 Energy

Topic:
LCE-14-2015

Call for proposals:
H2020-LCE-2015-3

Duration:
01/01/2016 to 30/06/2018

Funding scheme:
CSA

Total cost:
€1,480,535

EU contribution:
€1,480,535

Coordinator:
AZZERO CO2 SRL

Project website:
http://www.isaac-project.it/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199962_en.html

The project is addressing some important non-technical barriers, which prevent a full penetration of biogas in Italy.

The Italian legislative framework is still inadequate to favour a massive market uptake of Biogas. Likewise, public acceptance is still an issue for part of the Italian population, and the coordination between the different actors of the biogas value chain needs to be improved. All these factors limit a market uptake of the product, and they prevent biogas to be a true attractive option for investors.

The ISAAC project addresses these challenges with a series of activities. The project creates a communication model, to be used by the different actors of the value chain, which shows the social and economic benefits, and explains the environmental neutrality of the product. The project interacts with the civil society, and especially with schools, to increase the technical knowledge and public acceptance. It provides policy and legislative recommendations to the Italian government; and promote the use of tailored financing schemes (e.g. crowd funding) to fund the realisation of biomethane plants by public administrations. Finally the project organises activities to increase the knowledge sharing and participation between the stakeholders of the value chain.

The synergic implementation of the mentioned activities will increase the penetration of the biomethane in the market, as well as the public acceptance of the Italian population.

ISABEL

Triggering Sustainable Biogas Energy Communities through Social Innovation

691752

Programme:

H2020 Energy

Topic:
LCE-14-2015

Call for proposals:
H2020-LCE-2015-3

Duration:
01/01/2016 to 31/12/2018

Funding scheme:
CSA

Total cost:
€1,897,438

EU contribution:
€1,897,438

Coordinator:
Q-PLAN INTERNATIONAL ADVISORS EPE

Project website:
http://isabel-project.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199959_en.html

Community energy sits high in the energy policy agenda as an inseparable part of the strategy towards a low-carbon EU economy. Sustainable biogas technologies have been extremely slow in catching up with community energy developments, failing to benefit from their undeniable potential.

ISABEL aims to remove the obstacles and to promote community biogas in the EU by bringing out its societal relevance and by joining forces with a major revolutionary movement – Social Innovation.

To achieve and sustain this transition, ISABEL employs modern marketing research to understand the needs and cultural diversities of the communities, fuses social innovation to reposition biogas from an economic bio-fuel carrier to a social good, to come up with new community concepts and to build a stronger and wider community engagement in support of biogas.

ISABEL supports communities on the ground to realize community biogas plans in coordination with all the stakeholders, slashing transaction overheads. It brings communities together to exchange and inspire each other as the project's team carefully steers them towards quality sustainability and impact assessment principles. It zooms out to inform the policy world about what works and what does not, what should change and how we can scale-up, replicate and innovate in order to make investments more attractive.

ISABEL envisions a more innovative, better connected, less sensitive to policy and more transparent community biogas movement which will serve as a spring of ideas for other renewable energy technologies.

SEEMLA

Sustainable exploitation of biomass for bioenergy from marginal lands in Europe

691874

Programme:

H2020 Energy

Topic:
LCE-14-2015

Call for proposals:
H2020-LCE-2015-3

Duration:
01/01/2016 to 31/12/2018

Funding scheme:
CSA

Total cost:
€1,629,884

EU contribution:
€1,629,884

Coordinator:
Fachagentur Nachwachsende Rohstoffe e.V.

Project website:
http://seemla.eu/en/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199961_en.html

SEEMLA promotes the use of marginal lands (abandoned agricultural land, degraded land, reclaimed land and wasteland), to produce biomass for energy purposes. The fast growing competition between traditional food production and production of renewable bio-resources on arable land has been identified as one central problem of different bio-economy strategies. In contrast to agricultural food production on high-quality soils, marginal sites are best suited for bio-energy production, particularly when based on perennial plant species.

SEEMLA is establishing suitable innovative land-use strategies for a sustainable production of plant-based energy on marginal lands while improving general ecosystem services. The project consortium is looking into using the results of previous EU projects, which deal with sustainable exploitation of biomass from nature parks, and adapt these in order to build up small scale supply chains with biomass from marginal lands.

This project supports the economic development of rural areas where these lands are located, increases the use of indigenous renewable energy sources and leads to savings in greenhouse gas emissions. Pilots are implemented in Germany, Greece and Ukraine.

uP_running

Take-off for sustainable supply of woody biomass from agrarian pruning and plantation removal

691748

Programme:

H2020 Energy

Topic:
LCE-14-2015

Call for proposals:
H2020-LCE-2015-3

Duration:
01/04/2016 to 30/06/2019

Funding scheme:
CSA

Total cost:
€1,992,920

EU contribution:
€1,992,920

Coordinator:
FUNDACION CIRCE CENTRO DE INVESTIGACION DE RECURSOS Y CONSUMOS ENERGETICOS

Project website:
http://www.up-running.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199958_en.html

The uP_running project promotes the sustainable supply of woody biomass from agrarian pruning and plantation removal for energy production in Greece, Italy, Spain and Ukraine.

Approx. 6% of the cultivated area in Europe is covered by vineyards, olive and fruit plantations, providing each year 20 Mt of agrarian pruning and plantation removals. Currently, most of the pruning wood is not being utilised, except of thick branches for firewood in rural areas. The utilisation of the wood from pruning is constrained by several technical and non-technical barriers, such as a lack of awareness of agrarian and energy sectors that this biomass can be an alternative source for energy, and a general scepticism triggered by technical difficulties and unsuccessful experiences. Removing these barriers to bioenergy projects implementation and a self-expansion of agrarian pruning and plantation removals wood utilisation in Europe are the aims of the uP_running project.

To reach this objective, uP_running conducts, among other activities, 20 demonstrations in Greece, Italy, Spain and Ukraine to create a real evidence of feasibility of agrarian pruning and plantation removals and prepares a roadmap for Europe on this particular bioenergy sector. The project aims to create specific value chains in ten EU countries and mobilising the equivalent of the energy needs of ten million households.

BioMates

Reliable Bio-based Refinery Intermediates

727463

Programme:

H2020 Energy

Topic:
LCE-08-2016-2017

Call for proposals:
H2020-LCE-2016-RES-CCS-RIA

Duration:
01/10/2016 to 30/09/2020

Funding scheme:
RIA

Total cost:
€5,923,316

EU contribution:
€5,923,316

Coordinator:
FRAUNHOFER GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V.

Project website:
http://www.biomates.eu/en/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/205818_en.html

The concept is based on innovative technologies for biomass conversion, including ablative fast pyrolysis (i.e. convective melting) and mild catalytic hydrotreating, while incorporating state-of-the-art renewable H2-production technology as well as optimal energy integration.

Bio-oil produced by fast pyrolysis of non-food and non-feed biomass is a promising renewable feedstock for advanced biofuels. Its high production cost and unfavourable properties, particularly high water and oxygen content and low thermal and chemical stability, have however prevented its use so far for the production of liquid biofuels.

The objective of the project is to reduce the production and upgrading costs of such bio-oil and to improve its properties, rendering stable and reliable bio-based intermediates (BioMates) that can be co-processed in any conventional oil refinery.

The Bio-Mates concept will undergo technology validation, increasing the potential for exploitation of the proposed technology in industrial scale (technology readiness level 5). As a final result, the overall production cost of BioMates is expected to range between 0.5-0.7 € per liter, which is below the 2020 target set by the European Industrial Bioenergy Initiative (EIBI) for pyrolysis-based diesel (0.75 € per liter).

FLEDGED

FLExible Dimethyl ether production from biomass Gasification with sorption-enhancED processes

727600

Programme:

H2020 Energy

Topic:
LCE-08-2016-2017

Call for proposals:
H2020-LCE-2016-RES-CCS-RIA

Duration:
01/11/2016 to 31/10/2020

Funding scheme:
RIA

Total cost:
€5,555,830

EU contribution:
€5,306,455

Coordinator:
POLITECNICO DI MILANO

Project website:
http://www.fledged.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/205918_it.html

The FLEDGED project will deliver a process for bio-based dimethyl ether (DME - ethanol) production from biomass by combining the processes of flexible sorption enhanced gasification (SEG) and a novel sorption enhanced DME synthesis (SEDMES).

DME is recognised as one of the most promising future biofuels, as it is easily adaptable for car engines and has a reduced life-cycle environmental impact. The primary aim of FLEDGED is to develop a highly intensified and flexible process for DME production from biomass and validate it in the industrial environment (technology readiness level 5).

As a result, FLEDGED expects to obtain a highly competitive concept for both small-medium scale plants serving regional markets and for large scale plants. More specifically, the project has set a target of over 60% efficiency of biomass to DME. Moreover, the FLEDGED simplified and efficient synthesis route is expected to reduce the DME production cost to less than 15 €/GJLHV for a small scale plant in a regional market and less than 7 €/GJLHV on a larger scale.

MUSES

Multi-Use in European Seas

727451

Programme:

H2020 Energy

Topic:
BG-03-2016

Call for proposals:
H2020-BG-2016-1

Duration:
01/11/2016 to 31/10/2018

Funding scheme:
CSA

Total cost:
€1,987,604

EU contribution:
€1,982,104

Coordinator:
MARINE SCOTLAND

Project website:
https://muses-project.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/205970_en.html

The Multi-Use in European Seas (MUSES) project is reviewing existing planning and consenting processes used for marine and coastal development of European seas. The aim is to ensure that the processes are robust, efficient and that they accommodate and facilitate a multiple-use development of marine resources.

The project is based on three main pillars:
1. Regional overviews of EU sea basins (Baltic Sea, North Sea, Mediterranean Sea, Black Sea and Eastern Atlantic) to facilitate adoption of a common multi-use approach across the sea basins.
2. A comprehensive set of case studies within EU sea basins to provide a complete spectrum of advantages of accommodating a multi-use approach to developing the EU marine environment.
3. An action plan to address challenges and opportunities of this multi-use approach identified in the regional overviews and case studies.

The project will build on existing knowledge to identify appropriate techniques to minimise barriers, risks and impact related to the multi-use development of the EU marine area whilst maximising local benefits and reducing gaps in knowledge. To goal is to deliver efficiencies through integrated planning and consenting processes, as well as through other techniques. This will help gain better understanding of issues that need to be addressed to facilitate multi-use development of European seas. The project will also provide recommendations for future action, taking into account national and regional factors, and different sea basin characteristics.

CEMCAP

CO2 capture from cement production

641185

Programme:

H2020 Energy

Topic:
LCE-15-2014

Call for proposals:
H2020-LCE-2014-1

Duration:
01/05/2015 to 31/10/2018

Funding scheme:
RIA

Total cost:
€10,030,121

EU contribution:
€8,778,701

Coordinator:
SINTEF ENERGI AS

Project website:
http://www.sintef.no/projectweb/cemcap/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193788_en.html

The primary objective of CEMCAP is to prepare the ground for large-scale implementation of CO2 capture in the European cement industry and to develop the most promising technologies beyond the state-of-the-art.

To achieve this objective, CEMCAP will:
• leverage to technology rediness level (TRL) 6 for cement plants the oxyfuel capture technology and three fundamentally different post combustion capture technologies, all of them with a targeted capture rate of 90%;
• identify the CO2 capture technologies with the greatest potential to be retrofitted to existing cement plants in a cost- and resource-effective manner, maintaining product quality and environmental compatibility;
• formulate a techno-economic decision-basis for CO2 capture implementation in the cement industry, where the current uncertainty regarding CO2 capture cost is reduced by at least 50%.

The project focuses mostly on technologies suitable for CO2 capture retrofit, because cement plants typically have a lifetime of 30 to 50 years. However, the results from CEMCAP will enable looking beyond this horizon as the project will create pathways for the low- to near-zero CO2 emission cement production of the future.

CEMCAP's results will be disseminated across Europe and will help put this industrial sector at the forefront for the strategic decisions and technology development required to adapt to future emission regulations and therewith linked economic conditions.

ENOS

ENabling Onshore CO2 Storage in Europe

653718

Programme:

H2020 Energy

Topic:
LCE-15-2015

Call for proposals:
H2020-LCE-2015-1-two-stage

Duration:
01/09/2016 to 31/08/2020

Funding scheme:
RIA

Total cost:
€12,485,259

EU contribution:
€12,485,259

Coordinator:
BUREAU DE RECHERCHES GEOLOGIQUES ET MINIERES

Project website:
http://www.enos-project.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/205169_en.html

The main goal of the ENOS project is to develop and demonstrate, under real conditions, key technologies for underground CO2 storage at onshore sites. At the same time, ENOS aims to raise awareness of CO2 storage activities. It will provide an essential contribution to moving carbon capture and storage (CCS) technologies towards their full-scale implementation by creating a favourable environment in Europe for their deployment.

The project focuses on the demonstration of innovative injection strategies, the development of cost-effective characterisations of storage sites, and an improved monitoring of CO2 leakages from underground storage sites. Moreover, to facilitate investments, ENOS will develop potential business cases based on combining CO2 storage with other economic activities (e.g. enhanced hydrocarbon production, CO2 buffering for different uses, etc.).

ENOS will involve a range of stakeholders and the general public to develop best practices for CO2 storage activities, and to discuss and test them. The experience acquired within the project at various experimental sites will be compared with other experiences worldwide, and then integrated into protocols, proposed standards and best practices.

In this context, the project will support future onshore pilots and demonstration projects in various countries and geological settings in Europe, taking into account specific socio-economic contexts and benefits, such as creating new jobs, for local communities.

FReSMe

From residual steel gasses to methanol

727504

Programme:

H2020 Energy

Topic:
LCE-25-2016

Call for proposals:
H2020-LCE-2016-RES-CCS-RIA

Duration:
01/11/2016 to 31/10/2020

Funding scheme:
RIA

Total cost:
€11,406,725

EU contribution:
€11,406,725

Coordinator:
I-DEALS INNOVATION & TECHNOLOGY VENTURING SERVICES SL

Project website:
http://fresme.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/205958_en.html

FReSMe is a carbon capture and use (CCU) project that develops an integrated process which produces methanol from CO2 recovered from the blast furnace gas of an industrial steelmaking plant, and H2 recovered either from the blast furnace gas or produced by electrolysis.

To achieve this goal, the project combines three existing technologies:
• sorption-enhanced water–gas shift (SEWGS) technology for CO2 enrichment of the blast furnace gas and its subsequent decarbonisation;
• state-of-the-art and commercially available hydrolysers to produce hydrogen;
• methanol production from carbon dioxide and hydrogen.

Methanol is a high volume chemical of universal use in the chemical industry, and it can also be used as fuel for internal combustion engines. As such, it provides a promising pathway for the large-scale re-use of CO2 in transport and chemical sectors in Europe, helping decrease their dependence on imported fossil fuels.

The pilot plant built within the project will run for three months, treating up to 800 m3/h of blast furnace gas to produce up to 50 kg/h of methanol. While demonstrating all the essential process steps in an industry relevant environment, the project will advance the technology's technical readiness to level 6. Methanol produced in the project will be suitable for use as marine fuel for ship transportation.

FReSe will also perform life-cycle assessment (LCA) to confirm the benefits of the proposed process for a carbon emission reduction.

GRAMOFON

New process for efficient CO2 capture by innovative adsorbents based on modified graphene aerogels and MOF materials

727619

Programme:

H2020 Energy

Topic:
LCE-24-2016

Call for proposals:
H2020-LCE-2016-RES-CCS-RIA

Duration:
01/10/2016 to 31/03/2020

Funding scheme:
RIA

Total cost:
€4,273,289

EU contribution:
€4,188,254

Coordinator:
AIMPLAS - ASOCIACION DE INVESTIGACION DE MATERIALES PLASTICOS Y CONEXAS

Project website:
http://www.gramofonproject.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/205816_en.html

The GRAMOFON project is based on a very promising technology for CO2 capture, i.e. adsorption using solid sorbents. This technology has a significantly lower energy penalty for CO2 capture and regeneration of the sorbent in comparison to the liquid absorption. It contributes therefore to the world-wide challenge of a cost- and energy-efficient capture and storage of CO2.

The project aims to develop a new dry separation process for post-combustion CO2 capture based on three different sorbent systems: metal organic frameworks (MOFs), graphene oxide (GO) aerogel and MOF-GO composites. Currently, they are among the most promising materials for maximising CO2 capture effectiveness as well as for reducing cost, time and energy needed for desorption and regeneration processes.

Moreover, the project aims to optimise the CO2 recovery by means of the microwave swing desorption (MSD), which is a more efficient and a less demanding technology for flue gas composition than currently used processes. The combination of the novel materials developed within the framework of MSD promises substantial reductions in terms of energy and capital requirements, leading to a decrease of operational costs by at least 25%.

One Korean partner is part of the project's consortium, and twinning activities are planned with three other Korean research centres. This will allow to build a strong international network of Korean and European research groups bringing together important players in MOFs for CO2 capture application.

LEILAC

Low Emissions Intensity Lime and Cement

654465

Programme:

H2020 Energy

Topic:
LCE-15-2015

Call for proposals:
H2020-LCE-2015-1-two-stage

Duration:
01/01/2016 to 31/12/2020

Funding scheme:
RIA

Total cost:
€20,770,635

EU contribution:
€11,932,231

Coordinator:
CALIX (EUROPE) LIMITED

Project website:
http://www.leilac.org.uk/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199288_en.html

The project LEILAC aims to drastically cut CO2 emission from the cement and lime industry by applying the direct separation calcining (DSC) technology, which will capture over 95% of the calcination process CO2 emissions (which is 60% of total CO2 emissions) from both industries without significant energy or capital penalty.

The Direct Separation technology uses indirect heating in which the process CO2 and furnace combustion gases do not mix, resulting in the simple capture of high quality CO2. This innovation requires minimal changes to the conventional processes for cement, replacing the calciner in the Preheater-Calciner Tower. The technology can be used with alternative fuels and other capture technologies to even achieve negative CO2 emissions.

To demonstrate the DSC technology in a real industrial environment, the project is building a 240 tonne per day pilot plant at a real cement production site near Brussels.

To accelerate further development, LEILAC will also deliver a techno-economic roadmap, and comprehensive knowledge sharing activities including a visitor centre at the pilot site.

The proposed breakthrough technology will enable both Europe's cement and lime industries to reduce significantly their carbon emissions while retaining, or even increasing, international competitiveness.

The project will also enable research into novel building materials with a reduced CO2 footprint, as well the upgrade of low value limestone fines and dust to high value lime applications.

NanoMEMC2

NanoMaterials Enhanced Membranes for Carbon Capture

727734

Programme:

H2020 Energy

Topic:
LCE-24-2016

Call for proposals:
H2020-LCE-2016-RES-CCS-RIA

Duration:
01/10/2016 to 30/09/2019

Funding scheme:
RIA

Total cost:
€4,990,816

EU contribution:
€4,990,815

Coordinator:
ALMA MATER STUDIORUM - UNIVERSITA DI BOLOGNA

Project website:
http://www.nanomemc2.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/205824_en.html

Membrane separation for CO2 capture can be applied to both pre-combustion and post-combustion processes. Its main advantages are a high flexibility and potentially lower operation costs in comparison to other capture methods. The separation performance and the durability of materials currently used in this technology are however not suitable for an efficient and economically advantageous exploitation of the technology.

The NANOMEMC2 project aims to overcome these limitations by focusing on the development of innovative CO2 selective membranes with high flux and selectivity, suitable for both pre- and post-combustion capture processes. In particular, the project investigates nanocomposite or mixed matrix membranes with transport facilitating carrier and high CO2 affinity.

NANOMEMC2 develops a new generation of facilitated transport mixed matrix (FTMM) membranes for carbon capture and storage (CCS) applications. These membranes will be characterised by increased CO2 flux and selectivity going beyond the current target for industrial deployment of carbon capture membrane technologies.

The project aims to demonstrate and pre-validate the above innovations for two crucial EU industrial sectors: oil refineries and cement production. As a result, the project will contribute to a sustainable and competitive EU industry by building a strong case for a rapid industrial application of the membrane separation technology.

ROLINCAP

Systematic Design and Testing of Advanced Rotating Packed Bed Processes and Phase-Change Solvents for Intensified Post-Combustion CO2 Capture

727503

Programme:

H2020 Energy

Topic:
LCE-24-2016

Call for proposals:
H2020-LCE-2016-RES-CCS-RIA

Duration:
01/10/2016 to 30/09/2019

Funding scheme:
RIA

Total cost:
€3,212,588

EU contribution:
€3,089,845

Coordinator:
ETHNIKO KENTRO EREVNAS KAI TECHNOLOGIKIS ANAPTYXIS

Project website:
http://www.rolincap-project.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/205819_en.html

ROLINCAP will identify and test novel phase-change solvent and separation processes for post-combustion CO2 capture. These are high-potential technologies, still in their infancy, but that could lead to a significantly lower energy requirement and a considerable reduction of the size of the equipment compared to conventional processes.

The project takes a holistic approach based on methods for process modelling and design that have the potential for a real breakthrough in CO2 capture research.

The tools proposed in ROLINCAP will cover a vast range of solvent and separation processes, going far beyond the state-of-the-art. The project follows a novel path by proposing one modelling framework to predict both a physical and chemical equilibrium as well as a wide range of phase and molecular structures behaviours. This thermodynamic model will be used for optimisation-based molecular design of phase-change solvents in order to identify the most promising solutions. In addition, advanced process design approaches will be used to develop highly efficient rotating packed bed (RPB) processes.

Overall, ROLINCAP aims to significantly reduce the energy penalty of the capture process as well as the capital, operational and maintenance costs compared to existing capture technologies. The sustainability of the new solvents and the RPB processes will be investigate by applying a life cycle assessment analysis and a safety health and environmental hazard assessment.

The cooperation of the project partners with South Korean research centres with extensive expertise in the relevant field will strengthen the scientific basis of the project and contribute to reaching high quality results.

STEMM-CCS

Strategies for Environmental Monitoring of Marine Carbon Capture and Storage

654462

Programme:

H2020 Energy

Topic:
LCE-15-2015

Call for proposals:
H2020-LCE-2015-1-two-stage

Duration:
01/03/2016 to 29/02/2020

Funding scheme:
RIA

Total cost:
€15,968,369

EU contribution:
€15,918,369

Coordinator:
NATURAL ENVIRONMENT RESEARCH COUNCIL

Project website:
http://www.stemm-ccs.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/200472_en.html

STEMM-CCS is an ambitious research and innovation project on geological carbon dioxide (CO2) storage that will deliver new insights, guidelines for best practice, and tools for all phases of the CO2 storage cycle at ocean carbon capture and storage (CCS) sites.

In detail, the STEMM-CCS project aims to perform a simulated CO2 leak beneath the surface sediments corresponding to an off-shore depleted gas field in the North Sea. This experiment will be used to test CO2 leak detection, leak quantification, impact assessment, and mitigation/remediation decision support techniques to support the development of such technologies at higher readiness level.

In addition, using new geophysical approaches, STEMM-CCS will develop tools to assess leakage from natural geological features (e.g. chimneys) and engineered structures such as abandoned wells.

The work performed in STEMM-CCS will fill gaps in the existing knowledge about ocean CCS options, by providing generically applicable definitive guides, technologies and techniques informing how to select a site for CCS operations, how to undertake a risk assessment, how best to monitor the operations, how to provide information on fluxes and quantification of any leakage. These outcomes will be useful also for the further development of the EU Emissions Trading Scheme (ETS) and to guide mitigation/remediation actions.

Particular attention is devoted to public perception of off-shore CCS activities, as the acquired information will be used to better communicate the case for offshore CCS, with a particular focus on communities directly and indirectly impacted.

STEPWISE

SEWGS Technology Platform for cost effective CO2 reduction the in the Iron and Steel Industry

640769

Programme:

H2020 Energy

Topic:
LCE-15-2014

Call for proposals:
H2020-LCE-2014-1

Duration:
01/05/2015 to 30/04/2019

Funding scheme:
RIA

Total cost:
€12,988,996

EU contribution:
€12,968,371

Coordinator:
STICHTING ENERGIEONDERZOEK CENTRUM NEDERLAND

Project website:
http://www.stepwise.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193748_en.html

STEPWISE proposes a novel technology for capturing CO2 from Blast Furnace Gas (BFG) emitted by the iron and steel industry, based on the so-called SEWGS process (Sorption Enhanced Water Gas Shift).

The SEWEGS technology combines three processes in one reactor system: CO2 adsorption, simultaneous acid gas removal (H2S, COS) and the water-gas-shift (WGS) reaction. The SEWGS process is particularly attractive for the decarbonisation of BFG, because – in addition to capturing carbon, it also enhances the conversion of CO, typically present in BFG, to hydrogen which can be then fed either to a combined cycle to generate power or used elsewhere in iron and steel plants.

Compared to conventional CO2 capture technologies, the SEWGS technology has important advantages: a higher carbon capture rate, reduction in energy consumption for capture and lower cost of CO2.

In order to achieve these goals, the project is building a dedicated pilot test installation next to a real blast furnace to process the BFG produced therein. Hence, the applicability of the concept will be demonstrated in a real industrial environment.

The STEPWISE project has the potential to reduce CO2 emissions worldwide by 2.1 Gt/yr and to cut the associated costs compared to conventional CO2 capture technologies.

Bio-HyPP

Biogas-fired Combined Hybrid Heat and Power Plant

641073

Programme:

H2020 Energy

Topic:
LCE-02-2014

Call for proposals:
H2020-LCE-2014-1

Duration:
01/06/2015 to 31/05/2019

Funding scheme:
RIA

Total cost:
€5,775,869

EU contribution:
€5,775,869

Coordinator:
DEUTSCHES ZENTRUM FUER LUFT - UND RAUMFAHRT EV

Project website:
http://www.bio-hypp.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/196804_en.html

Bio-HyPP is developing in the lab environment a full-scale technology demonstrator of a hybrid power plant composed of a micro gas turbine (MGT) and a solid oxide fuel cell (SOFC), and using biogas as main fuel. The project is then improving the efficiency of combined heat and power (CHP) systems and simultaneously widening the biomass feedstock base. Because of the scale and modularity of the technology, it would be suitable for common residential buildings.

The focus of the technology demonstration plant is to prove the functional capability of the plant concept, followed by detailed characterization and optimization of the integration of both subsystems, moving the technology beyond the state of the art. In addition an integrated control system is being developed and implemented to achieve a reliable operation of the coupled subsystems.

The project targets an electrical efficiency of >60% at base load conditions, which is similar to that obtained in industrial combined power plants, and total thermal efficiency of >90%. An operational flexibility ranging from 25% to 100% of electric power is being pursued as well as emission levels lower than 10 ppm of mono-nitrogen oxides (NOx) and 20 ppm of carbon monoxide (CO).

The large-scale deployment of this type of technology will entail a significant reduction of greenhouse gases emissions and a reduction of electricity transmission losses.

Biofficiency

Highly-efficient biomass CHP plants by handling ash-related problems

727616

Programme:

H2020 Energy

Topic:
LCE-07-2016-2017

Call for proposals:
H2020-LCE-2016-RES-CCS-RIA

Duration:
01/11/2016 to 31/10/2019

Funding scheme:
RIA

Total cost:
€4,603,760

EU contribution:
€4,603,760

Coordinator:
TECHNISCHE UNIVERSITAET MUENCHEN

Project website:
http://www.biofficiency.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/206499_en.html

Producing combined heat and power (CHP) from bioenergy on a large and medium scale calls for finding new ways to use feedstock more efficiently and cheaply. The Bioefficiency project will investigate ash-related problems in biomass-based CHP plants in order to increase steam temperature up to 600°C, including pulverised fuel and fluidised bed systems. The major aspects of the project include fly ash formation, the use of additives and pre-treatment technologies for difficult fuels. The project aims to substantially reduce emissions, in particular of CO2 and of fine particulates, and to help make energy production more sustainable and secure.

The project's consortium consists of excellent academic facilities and industrial partners around Europe, and provides a platform for developing novel, highly-efficient CHP plants with a potential to contribute to the renewable energies market. It will strengthen European bio-energy technologies and help solve global climate and energy challenges.

The Bioefficiency project addresses the bottleneck issues in solid biomass combustion, namely enhanced deposit formation, corrosion and ash utilisation. It will develop a variety of new, promising technologies with the main goals to:
- better understand fly ash formation,
- improve current biomass pre-treatment technologies,
- increase utilisation of biomass ashes.

Through strong collaboration with industry and academic partners, the project will pave the way for highly efficient, low-emitting biomass CHP plants, capable of firing low-grade fuels. This will bring benefits to industry, communal partners and public authorities by providing sustainable heat and electricity, at the same time significantly decreasing CO2 and particulates emissions.

FlexiFuel-SOFC

Development of a new and highly efficient micro-scale CHP system based on fuel-flexible gasification and a SOFC

641229

Programme:

H2020 Energy

Topic:
LCE-02-2014

Call for proposals:
H2020-LCE-2014-1

Duration:
01/05/2015 to 30/04/2019

Funding scheme:
RIA

Total cost:
€5,988,164

EU contribution:
€5,982,101

Coordinator:
WINDHAGER ZENTRALHEIZUNG TECHNIK GMBH

Project website:
http://flexifuelsofc.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193794_en.html

The project will develop a new way to turn different types of solid biomass (e.g. wood pellets, wood chips) into gas that can be used to produce heat and electricity. This technology aims to be very flexible in terms of type of fuel. While low temperature heat is produced by a burner, electricity is produced through a solid oxide fuel cell (SOFC). This setup is expected to reach very high performance which will mean cleaner energy without cost increase.

As the technology will be developed for small scale applications (25 to 150 kW) and will be highly-efficient it could be used for residential buildings.

The massive deployment of this technology would significantly reduce emissions as the project intends to be carbon neutral in terms of CO2 and achieve the nearly objective for the rest of gases.

Moreover, as energy production is local, electricity transmission losses are significantly reduced with the accompanying environmental and economic benefits.

HiEff-BioPower

Development of a new highly efficient and fuel flexible CHP technology based on fixed-bed updraft biomass gasification and a SOFC

727330

Programme:

H2020 Energy

Topic:
LCE-07-2016-2017

Call for proposals:
H2020-LCE-2016-RES-CCS-RIA

Duration:
01/10/2016 to 30/09/2020

Funding scheme:
RIA

Total cost:
€4,997,371

EU contribution:
€4,997,371

Coordinator:
BIOS BIOENERGIESYSTEME GMBH

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/205806_en.html

The HiEff-BioPower project aims to develop a highly efficient biomass combined heat and power (CHP) technology with a minimal emission output. It will consist of a fuel-flexible fixed-bed updraft gasifier, a novel compact gas cleaning system and a solid oxide fuel cell (SOFC) for a capacity range of one to ten MW (total energy output).

In the gasifier, the concentrations of particulate matter and alkali metals will be close to zero, therefore the gas produced in the process will require less cleansing. The new compact gas cleansing system will help remove dust, hydrochloric acid (HCl) and sulphur in high temperature, while cracking tar. The proposed SOFC system will use part of the tar as a fuel.

The technology's main advantage is that it will be applicable to a wide spectrum of fuels, such as wood pellets, wood chips, short rotation coppice (SRC) or selected agricultural fuels like agro-pellets, fruit stones/shells. It will be also more efficient than current technologies, with 40% high gross electric and 90% overall efficiencies. Most importantly, it will produce close to zero gaseous and particulate emissions.

HiEff-BioPower will also carry out techno-economic, environmental and overall impact assessments of the technology and conduct market studies to establish its applications.

When the project is completed, the HiEff-BioPower technology is expected to reach five points on the nine-point scale of the technology readiness level (TRL).

The HiEff-BioPower technology will contribute to developing a stronger and future-oriented EU energy supply based on renewables. Its fuel flexibility will ensure high market potential and thus strengthen the EU industry, helping the EU achieve technological leadership in the field of renewables.

CAPTure

Competitive SolAr Power Towers – CAPTure

640905

Programme:

H2020 Energy

Topic:
LCE-02-2014

Call for proposals:
H2020-LCE-2014-1

Duration:
01/05/2015 to 30/04/2019

Funding scheme:
RIA

Total cost:
€6,461,970

EU contribution:
€6,104,033

Coordinator:
FUNDACION CENER-CIEMAT

Project website:
http://capture-solar-energy.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193759_en.html

The concentrating solar power (CSP) system produces heat by concentrating solar radiation. This heat can be used immediately to generate electricity using a steam turbine or stored using molten salts to generate electricity even after sunset. One type of CSP plant is the solar power tower, it consists of an array of flat mirrors (heliostats) that concentrate sunlight onto a central receiver at the top of a tower.

The CAPTure project will demonstrate a new type of power plant that combines several towers and heliostat fields instead of having just a single one.

The solar-to-electric conversion efficiency of the plant will be improved by increasing operating temperatures as well as through an innovative power cycle configuration which also provides advantages regarding plant operation. This will be combined with receivers that reach these higher temperatures, thus enabling higher efficiencies and with the use of cheaper mass-produced heliostats, this should lead to lower electricity costs.

The main objective of the CAPTure project is to significantly reduce costs of concentrated solar power, in order to increase its competitiveness on the power market. The innovative plant configuration that is pursued will reduce levelized cost of electricity (LCOE) for CSP.

MinWaterCSP

MinWaterCSP - Minimized water consumption in CSP plants

654443

Programme:

H2020 Energy

Topic:
LCE-02-2015

Call for proposals:
H2020-LCE-2015-1-two-stage

Duration:
01/01/2016 to 31/12/2018

Funding scheme:
RIA

Total cost:
€5,861,372

EU contribution:
€5,861,372

Coordinator:
KELVION HOLDING GMBH

Project website:
http://www.minwatercsp.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/200380_en.html

Water is used in mirror cleaning and cooling of concentrating solar power (CSP) plants and is a serious environmental barrier in sunny arid regions (like North Africa, Middle-East, South-West USA, Chile) where the plants are deployed. The MinWaterCSP project will develop solutions to reduce water use in the operation of CSP plants.

MinWaterCSP addresses the challenge of significantly reducing the water consumption of CSP plants while maintaining their overall efficiency. Its objective is to reduce evaporation losses and mirror cleaning water usage for small- and large-scale CSP plants through a holistic combination of next generation technologies in the fields of:

- hybrid dry/wet cooling systems;
- wire structure heat transfer surfaces;
- axial flow fans;
- mirror cleaning techniques;
- optimized water management.

MinWaterCSP will reduce water evaporation losses by 75% to 95% compared to wet cooling systems. It aims to increase the net efficiency of the steam Rankine cycle by 2%, or alternatively reduce the capital cost of a dry-cooling system by 25%, while maintaining cycle efficiency.

To complement this, mirror cleaning water consumption will be reduced by 25% through an improved mirror cleaning process for parabolic trough collectors, through developing a cleaning robot for linear Fresnel collectors and through a reduced number of cleaning cycles. Also, comprehensive water management plans for CSP plants in various locations (South-Africa, Morocco) will be developed and combined with plant performance simulations to maximise the impact of the achieved design.

MinWaterCSP will improve the cost-competitiveness of CSP. This will make CSP more attractive for investment purposes and it will drive growth in the CSP plant business. It will also contribute to job creation in European companies which provide technologically advanced CSP plant components.

In addition, by making CSP technology more attractive, MinWaterCSP will contribute to solving the global climate challenge by reducing carbon-dioxide emissions and increasing energy generation from renewable resources.

MOSAIC

MOdular high concentration SolAr Configuration

727402

Programme:

H2020 Energy

Topic:
LCE-07-2016-2017

Call for proposals:
H2020-LCE-2016-RES-CCS-RIA

Duration:
01/12/2016 to 30/11/2020

Funding scheme:
RIA

Total cost:
€5,077,734

EU contribution:
€5,077,734

Coordinator:
FUNDACION TEKNIKER

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/205864_en.html

The MOSAIC project will develop a new type of concentrated solar power (CSP) plant based on a modular design using a novel high concentration mirror concept.

This modular configuration guarantees high reliability and allows responding flexibly to the needs of the electrical grid while reducing significantly the cost of construction (24%) and operation (15 – 25%) of the power plant when compared to current options.

The mirror concentrator for each module is a special type of spherical mirror that is an arrangement of concentric rings some 20 to 30 meters in diameter, in what is called a semi-Fresnel configuration. This combines the advantages of the high sunlight concentration rates of achieved by the mirror fields of tower CSP plants with the low cost of parabolic or Linear Fresnel mirrors. The receiver, where the concentrated sunlight is captured, will be suspended above the mirror and it will follow the movement of the sun with a low cost cable tracking system, using a similar concept as the Arecibo radio telescope.

Due to the modular concept, distances from the solar mirror to the receiver are short, which reduces the accuracy requirements for tracking the sun. This configuration also reduces the moving parts of the whole system, decreasing solar field cost while keeping high concentration ratios. The high concentration ratios will allow high working temperatures and thus high electricity generation efficiencies and cost effective use of thermal storage systems.

All these technical benefits contribute to a lower cost of the whole system and a strong impact in the final cost of electricity production. The demonstrator to be built will seek to achieve a cost of electricity lower than 0.11€/ kWh (20% reduction).

NEXT-CSP

High Temparature concentrated solar thermal power plan with particle receiver and direct thermal storage

727762

Programme:

H2020 Energy

Topic:
LCE-07-2016-2017

Call for proposals:
H2020-LCE-2016-RES-CCS-RIA

Duration:
01/10/2016 to 30/09/2020

Funding scheme:
RIA

Total cost:
€4,947,420

EU contribution:
€4,947,420

Coordinator:
CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE CNRS

Project website:
http://next-csp.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/205807_en.html

To accelerate the fight against global climate change , and to reach the new EU target of 27% of renewable energies by 2030, Europe needs to rapidly expand the use of all renewable energy sources. This requires developing further new solutions that are emerging today, particularly, technologies that solve the key issue of energy storage.

The Next-CSP project is a response to this need and addresses significant improvements related to concentrated solar power (CSP): heat transfer fluids, which can be used for direct thermal energy storage; the solar field; and high temperature receivers allowing for new cycles. The project proposes a fluidised particle-in-tube concept, which is a breakthrough innovation that opens the route to the development of a new generation of CSP plants allowing high efficiency new cycles (50% and more) and 20% improvement of CSP plant efficiency.

Next-CSP is based on the know-how acquired during the lifetime of CSP2, another EU-funded project that focused on the particle-in-tube technology. It aims to further develop the technology to make it rapidly cost-efficient and ready to be introduced in the market. A cost reduction by 38% is expected with respect to current CSP electricity cost.

The project will demonstrate at industrial pilot scale (TRL5) the validity of the particle-in-tube concept atop the THEMIS solar power tower in France. A 4-MWth tubular solar receiver able to heat particles up to 800°C will be constructed and tested. The rest of the loop, a two-tank particle heat storage and a particle-to-pressurized air heat exchanger coupled to a 1.2 MWel gas turbine, will also undergo testing.

On the basis of experimental and simulation, a commercial scale power plant (150 MWel) will be designed, and associated costs will be thoroughly analysed.

The consortium consists of six companies that will lead the development of the first worldwide demonstration of this innovative technology and pave the way for future commercial exploitation.

ORC-PLUS

Organic Rankine Cycle - Prototype Link to Unit Storage

657690

Programme:

H2020 Energy

Topic:
LCE-03-2014

Call for proposals:
H2020-LCE-2014-2

Duration:
01/05/2015 to 30/04/2019

Funding scheme:
IA

Total cost:
€7,297,149

EU contribution:
€6,249,316

Coordinator:
AGENZIA NAZIONALE PER LE NUOVE TECNOLOGIE, L'ENERGIA E LO SVILUPPO ECONOMICO SOSTENIBILE

Project website:
http://www.orc-plus.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/195491_en.html

The ORC-PLUS project focuses on boosting the technological performance of renewable energy systems, reducing costs and improving dispatchability. The project is developing an optimised combination of innovative thermal energy storage (TES) specialised for concentrated solar power (CSP) scale 1-5 MWe and engineering solutions to improve the number of production hours of an existing small CSP plant, located in a desert area and coupled with an Organic Rankine Cycle (ORC) system.

The technology is based on a solar field, using thermal oil as heat transfer fluid and an ORC power unit coupled with an innovative TES.

The experimental demonstration of two different industrial prototypes of TES systems is being performed in a relevant environment. For each prototype, a simulation model of the pilot processes is being developed, with prototypes of TES systems. With an optimised TES solution, it is possible to extend periods of energy production of a CSP plant (also during non-solar radiation), eliminating or minimising the need to burn fossil or renewable fuels in hybrid or back-up systems. The final result is an industrial pilot plant used to validate the technology and to demonstrate its feasibility in a real operational environment.

As an outcome of the ORC-PLUS project, the levelised cost of electricity will decrease by 30% to 40%, and the life-cycle environmental impact will be reduced using mineral oils (almost no relevant polluting effect on the soil) and dry cooled ORC system (no water consumption for cooling).

PEGASUS

Renewable Power Generation by Solar Particle Receiver Driven Sulphur Storage Cycle

727540

Programme:

H2020 Energy

Topic:
LCE-07-2016-2017

Call for proposals:
H2020-LCE-2016-RES-CCS-RIA

Duration:
01/11/2016 to 31/10/2020

Funding scheme:
RIA

Total cost:
€4,695,365

EU contribution:
€4,695,365

Coordinator:
DEUTSCHES ZENTRUM FUER LUFT - UND RAUMFAHRT EV

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/205804_en.html

PEGASUS (Renewable Power Generation by Solar Particle Receiver Driven Sulphur Storage Cycle) will investigate a novel power cycle for renewable electricity production applying a solar particle receiver with a sulphur storage system for base load operation.

The proposed process combines solid particles as heat transfer fluid (which can also be used for direct thermal energy storage) with indirect thermochemical storage of solar energy in solid sulphur, rendering thus a solar power plant capable of round-the-clock renewable electricity production.

In the framework of the project, concepts of solar sulphur power plants will be developed and a flowsheet analysis in conjunction with a techno-economic study will be carried out to simulate the performance of the process.

Prototypes of the key components (i.e. solar centrifugal particle receiver, sulphuric acid evaporator, sulphur trioxide decomposer and sulphur combustor) will be developed, constructed and operated at relevant scale.

On-sun testing of the particle receiver will be carried out in the newly constructed high-flux solar simulator of the German Aerospace Center (DLR) in Juelich.

Furthermore, an integrated operation of the receiver together with the evaporator and the decomposer will be realised in this facility to demonstrate the suitability of the concept.

In addition, materials to be used simultaneously as solar heat capture, transfer and storage media as well as catalytic particles in the solar receiver, evaporator and decomposer will be developed, tested and analysed with respect to reaction kinetics and long-term stability.

Moreover, system models of the key components will be implemented, validated with experimental data and applied to simulate the performance of the process components. These models will be integrated into the developed flowsheets for the above mentioned process simulations and techno-economics to predict the prospects of the technology.

PreFlexMS

Predictable Flexible Molten Salts Solar Power Plant

654984

Programme:

H2020 Energy

Topic:
LCE-03-2014

Call for proposals:
H2020-LCE-2014-2

Duration:
01/06/2015 to 31/05/2018

Funding scheme:
IA

Total cost:
€17,688,613

EU contribution:
€14,362,194

Coordinator:
ALSTOM POWER SYSTEMS

Project website:
http://preflexms.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/195027_en.html

Concentrating solar power (CSP) is a technology that produces heat by concentrating solar irradiation. This heat can be either used immediately to generate electricity using a steam turbine or stored using molten salts to generate electricity even after sunset.

Current CSP plants with molten salt storage still need to be developed to react better to the demands of the electricity grid. The PreFlexMS project is responding to this challenge by enhancing the predictability and flexibility of CSP generation in order to address the evolving needs of regulators, grid operators and plant operators.

The project demonstrates two technologies that can significantly improve the flexibility of when and how much electricity CSP plants can output into the grid (dispatchability):
• molten salt steam generator based on once-through technology which allows a fully flexible plant operation
• integrated weather forecast and dispatch optimisation which allows a fully predictable energy dispatch

In the current CSP market, the pressure on cost reduction and the type of financing structures are resulting in greater risk avoidance by equipment providers, investors and operators. While this ensures that only sound projects are undertaken, it also results in an increased resistance to introducing any novel elements in the plant design.
By achieving its measurable objectives, and by implementing a proper dissemination plan, this project will create the confidence among investors and operators that molten salt once-through steam generators and integrated weather forecast and dispatch optimisation are mature technologies that can be used in commercial CSP projects.

WASCOP

Water Saving for Solar Concentrated Power

654479

Programme:

H2020 Energy

Topic:
LCE-02-2015

Call for proposals:
H2020-LCE-2015-1-two-stage

Duration:
01/01/2016 to 31/12/2019

Funding scheme:
RIA

Total cost:
€5,941,608

EU contribution:
€5,941,608

Coordinator:
COMMISSARIAT A L ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES

Project website:
http://wascop.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199297_en.html

Water saving is one of the major issues to ensure a financially competitive position of CSP plants and their sustainability. To overcome such challenges, WASCOP develops a revolutionary innovation in water management of CSP plants: a flexible integrated solution comprising different innovative technologies and optimized strategies for the cooling of the power-block and the cleaning of the solar field optical surfaces.

The main advantage of the proposed solution is the ability to reflect and adapt to the specific conditions of individual CSP plants, unlike other competitive approaches proposing a single generic solution applicable only to some referenced cases. The WASCOP holistic solution provides an effective combination of technologies allowing to significantly reduce water consumption (up to 50% to 70%) and to significantly improve the water management of CSP plants.

To prove its benefits (whether economic or environmental), the developed system will be tested and validated in real conditions in four testing sites in France, Spain and Morocco after a preliminary demonstration in the laboratory environment.

Cheap-GSHPs

CHEAP AND EFFICIENT APPLICATION OF RELIABLE GROUND SOURCE HEAT EXCHANGERS AND PUMPS

657982

Programme:

H2020 Energy

Topic:
LCE-03-2014

Call for proposals:
H2020-LCE-2014-2

Duration:
01/06/2015 to 31/05/2019

Funding scheme:
IA

Total cost:
€5,804,848

EU contribution:
€4,844,652

Coordinator:
CONSIGLIO NAZIONALE DELLE RICERCHE

Project website:
http://cheap-gshp.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/195533_en.html

The Cheap-GSHPs project aims to reduce capital and operating costs of shallow geothermal installation for heating and cooling, as well as improve their safety during installation and operation.

To achieve these goals Cheap-GSHPs is improving drilling and installation machines and is developing new designs of ground source heat exchangers (GSHEs), in combination with a holistic approach for optimum selection, design and implementation of complete systems across different underground and climate conditions.

This is being accomplished by drastically improving the existing, innovative vertical borehole installation technologies and methodology. Additionally, Cheap-GSHPs is also developing a decision support system covering the geological aspects, feasibility and economic evaluations based on different plant set-up options, selection, design, installation, commissioning and operation of low enthalpy geothermal systems. These tools are publicly available to users. Finally, a novel heat pump for high temperatures is being developed within the project.

Cheap-GSHPs will reduce the total cost of low enthalpy geothermal systems by 20% to 30%, which will favour wider application of shallow geothermal systems for heating and cooling.

CHPM2030

Combined Heat, Power and Metal extraction from ultra-deep ore bodies

654100

Programme:

H2020 Energy

Topic:
LCE-02-2015

Call for proposals:
H2020-LCE-2015-1-two-stage

Duration:
01/01/2016 to 30/06/2019

Funding scheme:
RIA

Total cost:
€4,235,568

EU contribution:
€4,235,568

Coordinator:
MISKOLCI EGYETEM

Project website:
http://chpm2030.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199012_en.html

CHPM2030 is developing a novel technology which combines geothermal resource development, minerals extraction and electro-metallurgy in a single process. The project investigates technologies for manipulating metal-bearing formations with high geothermal potential at a depth of 3-4 km in order to co-produce energy and metals. This could be optimised according to the market demands in the future and should improve the economics of geothermal energy production.

The project results deliver blueprints and detailed specifications of a new type of future facility for combined heat, power and metal extraction (CHPM), complemented by a roadmap in support of the pilot implementation of such system before 2025, and full-scale commercial implementation before 2030.

CHPM2030 not only serves as background for a new generation geothermal development in Europe, but it will also have a substantial contribution in satisfying Europe's needs for critical minerals.

DEEPEGS

DEPLOYMENT OF DEEP ENHANCED GEOTHERMAL SYSTEMS FOR SUSTAINABLE ENERGY BUSINESS

690771

Programme:

H2020 Energy

Topic:
LCE-03-2015

Call for proposals:
H2020-LCE-2015-2

Duration:
01/12/2015 to 30/11/2019

Funding scheme:
IA

Total cost:
€44,057,259

EU contribution:
€19,999,741

Coordinator:
HS ORKA HF

Project website:
http://deepegs.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199917_en.html

The DEEPEGS project demonstrates the feasibility of enhanced geothermal systems (EGS) for delivering renewable energy from geothermal resources in Europe. The project aims to demonstrate feasibility of such systems to deliver renewable electricity from unconventional but highly promising geothermal resources such as superhot (up to 550°C) and very deep (>3km depth) conditions. While improving the technology and methodology to harness these untapped resources, DEEPEGS is minimising the environmental risk of deployment.

Demonstration of stimulating technologies for EGS in deep and superhot wells in different geologies will deliver new innovative solutions and models for wider deployments and is a base for a significant increase of geothermal energy utilisation across Europe.

The project focuses on business cases, which will demonstrate significant advances in bringing EGS derived energy routinely to market exploitation (technology readiness level 6-7), and has potential to mobilise project outcomes to full market scales following the end of DEEPEGS project.

The project's team seeks to understand social concerns about EGS deployments, and addresses those concerns in a proactive manner, where the environment, health and safety issues are prioritised and awareness raised for social acceptance. Through risk analysis and hazard mitigation plans are ensured.

This should increase significantly the efficiency of the power generation and potentially increase the acceptance of geothermal technology in Europe and beyond.

DESCRAMBLE

Drilling in supercritical geothermal condition

640573

Programme:

H2020 Energy

Topic:
LCE-02-2014

Call for proposals:
H2020-LCE-2014-1

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
RIA

Total cost:
€15,615,955

EU contribution:
€6,753,635

Coordinator:
ENEL GREEN POWER

Project website:
http://www.descramble-h2020.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193730_en.html

DESCRAMBLE focuses on the development of novel drilling technologies for a proof-of-concept test of reaching deep geothermal resources with high temperature and pressure. To achieve this target, the project develops drilling components and well materials, design and control systems for drilling in super-critical conditions (temperature >374 °C and pressure >22 MPa).

The project also increases knowledge for predicting the conditions, controlling and operation of geothermal wells under supercritical conditions, and considers petrological, physical and chemical characterisation, simulation and monitoring, including high temperature and pressure tools. The project performs deep test drilling (up to 3.5 km) into the Earth crust at test site in Larderello, Italy to reach supercritical conditions.

Project's main expected outcomes are:
• improved drilling concepts in deep crustal (super-hot) conditions;
• new drilling materials, equipment and tools;
• a methodology for physical and chemical characterisation of deep crustal fluids and rocks.

In essence, DESCRAMBLE explores the possibility of reaching extremely high productivity of a geothermal well (up to ten times the standard productivity) with a closed loop of the used fluids, zero emission, and reduced land occupation. This will decrease significantly the operational costs and environmental impact of the geothermal power stations.

DESTRESS

Demonstration of soft stimulation treatments of geothermal reservoirs

691728

Programme:

H2020 Energy

Topic:
LCE-03-2015

Call for proposals:
H2020-LCE-2015-2

Duration:
01/03/2016 to 29/02/2020

Funding scheme:
IA

Total cost:
€25,132,511

EU contribution:
€10,713,409

Coordinator:
HELMHOLTZ ZENTRUM POTSDAM
DEUTSCHESGEOFORSCHUNGSZENTRUM GFZ

Project website:
http://www.destress-h2020.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199957_en.html

Enhanced geothermal systems (EGS) have a great potential to provide solutions for a sustainable exploitation of underground heat. The DESTRESS project is preparing demonstrations of EGS for renewable heat and electricity production from deep geothermal resources in a wide range of geological sites in France, Lithuania, the Netherlands, South Korea and Switzerland.

The project is based on experience gained in previous projects, on scientific progress and on developments in other fields, mainly in the oil and gas sector. In DESTRESS, recently developed "soft-stimulation" methods are being combined and adapted to geothermal needs, applied to new geothermal sites and prepared for the market uptake. DESTRESS takes into account the common and specific characteristics of different sites, representative for Europe, and provides a generally applicable workflow for enhancing their productivity.

The project focuses mainly on soft stimulation treatments with minimised environmental hazard, to improve the reservoir productivity in several geological settings covering granites, sandstones and other rock types.

DESTRESS plans to develop business cases with cost and benefit estimations based on the proven changes of the system performance and the environmental footprint of treatments, and to control the operation of the sites. In particular, the public debate related to “fracking” is to be addressed by applying specific concepts for the mitigation of damaging seismic effects while constructing and later operating a productive geothermal reservoir.

GEMex

GEMex: Cooperation in Geothermal energy research Europe-Mexico for development of Enhanced Geothermal Systems and Superhot Geothermal Systems

727550

Programme:

H2020 Energy

Topic:
LCE-23-2016

Call for proposals:
H2020-LCE-2016-RES-CCS-RIA

Duration:
01/10/2016 to 30/09/2019

Funding scheme:
RIA

Total cost:
€9,999,793

EU contribution:
€9,999,793

Coordinator:
HELMHOLTZ ZENTRUM POTSDAM
DEUTSCHESGEOFORSCHUNGSZENTRUM GFZ

Project website:
http://www.gemex-h2020.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/205825_en.html

The GEMex project is based on a collaboration of a European and a Mexican consortium with a goal to promote the utilisation of unconventional geothermal energy resources, such as enhanced and super-hot geothermal systems, in Mexico. Two sites with unconventional geothermal characteristics, Acoculco and Los Humeros, have been selected by the project.

The cooperation will follow three stages:

• Resource assessment. This part will focus on understanding the tectonic evolution, the fracture distribution and hydrogeology of the two sites and on predicting in-situ stresses and temperatures at depth.

• Reservoir characterisation. It will be done using techniques and approaches developed at conventional geothermal sites, such as novel geophysical and geological methods that will be tested and adapted for the use at the two sites. The project will also analyse passive seismic data to apply ambient noise correlation methods, and to study anisotropy by coupling surface and volume waves. At the same time, it will collect new electromagnetic data for joint inversion with the seismic data. High-pressure/ high-temperature laboratory experiments will be carried out in order to interpret the data and to derive the parameters determined on the rock samples.

• Concepts for site development. The analysed data will be used to define drill paths, to recommend well design, including suitable material selection, and to establish optimum stimulation and operation procedures for safe and economic exploitation of the sites while controlling undesired side effects. The project will also develop measures for monitoring and controlling the environmental impact and it will propose recommendations to gain public acceptance.

GEOCOND

Advanced materials and processes to improve performance and cost-efficiency of Shallow Geothermal systems and Underground Thermal Storage

727583

Programme:

H2020 Energy

Topic:
LCE-07-2016-2017

Call for proposals:
H2020-LCE-2016-RES-CCS-RIA

Duration:
01/05/2017 to 31/10/2020

Funding scheme:
RIA

Total cost:
€3,955,740

EU contribution:
€3,955,740

Coordinator:
UNIVERSITAT POLITECNICA DE VALENCIA

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/209743_es.html

About 75% of buildings in the EU are not energy efficient - they hold a large untapped potential for renewables and energy efficiency in order to decarbonise the EU economy, to ensure security of supply and to provide cost savings to EU households and businesses alike. In this context, shallow geothermal energy systems (SGES) are stable and reliable renewable energy sources (RES), with some key advantages compared to many other RES. They are available everywhere and they can provide not only heating, but also cooling with unparalleled efficiency.

Amongst SGES, closed loop systems with vertical borehole heat exchangers enjoy the widest deployment in the EU where the total installed number of ground source heat pump (GSHP) units amounts to about 1.4 million, representing an installed capacity of about 16.500 MWth. There is however still a need to remove market barriers, improve competitiveness and develop the next-generation geothermal systems with new materials for penetrating further the market of building construction and renovation. At the same time, the area of district heating and cooling calls for improved storage technologies which could largely benefit from enhanced underground thermal energy storage (UTES) technologies.

By a smart combination of different material solutions under the umbrella of sophisticated engineering, optimisation, testing and on-site validation, the GEOCOND project plans to develop solutions to increase the thermal performance of the different subsystems configuring an SGES and UTES. The overall aim of the project is to reduce the costs by about 25%, leading to a substantial gain in competitiveness. GEOCOND, with a unique consortium of companies and leading reseach institutions in the area of SGES and materials, focuses on four key development areas in a synergic and system-wide approach: development of new pipe materials, advanced grouting additives and concepts, advanced phase change materials and system-wide simulation and optimisation.

GEOTeCH

Geothermal Technology for €conomic Cooling and Heating

656889

Programme:

H2020 Energy

Topic:
LCE-03-2014

Call for proposals:
H2020-LCE-2014-2

Duration:
01/05/2015 to 30/04/2019

Funding scheme:
IA

Total cost:
€9,025,459

EU contribution:
€7,136,663

Coordinator:
SOLINTEL M&P SL

Project website:
http://www.geotech-project.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/195351_en.html

GeoTech is testing a different drilling concept based on dry auger methods that require less capital-intensive equipment, enhance safety and avoid the environmental risks, complexity and costs of dealing with water supplies and contaminated waste, in comparison to the currently used technologies for installation of vertical borehole heat exchangers.

GeoTech is also tackling a better integration between heat exchange elements during installation by developing an innovative heat exchanger allowing a better performance compared to conventional devices. In addition, the GEOTeCH's approach seeks the use as effective geothermal heat exchangers of the foundation structures that are otherwise required, exclusively, for structural and geotechnical purposes in tertiary buildings.

GeoTech will develop optimised hybrid solutions that will integrate the different geothermal systems in small and large buildings market. The optimisation of geothermal system operation will be achieved with the Energy Management System and the development of a dual source heat pump capable of making optimal use of ground and/or air environmental heat sources. The GeoTech's geothermal heating and cooling standard will be more attractive to design professionals and construction companies.

The expected impacts of GeoTECH are mainly related to lower the cost of ground source heat pumps (GSHP) systems by developing small scale plug-and-play installations, the cost will be reduced by a 25% due to the improved borehole heat exchanger effectiveness.

By implementing foundation heat exchanger costs are expected to be 72% lower than an equivalent borehole array so that the whole GSHP system will be 33% more cost effective.

GeoWell

Innovative materials and designs for long-life high-temperature geothermal wells

654497

Programme:

H2020 Energy

Topic:
LCE-02-2015

Call for proposals:
H2020-LCE-2015-1-two-stage

Duration:
01/02/2016 to 31/01/2019

Funding scheme:
RIA

Total cost:
€4,704,914

EU contribution:
€4,704,914

Coordinator:
ISLENSKAR ORKURANNSOKNIR

Project website:
http://www.geowell-h2020.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199591_en.html

The GeoWell project is developing new concepts for high-temperature geothermal well technologies that will enhance the use of geothermal resources for power generation in Europe and worldwide in a cost effective and environmentally friendly way. GeoWell tackles the major bottlenecks like high investment and maintenance costs proposing an integrated approach for the extension of the lifetime of geothermal wells.

To do this, the project focuses on improvement of the cement and well-sealing technologies, materials and coupling of castings which could withstand high temperature and strain variations. It also uses fibre optic technologies to monitor well integrity, and it develops risk assessment methods. The technologies are tested in laboratories and partly in real geothermal environment in Iceland.

GeoWell consortium combines experienced geothermal developers, leading academic institutions, major oil and gas research institutions and an SME. It will build upon their experience with oil and gas industry.

The project contributes to the leading position of the European deep geothermal energy research by developing new technologies for wells at temperatures at 400-600°C, drilling down to 4-5 km depth in order to reach a supercritical fluid which will increase the power output per well by an order of magnitude. As a result, a power plant of a given capacity will need fewer wells at a much lower total cost than existing power plants utilising high-temperature geothermal fields.

SURE

Novel Productivity Enhancement Concept for a Sustainable Utilization of a Geothermal Resource

654662

Programme:

H2020 Energy

Topic:
LCE-02-2015

Call for proposals:
H2020-LCE-2015-1-two-stage

Duration:
01/03/2016 to 31/08/2019

Funding scheme:
RIA

Total cost:
€6,143,415

EU contribution:
€5,892,165

Coordinator:
HELMHOLTZ ZENTRUM POTSDAM DEUTSCHESGEOFORSCHUNGSZENTRUM GFZ

Project website:
http://www.sure-h2020.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199554_en.html

The SURE project applies a new technological concept for enhancing the performance of geothermal wells with low productivity. The project investigates applicability of radial water jet drilling (RJD) technology as a method to stimulate inflow into geothermal wells.

RJD uses the power of a focused jet of fluids, applied to a rock through a coil inserted in an existing well with an aim to access and connect high permeable zones within geothermal reservoirs to the main wellbore with a higher degree of control compared to conventional stimulation technologies. SURE is investigating the technology for deep geothermal reservoir rocks at different geological formations such as deep sedimentary basins or magmatic regions at the micro-, meso- and macro-scale.

Laboratory tests are part of the project, including the determination of rock parameters as well as jetting experiments on large samples. Advanced modelling helps understand the actual mechanism leading to the rock destruction at the tip of the water jet. Finally, experimental and modelling results are validated in two different geothermal wells representing different geological formations.

Thanks to the project, geothermal resources, formerly not utilised or underutilised, will be used more efficiently in the geothermal market, while significantly decreasing the environmental footprint of a stimulation treatment and reducing the use of large fluid volumes for the treatment. As a result, the risk of induced seismicity will be reduced. This will have a significant positive impact on the economics and will broaden the acceptance of geothermal energy.

ThermoDrill

Fast track innovative drilling system for deep geothermal challenges in Europe

641202

Programme:
H2020 Energy

Topic:
LCE-02-2014

Call for proposals:
H2020-LCE-2014-1

Duration:
01/09/2015 to 31/08/2018

Funding scheme:
RIA

Total cost:
€5,824,745

EU contribution:
€5,380,995

Coordinator:
MONTANUNIVERSITAT LEOBEN

Project website:
http://www.thermodrill-h2020.org/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193791_en.html

Enhanced geothermal systems can extend the use of the Earth's natural heat resources to areas previously unsuitable for geothermal energy extraction. However, exploiting them depends on the technical and economic limits to drilling.

The ThermoDrill project develops an innovative drilling system based on the combination of conventional rotary drilling with water jetting. It allows faster drilling at lower costs by aiming at 50% increase of the drilling rate and 30% decrease of the subsurface capital expenses. The project also focuses reducing the risks of associated with development of unconventional geothermal resources.

The project delivers a robust process of integrated drilling technologies which is tested in real conditions through two deep field tests in Austria. It also develops general guidelines and recommendations for application of deep geothermal drilling technologies to support decision makers and a general public and to establish a comprehensive base for informed decisions on exploitation of the geothermal resources.

AnyPLACE

Adaptable Platform for Active Services Exchange

646580

Programme:
H2020 Energy

Topic:
LCE-07-2014

Call for proposals:
H2020-LCE-2014-3

Duration:
01/01/2015 to 31/12/2017

Funding scheme:
IA

Total cost:
€2,974,264

EU contribution:
€2,534,389

Coordinator:
INESC TEC - INSTITUTO DE ENGENHARIA DE SISTEMAS E COMPUTADORES, TECNOLOGIA E CIENCIA

Project website:
http://www.anyplace2020.org/

Project description on CORDIS:
http://cordis.europa.eu/search/result_en?q=646580

The AnyPLACE project is developing a modular smart metring platform. The system will provide a service exchange channel that will help the interaction between end users, market representatives, electricity networks operators and ICT providers. The proposed system will help energy remote metering in areas such as electricity, gas, heating and cooling. It will also allow a more efficient use of electricity networks and turn end-users into active energy market players.

To enable the development of the platform, the project is analysing the different regulatory frameworks, energy and telecommunications standards, potential scenarios of deployment, technical requirements of the solution and technologies currently available.

The project is building a set of prototypes with different combinations of modules to deal with different scenarios, which will be validated in state-of-the-art smart grid laboratories and a smart factory as well as tested in field trials. Near-market prototype versions will be then produced, accomplishing the project knowledge and technology transfer to industry and service providers.

The AnyPLACE project also addresses behavioural issues related to public acceptance of the designed solutions. Thus, different participation strategies will be proposed to stimulate the end-user engagement.

EMPOWER

Local Electricity retail Markets for Prosumer smart grid pOWER services

646476

Programme:

H2020 Energy

Topic:
LCE-07-2014

Call for proposals:
H2020-LCE-2014-3

Duration:
01/01/2015 to 31/12/2017

Funding scheme:
IA

Total cost:
€6,120,486

EU contribution:
€4,429,808

Coordinator:
Schneider Electric Norge AS

Project website:
http://empowerh2020.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194446_en.html

The EMPOWER project is investigating the concept of a regional market and associated services to manage the exchange of energy, communication and monetary credit assignment.

The project aims to encourage and enable the active participation of citizens that consume and produce energy in the electrical system. It is based on the insight that a significant reduction of greenhouse gas emissions and an increase of energy efficiency require radical changes in the way we produce and consume energy.

The main objective of EMPOWER is to create of local electrical markets to promote the prosumer role in smart grids. Aiming to develop and verify a local market place and innovative business models, including operational methods, the project encourages micro-generation and the active participation of prosumers to exploit the flexibility created for the benefit of all connected to the local grid.

By providing incentives for all players, EMPOWER exploits the flexibility the electricity distribution net offers to its users. The project enables the establishment and operation of local energy cooperatives that can manage renewable energy resources and serve members, while operating in an open, competitive market environment. It puts coordinated prosumers into the centre of future local power market design.

This solution helps create a shared engagement of local supply and therefore reduces the need of traditional distribution system operators (DSOs) to invest in centralised sourcing.

The project also proposes a definition of a new role in the local electricity market, the smart energy service provider (SESP), with the tasks to handle the operation of the market place and the coordination between the participants, and to offer services to the market participants.

Flex4Grid

Prosumer Flexibility Services for Smart Grid Management

646428

Programme:

H2020 Energy

Topic:
LCE-07-2014

Call for proposals:
H2020-LCE-2014-3

Duration:
01/01/2015 to 31/12/2017

Funding scheme:
IA

Total cost:
€3,147,871

EU contribution:
€2,680,253

Coordinator:
Teknologian tutkimuskeskus VTT Oy

Project website:
https://www.flex4grid.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194427_en.html

The transition towards distributed power sources gives rise to energy prosumers (producer-consumer) who both generate and consume electrical energy.The Flex4Grid project is creating an open data and service framework that enables a new concept of prosumer flexibility management.

The project will provide a system for new market players offering data analytics and aggregation services for distribution system operators (DSOs) to forecast and influence the load on the grid to avoid blackouts caused by network overloads or lack of power suppliers. Based on the anonymised and aggregated information supplied by Flex4Grid applications, the DSOs will be able to plan and react to consumption and generation peaks by providing business incentives to prosumers in the value chain to balance the energy load. Flex4Grid will also enable communication between prosumers' grid tie inverters to control the amount of power coming to the network to avoid network overload.

The project will create benefits for all key stakeholders. Cloud service providers will be able to offer new services to DSOs and prosumers.

FLEXICIENCY

energy services demonstrations of demand response, FLEXibility and energy effICIENCY based on metering data

646482

Programme:

H2020 Energy

Topic:
LCE-07-2014

Call for proposals:
H2020-LCE-2014-3

Duration:
01/02/2015 to 31/01/2019

Funding scheme:
IA

Total cost:
€19,115,936

EU contribution:
€13,946,741

Coordinator:
E-DISTRIBUZIONE SPA

Project website:
http://www.flexiciency-h2020.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194447_en.html

The objective of FLEXICIENCY is to demonstrate that the deployment of novel services in the electricity retail markets (ranging from advanced monitoring to local energy control and flexibility services) can be accelerated thanks to an open European Market Place for standardized interactions among all the electricity stakeholders and opening up the energy market also to new players at EU level.

Four major distributor system operators (DSOs) ENEL Distribuzione (Italy), Endesa Distribucion (Spain), ERDF (France) and Vattenfall Distribution (Sweden) with smart metering infrastructure in place, representing the majority of smart meters installed in Europe, are running a set of four complementary large-scale demonstrations with real customers, covering one or several new services related to advanced monitoring, local energy control and flexibility exploitation and valuation.

Relevant meter data will be made available by the DSOs in a non-discriminatory way close to real time, in order to enable the emergence of new energy services. Advanced interoperable platforms for making available metering data to all the interested players, either new or existing ones, will be enhanced and run in the project building on open standards.

The project is assessing economic models of these new services. Based on the five demonstrations, the dissemination activities will support the preparation of the market place exploitation strategies, as well as the promotion of the use cases tested during the demonstration activities.

FLEXMETER

Flexible smart metering for multiple energy vectors with active prosumers

646568

Programme:

H2020 Energy

Topic:
LCE-07-2014

Call for proposals:
H2020-LCE-2014-3

Duration:
01/01/2015 to 31/12/2017

Funding scheme:
IA

Total cost:
€3,869,607

EU contribution:
€3,197,791

Coordinator:
POLITECNICO DI TORINO

Project website:
http://flexmeter.polito.it/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194457_en.html

The project is developing a flexible smart metering architecture based on cheap and already available components that can be implemented in a plug and play way, combining metering of different services (electricity, water, gas, district heating), providing advanced services to the users, to the distributed systems owners (DSOs) and to the other utilities and enhancing the possibilities of the retail market. The metering architecture is deployed in two demonstrators Italy and Germany, on real systems, with the involvement of the local DSOs and volunteer prosumers. The results on the demonstrators will then be scaled up to the size of the cities in order to evaluate the advantages on a real scale.

The proposed architecture will provide innovative services for the prosumers, for example, accessible data and historical records of their consumption and analysis of the electric consumption with saving suggestions.

The architecture will also provide innovative services for the DSOs, for example, fault detection, detection of energy thefts, network balancing and storage integration.

FutureFlow

Designing eTrading Solutions for Electricity Balancing and Redispatching in Europe

691777

Programme:

H2020 Energy

Topic:
LCE-06-2015

Call for proposals:
H2020-LCE-2015-3

Duration:
01/01/2016 to 31/12/2019

Funding scheme:
RIA

Total cost:
€12,985,243

EU contribution:
€12,985,234

Coordinator:
ELES DOO SISTEMSKI OPERATOR PRENOSNEGA ELEKTROENERGETSKEGA OMREZJA

Project website:
http://www.futureflow.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/200558_en.html

The project is designing a unique regional cooperation scheme between four European transmission system operators (TSOs) of Central-Eastern Europe (Austria, Hungary, Romania, Slovenia), associated with power system experts, electricity retailers, IT providers and renewable electricity providers.

The scheme aims to open balancing and redispatching markets to new sources of flexibility and supporting such sources to act on such markets competitively. The project is investigating the role of large power consumers and distributed generation owners to become secondary reserve market provider. This, together with cross-border exchanges, should reduce the costs of secondary reserve and redispatching and reverse the system reliability trends (more providers spread out over a wider geographical area).

The project is expected to improve the competition in national balancing markets by facilitating the cross-border integration of these markets and the full participation of new electricity producers and advanced users from adjacent control areas in the provision of balancing and ancillary services.

GOFLEX

Generalized Operational FLEXibility for Integrating Renewables in the Distribution Grid

731232

Programme:

H2020 Energy

Topic:
LCE-02-2016

Call for proposals:
H2020-LCE-2016-SGS

Duration:
01/11/2016 to 31/10/2019

Funding scheme:
IA

Total cost:
€11,234,125

EU contribution:
€6,826,393

Coordinator:
IBM IRELAND LIMITED

Project website:
http://www.goflex-community.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/206239_en.html

The GOFLEX project innovates, integrates, further develops and demonstrates electricity smart-grid technologies. It aims to enable the cost-effective use of demand response in distribution grids, increase the grids' available adaptation capacity and support an increasing share of electricity generated from renewable energy sources.

The GOFLEX smart grid technologies deliver flexibility solutions that are both general (across different loads and devices) and operational (solving specific local grid problems).

GOFLEX supports an active use of distributed sources of load flexibility to provide services for grid operators, balance electricity demand and supply, and optimise energy consumption and production at the local level of electricity trading and distribution systems.

Building on existing, already validated technologies for capturing and exploiting distributed energy consumption and production flexibility, the project develops solutions providing more flexibility for automatic trading of general, localised, device-specific energy as well as flexibility for trading aggregated prosumer energy.

The generalised demand-response services developed in the framework of the project are based on transparent aggregation of distributed, heterogeneous resources to offer virtual-power-plant and virtual-storage capabilities. The sources of load flexibility include thermal (heating/cooling) and electric (electric vehicles charging/discharging) storages. A backbone data-services platform offers short-term predictions of energy demand/generation, and flexibility in order to support effective data-driven decisions for various stakeholders. Smart-grid technologies, such as increased observability and congestion management, contribute to the platform.

The project plans to demonstrate the benefits of the integrated GOFLEX solution in three use-cases, covering a diverse range of structural and operational distribution grid conditions in three European countries.

InteGrid

Demonstration of INTElligent grid technologies for renewables INTEgration and INTEractive consumer participation enabling INTEroperable market solutions and INTErconnected stakeholders

731218

Programme:

H2020 Energy

Topic:
LCE-02-2016

Call for proposals:
H2020-LCE-2016-SGS

Duration:
01/01/2017 to 30/06/2020

Funding scheme:
IA

Total cost:
€14,533,618

EU contribution:
€11,320,811

Coordinator:
EDP DISTRIBUICAO ENERGIA SA

Project website:
https://integrid-h2020.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/207019_en.html

InteGrid's vision is to bridge the gap between citizens, technology and other players of the energy system. The project demonstrates how distribution operator systems (DSOs) may enable all stakeholders to actively participate in the energy market and distribution grid management. InterGrid develops and implements new business models, making use of new data management and consumer involvement approaches.

It also tests scalable and replicable solutions that help DSOs plan and operate the network with a high share of distributed renewable energy sources (DRES) in a stable, secure and economic way by using flexibility offered by specific technologies and by interaction with various stakeholders.

InterGrid has established a complementary partnership covering the distribution system value chain. The consortium includes three DSOs and their retailers in three countries, innovative ICT companies, equipment manufacturers and customers, a start-up in the area of community engagement and R&D organisations.

InteGrid's concept is based on two elements:
• the role of the DSO as system optimiser and as market facilitator;
• the integration of existing demonstration activities in three different regions allowing to move from single solutions to an integrated management at a higher scale while focusing on the scalability and replicability in current and future markets, and in evolving regulatory conditions.

The three conceptual pillars are:
• proactive operational planning with distributed energy sources (DER);
• business models for flexible DER;
• information exchange between different power system actors.

If successful, InterGrid will help maximise the economic, societal and environmental gains from the combined integration of DRES and flexible DER. A market hub platform coupled with smart grid functions and innovative business models will open opportunities for new services and an effective roll-out of emerging technologies in the future.

inteGRIDy

integrated Smart GRID Cross-Functional Solutions for Optimized Synergetic Energy Distribution, Utilization Storage Technologies

731268

Programme:

H2020 Energy

Topic:
LCE-02-2016

Call for proposals:
H2020-LCE-2016-SGS

Duration:
01/01/2017 to 31/12/2020

Funding scheme:
IA

Total cost:
€15,840,275

EU contribution:
€12,329,013

Coordinator:
ATOS SPAIN SA

Project website:
http://integridy.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/207020_fr.html

The inteGRIDy project integrates cutting-edge technologies, solutions and mechanisms in a scalable cross-functional platform of replicable solutions. Through enhanced visibility of generation and consumption profiles, this platform connects existing energy networks to diverse stakeholders.
The project aims to facilitate the optimal and dynamic operation of the distribution grid. It also fosters stability of the electricity grid and coordination of distributed energy resources, virtual power plants and innovative collaborative storage schemes within an energy system with an increasing share of renewable energy.

Project's innovations are built upon:
• Integration of existing smart-metering/automation systems, together with intelligent internet of things (IoT) infrastructure, enabling interoperability through a standardized application programming interface (API)s and efficient data collection and monitoring of grid's distributed assets.
• Novel modelling and profiling mechanisms allowing the creation of network topology and demand response models, together with battery cycling and charging profiles.
• Predictive algorithms enabling dynamic scenario-based simulation and multi-level forecasting engine for satisfying conflicting demand and supply of energy in real-time
• Powerful and efficient visual analytics and end-user applications based on the use of novel human-machine interaction techniques.
• A security access control framework, for privacy and data protection.
• Innovative business models for the energy market aiming to dynamically involve demand-response strategies and allowing new entrants to the market to participate in the distribution grid's operations.

The inteGRIDy project plans to implement and demonstrate a solution covering the above innovations under a variety of environmental, market and societal conditions at ten sites across the EU.

InterFlex

Interactions between automated energy systems and Flexibilities brought by energy market players

731289

Programme:

H2020 Energy

Topic:
LCE-02-2016

Call for proposals:
H2020-LCE-2016-SGS

Duration:
01/01/2017 to 31/12/2019

Funding scheme:
IA

Total cost:
€22,781,805

EU contribution:
€17,009,413

Coordinator:
ELECTRICITE RESEAU DISTRIBUTION FRANCE SA

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/207021_en.html

InterFlex aims to empower distribution network operators (DSOs) in the transition to more flexible local energy systems.

Within three years of the project lifetime, Interflex plans to carry out six demonstrations in five European countries - Czech Republic, France, Germany, Netherlands and Sweden – to test the flexibility of distribution networks, innovative IT solutions and increased network automation.

Demonstrations are designed to run 18 use cases involving one or several of the levers increasing the local energy system flexibility:
• energy storage technologies (electricity, heat, cooling);
• demand response schemes with two coupling of networks (electricity and gas, electricity and heat/cooling);
• integration of grid users owning electric vehicles;
• further automation of grid operations including contributions of micro-grids.

The use cases are grouped in three clusters:
• Three use cases address the enhancement of the distribution network flexibility;
• Five use cases demonstrate the role of ICT solutions in supporting automation of the distribution networks;
• Ten use cases combine increased network automation and an increased level of aggregation to validate the plausibility of local flexibility markets where both distributed generation and controllable loads can be valued.
The distribution network operators and industry partners involved in the project study replicability of the results, with a focus on an in-depth analysis of the interchangeability and interoperability of the tested critical technology components.

InterFlex aims to disseminate the project results to European DSOs and all the stakeholders of the electricity value chain through publishing roadmaps for the most promising use cases, thus nourishing the preparation of the future electricity market design.

INVADE

Smart system of renewable energy storage based on INtegrated EVs and bAtteries to empower mobile, Distributed and centralised Energy storage in the distribution grid

731148

Programme:

H2020 Energy

Topic:
LCE-02-2016

Call for proposals:
H2020-LCE-2016-SGS

Duration:
01/01/2017 to 31/12/2019

Funding scheme:
IA

Total cost:
€16,305,988

EU contribution:
€13,273,627

Coordinator:
SMART INNOVATION NORWAY AS

Project website:
http://www.invadeh2020.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/206504_en.html

The INVADE project aims to enable a higher share of renewable energy sources in the energy grid by proposing an advanced ICT could-based system for flexibility management integrated with electric vehicles (EVs) and battery storages. The goal is to change the way energy is used, stored and generated by utilising renewable energy more effectively, optimising the supply of electricity and making services more focused on end-users.

The project integrates several components:
• flexibility and battery management systems;
• ICT solutions based on active end-user participation;
• efficient integration of energy storage in the transport sector (EVs);
• novel business models supporting an increasing number of different actors in the energy grid.

The platform, based on the ICT technologies developed in the project, will be integrated into existing infrastructure and systems at pilot sites in Bulgaria, Germany, the Netherlands, Norway and Spain. It will be validated it through mobile, distributed and centralised use cases in the energy distribution grid in large scale demonstrations. An integration of the transport sector is represented in Norway and in the Netherlands; the two countries with the highest EV penetration worldwide.

INVADE also develops novel business models and undertakes extensive exploitation activities to ensure a balance between maximising profits for a full chain of energy grid stakeholders and optimising social welfare, while contributing to the standardisation and regulation policies for the European energy market.

MIGRATE

Massive InteGRATion of power Electronic devices

691800

Programme:

H2020 Energy

Topic:
LCE-06-2015

Call for proposals:
H2020-LCE-2015-3

Duration:
01/01/2016 to 31/12/2019

Funding scheme:
RIA

Total cost:
€17,855,205

EU contribution:
€16,733,999

Coordinator:
TENNET TSO GMBH

Project website:
http://www.h2020-migrate.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199590_en.html

In the future, both electricity production and consumption will increasingly be linked to the electricity grid through power electronics (PE). By 2020, several areas of the heating, ventilating, and air conditioning (HVAC) pan-European transmission system will be operated by PE-interfaced generators. This will lead to new challenges due to the large amounts of electricity fed into it from wind and solar sources, including upgrading existing protection schemes and measures to mitigate the resulting decline in power quality.

The MIGRATE project aims to devise various approaches to solving key technical issues relating to grid stability, supply quality, and control and security of supply that arise owing to the challenge posed by the ever-increasing use of renewable energy feed-in sources.

The project has proposed an innovative solution to adjust the HVAC system operations.
I. Developing a replicable methodology for estimating and monitoring in real time the network's instability in all EU 28 control zones caused by PE-proliferation, along with a portfolio of incremental improvements to existing technologies.
II. Designing innovative power system control laws to cope with the lack of synchronous machines.
III. By using numerical simulations and laboratory tests, the project will deliver control solutions and recommendations for new PE grid connection rules and for developing a novel protection technology to counteract the expected power quality disturbances.
IV. Analysis of technology and economic impacts and barriers will be carried out in order to recommend future deployment scenarios.
V. The project will undertake dissemination activities among European Commission's stakeholders to support the deployment of the project outputs.

NOBEL GRID

New Cost Efficient Business Models for Flexible Smart Grids

646184

Programme:

H2020 Energy

Topic:
LCE-07-2014

Call for proposals:
H2020-LCE-2014-3

Duration:
01/01/2015 to 30/06/2018

Funding scheme:
IA

Total cost:
€14,034,360

EU contribution:
€11,725,973

Coordinator:
ETRA INVESTIGACION Y DESARROLLO SA

Project website:
http://nobelgrid.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194422_en.html

NOBEL GRID is developing, deploying and evaluating advanced tools, ICT services and business models for all actors in the smart grid and electricity market, in order to ensure shared benefits from cheaper prices, more secure and stable grids and cleaner electricity. These tools and services are enabling active consumers' involvement and the innovative business models for new actors and facilitate the integration of distributed renewable energy production, in order to improve the quality of life of European citizens.

The main outcomes of the project are ICT tools that offer secure, stable and robust smart grids, allowing distribution service operators (DSOs) to mitigate management, replacement and maintenance costs of the electricity distribution grid, in presence of large share of distributed renewable energy resources.
Also, new services and business models will be provided for all the actors of the distribution grid.

The project proposes innovative business models for the new players in the electricity panorama, such as prosumers, aggregators and energy service companies, with the objective to facilitate the integration of next generation distributed renewable energy sources and active participation of the European citizens in the energy market (demand response schemas).

Finally, the most innovative aspect of the project is the innovative and affordable smart low-cost advanced meter allowing more extended functionalities for consumers and prosumers in order to empower and protect European citizens.

The project results is being demonstrated in five different electric cooperatives and non-profit demonstration sites in five EU Member States (Belgium, Greece, Italy, Spain and the UK), with the active involvement of all the energy grid actors, citizens, and based on the new business models defined during the project.

P2P-SmarTest

Peer to Peer Smart Energy Distribution Networks (P2P-SmartTest)

646469

Programme:

H2020 Energy

Topic:
LCE-07-2014

Call for proposals:
H2020-LCE-2014-3

Duration:
01/01/2015 to 31/12/2017

Funding scheme:
IA

Total cost:
€3,866,215

EU contribution:
€3,496,142

Coordinator:
OULUN YLIOPISTO

Project website:
http://www.p2psmartest-h2020.eu/

Project description on CORDIS:
http://cordis.europa.eu/search/result_en?q=646469

The P2P-SmarTest project is investigating and will eventually demonstrate a smarter electricity distribution system integrated with advanced ICT, regional markets and innovative business models. It employs peer-to-peer (P2P) approach to ensure the integration of demand-side flexibility and the optimum operation of distributed energy resources (DER) and other resources within the network while maintaining second-to-second power balance and the quality and security of the supply.

The proposed project will built upon an extensive experience of the consortium on ICT. The project comprises of seven work packages (WPs), of which five are technical WPs. Apart from project management, dissemination and exploitation, P2P-SmartTest defines and demonstrates the suitable business models for P2P-based smart energy grids. It also quantifies the value from significantly increased system interaction and integration, and assesses the required development in ICT and power networks in conjunction with commercial and regulatory frameworks to enable P2P trading to realise its full potential.

The project also develops and demonstrates the distributed wireless ICT solutions capable of offloading the required traffic of different applications of energy trading, network optimisation, automated meter reading (AMR) data and real-time network control, to name a few. The result will be integrated in a demonstration and validation environment to provide real-life results of distributed energy system designs.

PROMOTION

PROMOTioN - Progress on Meshed HVDC Offshore Transmission Networks

691714

Programme:

H2020 Energy

Topic:
LCE-05-2015

Call for proposals:
H2020-LCE-2015-3

Duration:
01/01/2016 to 31/12/2019

Funding scheme:
IA

Total cost:
€51,685,330

EU contribution:
€39,327,744

Coordinator:
KEMA NEDERLAND BV

Project website:
https://www.promotion-offshore.net/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199016_en.html

In order to unlock the full potential of Europe's offshore resources, a network infrastructure linking offshore wind parks and on-shore grids in different countries is urgently required. High-voltage direct current (HVDC) technology is envisaged but the deployment of meshed HVDC offshore grids is currently hindered by high costs, lack of experience and immature international regulations and financial instruments.

The objective of the PROMOTioN project is to bring meshed HVDC offshore grids and their associated technologies to the level of large scale real-life application. The project will significantly accelerate the deployment of meshed HVDC offshore grids in the North Sea area and beyond towards continental power corridors and will be a major step in bringing them into commercial application in near future.

PROMOTioN demonstrates three key technologies, a regulatory and financial framework and an offshore grid deployment plan for 2020 and beyond.

A first key technology is a "diode rectifier". This concept challenges the need for complex, bulky and expensive converters, reducing significantly investment and maintenance cost and increasing availability.

The second key technology is an HVDC grid protection system which is developed and demonstrated utilising multi-vendor methods within the full scale Multi-Terminal Test Environment.

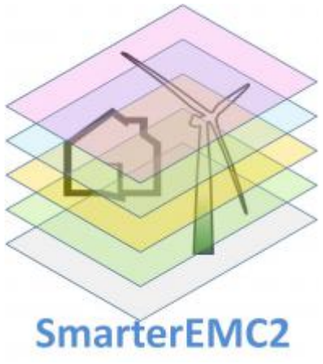
The third technology pathway demonstrates for the first time the performance of existing HVDC circuit breaker prototypes to provide confidence and to demonstrate technology readiness of this crucial network component.

The additional pathway develops the international regulatory and financial framework, essential for funding, deployment and operation of meshed offshore HVDC grids.

SmarterEMC2

Smarter Grid: Empowering SG Market Actors through Information and Communication Technologies

646470



Programme:
H2020 Energy

Topic:
LCE-07-2014

Call for proposals:
H2020-LCE-2014-3

Duration:
01/01/2015 to 31/12/2017

Funding scheme:
IA

Total cost:
€3,751,891

EU contribution:
€3,072,655

Coordinator:
INTRACOM SA TELECOM SOLUTIONS

Project website:
http://www.smarteremc2.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194445_en.html

Power systems are undergoing massive technological changes due to the increasing concerns for environmental and energy sustainability. The increase of renewable energy sources (RES) and distributed generation (DG) penetration is one of Europe's main goals in order to meet the environmental targets. However these goals will require new business cases and must be based on innovative ICT tools and communication infrastructure. In parallel, following the M/490 EU Mandate, the standardisation bodies CEN, CENELEC and ETSI proposed a technical report describing the smart grid reference architecture and the smart grids architecture model (SGAM) framework.

Key objective of the SmarterEMC2 project is to provide ICT tools and solutions compatible with standardisation activities in Europe. SmarterEMC2 implements ICT tools that support Customer Side Participation and RES integration, and facilitate open access in the electricity market. These tools take into account the SGAM architecture as well as the future structure of the Distribution Network. The project supports standardization activity by proposing adaptation to data models of market-oriented standards (IEC 62325-351) and field level standards (IEC 61850).

Moreover, the project is fully dedicated towards achieving a maximum impact. To validate the proposed technologies, the project includes three real-world pilots and a large-scale simulation in three laboratories. The former will demonstrate the impact of Demand Response and Virtual Power Plants services in the real world settings, while the latter will reveal the ability of the communication networks to support massive uptake of such services.

SmartNet

Smart TSO-DSO interaction schemes, market architectures and ICT Solutions for the integration of ancillary services from demand side management and distributed generation

691405

Programme:
H2020 Energy

Topic:
LCE-06-2015

Call for proposals:
H2020-LCE-2015-3

Duration:
01/01/2016 to 31/12/2018

Funding scheme:
RIA

Total cost:
€12,657,928

EU contribution:
€12,657,928

Coordinator:
RICERCA SUL SISTEMA ENERGETICO - RSE SPA

Project website:
http://smartnet-project.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/200556_en.html

Integrating increasingly large quantities of electricity from renewables is a challenge for the European energy system. To ensure the security of the operation, it is key that all the connected units, including renewable energy sources (RES) generators as well as flexible loads and storage systems, provide ancillary services. This can be done for the entire system through developing connection points to the transmission grid.

The aim of Smartnet is to provide solutions and architecture for optimised interaction between transmission system operators (TSOs) and distribution system operators (DSOs) in exchanging information for monitoring and acquisition of ancillary services (reserve and balancing, voltage regulation, congestion management) for local needs and for the whole European system. The project involves distributed generation, demand-side and storage-to-system services.

The impacts of SmartNet include:
• deployment of solutions for improving flexibility and capacity of European electricity grids at high voltage levels to integrate both renewable and other new electricity producers and users;
• demonstrating advanced grid technologies and system architectures and enhancing the competitiveness of European industries;
• devising new architecture and business models and disseminating most effective architecture and models across Europe;
• demonstrating the infrastructures, processes and information management to encourage active participation of actors from the demand-side and new players (such as aggregators) in energy markets.

SMILE

SMart IsLand Energy systems

731249

Programme:

H2020 Energy

Topic:
LCE-02-2016

Call for proposals:
H2020-LCE-2016-SGS

Duration:
01/05/2017 to 30/04/2021

Funding scheme:
IA

Total cost:
€14,004,444

EU contribution:
€12,106,047

Coordinator:
D'APPOLONIA SPA

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/210038_en.html

The SMILE project will demonstrate a set of both technological and non-technological solutions adapted to local conditions targeting the distribution grid to enable demand response, smart grid functionalities, storage, and energy system integration. The overall objective is to pave the way for their introduction in the market in the near future.

The technological solutions vary from integration of battery technology, power to heat, power to fuel, pumped hydro, electric vehicles, electricity stored on board of boats, an aggregator approach to demand side management (DSM) and predictive algorithms.

Three large-scale pilot projects will be implemented in three different regions of Europe with similar topographic characteristics but different policies, regulations and energy markets - Madeira (Portugal), Orkneys (UK) and Samsø (Denmark) islands. The objective is to test solutions while establishing mutual learning processes and providing best practice guidance for replication in other regions.

The three pilots will test different combinations of technological solutions according to local specificities and conditions and the existing infrastructure and will involve all value chain actors needed to efficiently implement projects system-wide.

Moreover, cross-cutting activities among the pilots will be devoted to solve common technical, organizational, legal, regulatory and market-related issues as well as to evaluate the solutions from the economic and business points of view.

UPGRID

Real proven solutions to enable active demand and distributed generation flexible integration, through a fully controllable LOW Voltage and medium voltage distribution grid

646531

Programme:

H2020 Energy

Topic:
LCE-07-2014

Call for proposals:
H2020-LCE-2014-3

Duration:
01/01/2015 to 31/12/2017

Funding scheme:
IA

Total cost:
€15,653,828

EU contribution:
€11,937,258

Coordinator:
IBERDROLA DISTRIBUCION ELECTRICA, S.A.

Project website:
http://upgrid.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194452_en.html

The low voltage (LV) networks are still managed as before: no visibility of power and voltage or grid components status, poor knowledge of connectivity, manual operation of switches, few support tools. The LV grid characteristics limit the possibilities for constructing and refurbishing LV electric infrastructure and pose a barrier for integrating on it grid remote monitoring, operation and automation resources. It results in difficulties in implementing the LV smart grid and in integrating distributed generation resources and active demand management (ADM).

The smart metering and smart grids rollout in the EU aims to maximise the benefits of developing and integrating innovative grid and ICT infrastructure, functions, services and tools which can improve the grid's operation performance and quality and reduce annual household energy consumption and decrease emissions in the EU by up to 9%. The smart metering and smart grids rollout paves the way for new business opportunities for the involved actors (distribution service operators (DSOs), customers, retailers and energy service companies (ESCOs)).

The UPGRID project focuses on developing, deploying and demonstrating innovative solutions (grid systems, functions, services and tools) for advanced operation and exploitation of LV/MV (low/medium voltage) networks in a fully smart grid environment. It aims to improve the capacity of these networks as enablers for distributed generation and ADM, as well as to empower customers and create new business opportunities.

WiseGRID

Wide scale demonstration of Integrated Solutions and business models for European smartGRID

731205

Programme:

H2020 Energy

Topic:
LCE-02-2016

Call for proposals:
H2020-LCE-2016-SGS

Duration:
01/11/2016 to 30/04/2020

Funding scheme:
IA

Total cost:
€17,595,500

EU contribution:
€13,854,247

Coordinator:
ETRA INVESTIGACION Y DESARROLLO SA

Project website:
http://www.wisegrid.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/206236_en.html

WisGRID integrates, demonstrates and validates advanced ICT services and systems in the energy distribution grid in order to provide secure, sustainable and flexible smart grids and give more power to the European energy consumer.

WiseGRID's main objective is to provide a set of solutions and technologies to increase the smartness, stability and security of an open, consumer-centric European energy grid. The project will combine an enhanced use of storage technologies, a highly increased share of Renewable Energy Sources (RES) and the integration of charging infrastructure to favour the large-scale deployment of electric vehicles. It will place citizens at the center of the transformation of the grid.

The project goes beyond empowering prosumers. On top of having a consumer-centric approach, it will make a difference in the market by delivering tools that facilitate the creation of a healthy, open market where not only 'traditional' utilities but also players such as electric cooperatives and small and medium-sized enterprises can play an active role, contributing therefore effectively to the transition to energy democracy.

WiseGRID follows European Commission's ambition to put the consumer back at the center of the energy system, to promote and support sustainable energy communities.

WiseGRID integrated solution will be demonstrated and evaluated under real life conditions in 4 large scale demonstrators - in Belgium, Italy, Spain and Greece - under different technical, regulatory, legislative and social conditions. Demonstration sites will involve more than 1700 users, 60 batteries (totalling more than 300KWh of installed capacity), 50 heat pumps (over 160kWh of installed capacity), 180 electric vehicles, 40 charging stations and more than 70MWh of RES.

FIThydro

Fishfriendly Innovative Technologies for Hydropower

727830

Programme:

H2020 Energy

Topic:
LCE-07-2016-2017

Call for proposals:
H2020-LCE-2016-RES-CCS-RIA

Duration:
01/11/2016 to 31/10/2020

Funding scheme:
RIA

Total cost:
€7,171,550

EU contribution:
€5,888,424

Coordinator:
TECHNISCHE UNIVERSITAET MUENCHEN

Project website:
http://www.fithydro.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/205921_en.html

FIThydro aims to improve river ecology and bring sustainable fish populations to the hydropower plant (HPP) environment while improving existing hydropower technologies and devices.

The project will develop new mitigation measures and cost-efficient environmental solutions to prevent individual fish damage and to support increasing fish populations in HPPs. It will carry out evaluation of the facilities for upstream and downstream fish migration. It will also analyse different HPP bypass systems to establish their potential as fish habitat and the impact of sediment on the habitat's quality.

The project will consist of three main phases:
• preparatory desk work to analyse shortcomings, barriers and potential of the HPP environment
• improving existing devices and technologies used in HPPs for monitoring and measuring fish behaviour
• test phase at selected pilot sites

During the first phase, the project will gather and harmonise the dispersed existing data on fish biology. The second phase will run in parallel. It will focus on current tools and devices used in HPPs that will be enhanced and used in the experimental set-ups in the laboratories and at the test sites for detecting fish populations or predicting their behaviour. This includes using sensor fish, analysing various solutions for fish migration and fish tracking systems, as well as creating numerical models, a population model and a virtual fish swimming path model. Finally, experimental tests will be conducted at selected test sites in France, Spain and Switzerland.

The results of the project will be fed into a risk-based decision support system (DSS), which will allow HPP operators maintain a cost-effective energy production, at the same time letting them meet environmental obligations under European legislation and achieve self-sustained fish population in HPPs.

GreenDiamond

Green Electronics with Diamond Power Devices

640947

Programme:

H2020 Energy

Topic:
LCE-01-2014

Call for proposals:
H2020-LCE-2014-1

Duration:
01/05/2015 to 30/04/2019

Funding scheme:
RIA

Total cost:
€4,443,920

EU contribution:
€3,983,756

Coordinator:
CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE CNRS

Project website:
http://greendiamond-project.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193765_en.html

The key to the efficient transmission and conversion of low-carbon electrical energy is the improvement of power electronic devices. Diamond is considered to be the ultimate material for applications in high power electronics due to its exceptional thermal and electronic properties. Recent developments have now opened new opportunities for the fabrication and commercialisation of diamond power transistors. These will result in substantial improvements in the performance of power electronic systems by offering higher blocking voltages, improved efficiency and reliability, as well as reduced thermal requirements thus opening the door to more efficient green electronic systems.

These improvements are expected to increase the efficiency of power converters by a factor of 4, yielding a 75% reduction in losses. In this context, the GreenDiamond project is fabricating a 10kV transistor in a high power package, followed by a high voltage AC/DC converter based on such devices. In short, GreenDiamond will advance the TRL of energy technologies that will form the backbone of the energy system by 2030.

To meet GreenDiamond's challenging goals, the consortium is gathering experts on power device design, diamond growth and characterization, packaging and testing as well as an innovative end-user. As far as diamond transistor structure is concerned Europe still has a significant scientific and technological advantage over non-EU competitors. It is therefore extremely important to maintain the competitive edge that will lead the development of truly green electronics in the near to medium term future.

RED-Heat-to-Power

Conversion of Low Grade Heat to Power through closed loop Reverse Electro-Dialysis

640667

Programme:

H2020 Energy

Topic:
LCE-01-2014

Call for proposals:
H2020-LCE-2014-1

Duration:
01/05/2015 to 30/04/2019

Funding scheme:
RIA

Total cost:
€4,130,273

EU contribution:
€3,992,402

Coordinator:
WIRTSCHAFT UND INFRASTRUKTUR GMBH & CO PLANUNGS KG

Project website:
http://www.red-heat-to-power.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193740_en.html

The RED-Heat-to-Power project adopts a game-changing approach that generates electricity from low grade heat in the temperature range of 40?C to 100?C (e.g. waste heat, geothermal and solar thermal energy). This clean source of electricity is very flexible and can cover base load or peak load at a very competitive cost, having all the characteristics for contributing to the mix that will form the backbone of the future energy system.

The concept is based on the generation of electricity from salinity gradients using a reverse electrodialysis (RED) device in a closed-loop system. In this concept, limited amounts of artificial saline solutions are used as working fluids. The solutions exiting from the RED unit are then regenerated in order to restore the original salinity gradient, by means of a separation step, which uses low-temperature heat as its energy source.

The overall objective of the projects is to prove this revolutionary concept, develop the necessary materials, components and know-how for bringing it to the level of a lab prototype generating electricity from low-grade heat at higher efficiencies and lower costs than ever achieved.

CEFOW

Clean energy from ocean waves

655594

Programme:

H2020 Energy

Topic:
LCE-03-2014

Call for proposals:
H2020-LCE-2014-2

Duration:
01/06/2015 to 31/05/2020

Funding scheme:
IA

Total cost:
€24,744,114

EU contribution:
€16,998,022

Coordinator:
FORTUM OYJ

Project website:
http://www.cefow.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/195136_en.html

The project aims to improve the amount and reliability of wave energy that can be converted to electricity using a type of converter called a "Penguin". By testing several of these multi-devices together in rough sea conditions at European Marine Energy Centre (UK), the aim is to reduce the levelised cost of the of ocean energy by 30%.

In addition, CEFOW will study the feasibility of on-board and on-shore storage solutions and conduct thorough multi-year environmental, health and safety studies.

The project aims to improve the wave energy converter performance by 50% and raise its availability to 70%; develop new types of dynamic mooring and electrical connections suitable for multi-device deployment and deploy 3MW (three 1MW units) wave energy converters in real-world offshore conditions in a grid-connected testing environment.

DEMOTIDE

DEMOnstration for Tidal Industry DErisking

691925

Programme:

H2020 Energy

Topic:
LCE-03-2015

Call for proposals:
H2020-LCE-2015-2

Duration:
01/01/2017 to 31/12/2020

Funding scheme:
IA

Total cost:
€47,999,417

EU contribution:
€20,301,150

Coordinator:
DEME BLUE ENERGY NV

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/207512_en.html

The DEMOTIDE project will design, build and operate a 4 x 1.5MW (6MW) turbine array in Pentland Firth, Scotland.

In order to de-risk the tidal industry, the DEMOTIDE project will systematically focus on the key aspects of tidal industry such as technology, installation, operation and investors' confidence. Specifically, DEMOTIDE will identify installation cost reduction techniques through innovation and learning on the project to support the commercial exploitation of larger scale arrays.

The consortium unites strong players with each of the required competencies to deliver this array. They intend to provide a robust route to exploitation of the results of DEMOTIDE across a portfolio of commercial tidal energy projects throughout Europe and abroad.

EnFAIT

Enabling Future Arrays in Tidal

745862

Programme:

H2020 Energy

Topic:
LCE-15-2016

Call for proposals:
H2020-LCE-2016-RES-IA

Duration:
01/07/2017 to 30/06/2022

Funding scheme:
IA

Total cost:
€20,204,450

EU contribution:
€14,914,600

Coordinator:
NOVA INNOVATION LTD

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/209958_en.html

The EnFAIT project carries out a demonstration of a grid-connected tidal energy array with the aim to provide a step change in the lifetime cost of energy for tidal power. The project plans to adjust the layout of the turbines in order to enable array interactions and optimisation to be studied for the first time at a real tidal energy site.

EnFAIT is carried out at a grid-connected tidal site in the Bluemull Sound, Shetland (UK). Building upon an existing operational site allows the project to generate real-world results from day one, at the same time minimising development risks.

By acquiring and disseminating substantial learning on fundamental issues for the ocean energy industry, the EnFAIT project intends to build investors' confidence, taking a step towards creating a commercial, bankable tidal energy sector.

FloTEC

Floating Tidal Energy Commercialisation project (FloTEC)

691916

Programme:

H2020 Energy

Topic:
LCE-03-2015

Call for proposals:
H2020-LCE-2015-2

Duration:
01/01/2016 to 30/06/2019

Funding scheme:
IA

Total cost:
€13,711,732

EU contribution:
€9,782,380

Coordinator:
SCOTRENEWABLES TIDAL POWER LIMITED

Project website:
http://www.scotrenewables.com/projects/flotec

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199964_en.html

The project will demonstrate the potential for floating tidal stream systems to provide low-cost, high-value energy to the European grid mix.

Specifically the FloTEC project is expected to deliver major innovation through the development and construction of an innovative turbine which will incorporate significant further cost reduction learning, to an already low?cost generation platform. The new turbine will be deployed alongside an existing one at EMEC to form a 4MW floating tidal array, serving as a demonstration platform for commercially viable tidal stream energy as a baseload supply.

There will be a significant focus on reducing the levelised cost of energy (LCoE) at every stage of the design, build and demonstration of the turbine, with significant capital and operational cost reductions expected.

Led by Scotrenewables, FloTEC brings together a unique partnership of the most experienced and committed commercial, industrial and research organisations involved in tidal energy today: DP Energy, Harland and Wolff Heavy Industries, the European Marine Energy Centre (EMEC), ABB Ltd, EireComposites, Technology from Ideas, University College Cork and SKF.

OPERA

Open Sea Operating Experience to Reduce Wave Energy Cost

654444

Programme:

H2020 Energy

Topic:
LCE-02-2015

Call for proposals:
H2020-LCE-2015-1-two-stage

Duration:
01/02/2016 to 31/07/2019

Funding scheme:
RIA

Total cost:
€5,741,264

EU contribution:
€5,741,264

Coordinator:
FUNDACION TECNALIA RESEARCH & INNOVATION

Project website:
http://opera-h2020.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/200240_en.html

The Opera project will test in real, open-sea conditions a device that converts the motion of the waves into electricity, and which shares the collected data and results to help deploy these technologies, potentially reducing their costs by 50%.

OPERA focuses on collecting, analysing and sharing open-sea operating data of a floating oscillating water column wave energy converter gathered in the period two years. In addition, the project is the first open-sea deployment for four cost-reducing innovations that will be advanced from technology readiness level (TRL) 3-4 to TRL5.

Together, these four innovations have a long-term cost reduction potential of over 50%. These are:
• a 50% more efficient turbine;
• latching and predictive control;
• a shared mooring system for wave energy similar to those that have reduced mooring costs by 50% in aquaculture;
• an elastomeric mooring tether that reduces peak loads at the hull-mooring connection by 70% and thus addresses one of the most pressing challenges for structural survivability of wave energy devices.

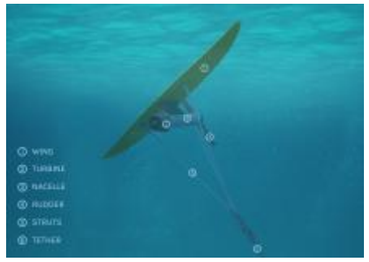
Documenting and sharing this open-sea experience will also induce a step-change in the knowledge of risk and uncertainties, costs and societal and environmental impact of wave energy.

The consortium brings together world leaders in wave energy research from four European countries, the intellectual property rights owner to exploit each of these innovations.

PowerKite

PowerKite - Power Take-Off System for a Subsea Tidal Kite

654438



Programme:

H2020 Energy

Topic:
LCE-02-2015

Call for proposals:
H2020-LCE-2015-1-two-stage

Duration:
01/01/2016 to 30/06/2018

Funding scheme:
RIA

Total cost:
€5,074,364

EU contribution:
€5,074,364

Coordinator:
THE QUEEN'S UNIVERSITY OF BELFAST

Project website:
http://www.powerkite-project.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199439_en.html

The PowerKite project aims to design, build and deploy a power take-off system (PTO) for a novel tidal energy collector concept, the Deep Green subsea tidal kite.

The main focus of the PowerKite project is to gather experience in open-sea conditions to enhance the structural and power performance of the PTO for a next generation tidal energy converter to ensure high survivability, reliability and performance, low environmental impact and competitive cost of energy in the future commercial phases.

The core innovation of the project lies in the electro-mechanical design of the PTO, allowing the array to be deployed in sites with low velocity currents.

The results can then be used to enhance the structural and power performance of the PTO to improve reliability and performance, lower environmental impact and competitive cost of energy in the subsequent development projects.

TAOIDE

Technology Advancement of Ocean energy devices through Innovative Development of Electrical systems to increase performance and reliability

727465

Programme:

H2020 Energy

Topic:
LCE-07-2016-2017

Call for proposals:
H2020-LCE-2016-RES-CCS-RIA

Duration:
01/11/2016 to 31/10/2019

Funding scheme:
RIA

Total cost:
€3,237,774

EU contribution:
€3,237,774

Coordinator:
UNIVERSITY COLLEGE CORK - NATIONAL UNIVERSITY OF IRELAND, CORK

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/205865_en.html

The TAOIDE project aims to decrease the cost of electricity generated by marine renewable technologies by developing an innovative hydrokinetic power system technology.

The cost of electricity generated by marine renewable systems is determined by multiple factors including energy production capability, capital costs, and operating and maintenance (O&M) costs, as well as other factors like logistical, permitting, environmental, and finance. Among all these factors, O&M costs are dominant in the cost structure. It is clear that marine renewable energy systems to be commercially viable must demonstrate exceptionally high reliability and availability.

TAOIDE is now addressing these multiple issues, as well as efficiency and reliability aspects, in order to develop an innovative hydrokinetic power system technology for the European market.

The projects primary objectives are:
• Develop wet gap electrical generator design capable of operating in seawater flooded condition
• Develop advanced bearings and seal designs for hydrokinetic machines
• Develop and implement control strategies to maximise power output and power quality for multiple prime mover designs
• Develop and implement advanced health monitoring system
• Validate the system design work by integrated full scale lab testing
• Integrate these components into a baseline hydrokinetic turbine and assess associated economic improvements
• Disseminate project results and findings

TAOIDE's ultimate goal is to develop a complete power transfer system from prime mover to electrical grid with normal maintenance intervals of greater than five years and availability of greater than 98%.

TIPA

Tidal Turbine Power Take-Off Accelerator

727793

Programme:

H2020 Energy

Topic:
LCE-07-2016-2017

Call for proposals:
H2020-LCE-2016-RES-CCS-RIA

Duration:
01/11/2016 to 31/10/2019

Funding scheme:
RIA

Total cost:
€4,401,565

EU contribution:
€4,401,565

Coordinator:
NOVA INNOVATION LTD

Project website:
http://www.tipa-h2020.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/205920_en.html

TIPA aims at increasing the performance and reliability of ocean energy subsystems, thanks to the design, building and testing of an innovative Direct Drive Power Take-Off (PTO) solution for tidal turbines. The PTO subsystem is a component, which converts the mechanical power in the tidal turbine rotor into electricity that is exported into the grid.

The consortium's aim is to reduce the lifetime cost of tidal power by 20%, demonstrated by accelerated life testing of a next-generation tidal turbine PTO solution. Project outputs will be independently verified, and will enable:

1. Improved performance: 20% Lifetime Cost of Energy improvement over a conventional PTO
2. Improved reliability: extending service intervals from less than 1 year to over 2 years
3. Verified survivability: PTO design lifetime greater than 20 years

The results will be disseminated and exploited to maximise the benefit of this project to the ocean energy sector, and to raise investor and market confidence in the emerging tidal energy industry.

In order to verify the technology, accelerated onshore and in-sea testing of a prototype PTO will be conducted, as well as a third party validation of the design and the test results. In parallel the consortium will develop a commercialisation strategy for selling and licensing the product to tidal energy technology developers, and explore potential uses outside the tidal sector, such as wave power and marine propulsion.

WaveBoost

Advanced Braking Module with Cyclic Energy Recovery System (CERS) for enhanced reliability and performance of Wave Energy Converters

727598

Programme:

H2020 Energy

Topic:
LCE-07-2016-2017

Call for proposals:
H2020-LCE-2016-RES-CCS-RIA

Duration:
01/11/2016 to 31/10/2019

Funding scheme:
RIA

Total cost:
€3,988,747

EU contribution:
€3,988,744

Coordinator:
CORPOWER OCEAN AB

Project website:
https://ec.europa.eu/inea/en/www.waveboost.eu.

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/205867_en.html

The project will develop and validate an innovative braking module with a Cyclic Energy Recovery System (CERS) and advanced control that can be coupled to different types of Wave Energy Convertors (WEC). Similar systems are being used in other sectors (e.g. automotive) but have not been applied to ocean energy so far. The novel technology is expected to significantly reduce shock loads on WECs, to increase in annual energy output by 25% and to reduce the Levelized Cost of Energy by more than 30% compared to the state of art.

The innovative design of CERS system is applicable to a wide range of WECs representing potentially over 75% of the current market, hence if successful, the project could provide multiple opportunities for commercialization and impact for the entire wave sector

WETFEET

Wave Energy Transition to Future by Evolution of Engineering and Technology

641334

Programme:

H2020 Energy

Topic:
LCE-01-2014

Call for proposals:
H2020-LCE-2014-1

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
RIA

Total cost:
€3,456,884

EU contribution:
€3,456,883

Coordinator:
WAVEC/OFFSHORE RENEWABLES - CENTRO DE ENERGIA OFFSHORE ASSOCIACAO

Project website:
http://www.wetfeet.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193803_en.html

The WETFEET project carries out research to improve the design of two promising technologies to convert wave energy to electricity, the oscillating water column (OWS) and the Symphony device.
Having substantial insight into strengths and drawbacks of existing concepts, the project identified wave energy 'breakthrough features', i.e. components, systems and processes. These breakthroughs are applied to the two wave concepts by members of the consortium.

The following main avenues to explore have been identified:
• survivability breakthrough via device submergence under storm conditions
• operation and maintenance (O&M) breakthrough via continuous submergence and adaption of components and strategies
• power-take off (PTO) breakthrough via dielectric membrane alternatives to the "classical" electro-mechanical power take-off equipment
• array breakthrough via sharing of mooring and electrical connections between nearby devices, as well as integral approach to device interaction and compact aggregates

The breakthrough features of WETFEET are developed and tested on the platform of two specific converter types (OWC and Symphony) with near-term commercial interest. A large part of the results can make a general contribution to the sectors by being implemented in other technologies.

AMPERE

Automated photovoltaic cell and Module industrial Production to regain and secure European Renewable Energy market

745601

Programme:

H2020 Energy

Topic:
LCE-09-2016

Call for proposals:
H2020-LCE-2016-RES-IA

Duration:
01/05/2017 to 30/04/2020

Funding scheme:
IA

Total cost:
€26,557,004

EU contribution:
€14,952,065

Coordinator:
3SUN SRL

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/209763_en.html

The aim of the AMPERE project is to demonstrate EU innovative and sustainable manufacturing of bifacial photo-voltaic (PV) modules in a pilot line capable of manufacturing up to 100MW/year of modules.

The manufactured products are based on silicon hetero-junction technology PV cells able to convert into electricity almost up to a quarter of the incident solar light. These will be industrialised applying innovative production processes that require even fewer steps than conventional crystalline-silicon (c-Si) PV cell technologies.

This technology will be scaled up to a more mature industrial level for mass production of reliable and efficient modules. The modules will be able to capture the light from both front and rear sides thus increasing the annual energy production in a PV field. Such characteristic will reduce the overall levelised cost of energy (LCOE), below that of conventional PV technologies.

The manufacturing process will implement high-level automation in the chain, including in-line controls to ensure high productivity at lower costs. This is vital for European industry to regain competitiveness in PV market. Technology environmental assessment, social and economic impacts and benefits across the entire value chain through a life cycle analysis (LCA) approach will be also studied.

The consortium includes wafer manufacturers, equipment manufacturers, advanced materials manufacturer, module manufacturer and reliability testing. 3SUN as module manufacturer will coordinate the project driving the consortium with its experience on real volume production.

CHEOPS

Production technology to achieve low Cost and Highly Efficient phOtovoltaic Perovskite Solar cells

653296

Programme:

H2020 Energy

Topic:
LCE-02-2015

Call for proposals:
H2020-LCE-2015-1-two-stage

Duration:
01/02/2016 to 31/01/2019

Funding scheme:
RIA

Total cost:
€5,042,914

EU contribution:
€3,299,095

Coordinator:
CSEM CENTRE SUISSE D'ELECTRONIQUE ET DE MICROTECHNIQUE SA - RECHERCHE ET DEVELOPPEMENT

Project website:
http://www.cheops-project.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199296_en.html

In photovoltaics (PV) research a particular type of new materials has recently generated great interest: Semiconductors based on organometallic halide compounds with the perovskite crystal structure (“perovskites”).

These new materials promise to enable the production of solar cells that are at the same time extremely efficient and very low cost.

The main goal of the CHEOPS project is to develop materials and production processes for both upscaling the perovskite photovoltaics technology and producing high efficiency solar cells. These will be developed in a tandem configuration which is a combination of a “conventional” crystalline silicon cell and a perovskite cell. Such tandem cells will increase the efficiency of conventional cells and could potentially be produced using existing manufacturing capacities.

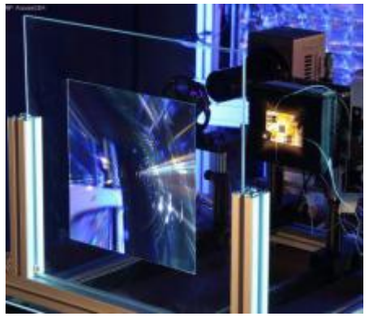
The CHEOPS consortium aims to achieve solar modules manufactured in a pre-production environment while maintaining high efficiencies (above 14% stable efficiency in modules of at least 15x15cm2). As the processes will be designed for large volume production at very low-cost, this will demonstrate the potential of perovskite cells as a technology well suited for building-integrated photovoltaics.

The CHEOPS consortium will also perform a sustainability assessment from a life-cycle perspective to anticipate potential risks for the technology (including business, technological, environmental, social & political risks). The project will establish a quantified future development roadmap as well as protocols for stability testing and reliable measurements..

CPVMatch

Concentrating Photovoltaic modules using advanced technologies and cells for highest efficiencies

640873



Programme:
H2020 Energy

Topic:
LCE-02-2014

Call for proposals:
H2020-LCE-2014-1

Duration:
01/05/2015 to 31/10/2018

Funding scheme:
RIA

Total cost:
€4,949,596

EU contribution:
€4,949,596

Coordinator:
FRAUNHOFER GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V.

Project website:
https://cpvmatch.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193754_en.html

Photovoltaic cells convert solar energy directly into electricity. The best state of the art cells, which are currently only expensive small prototypes, can convert around 45% of the solar energy they receive, whereas the modules (arrays of cells) used in everyday life have about 16%-20% efficiency rate.

The CPVMatch project will build a more efficient and affordable concentration photovoltaic module similar to those installed on solar power plants. The module will use lenses that concentrate solar radiation on an array of best cells available in order to produce more electricity at a lower cost. The project's consortium expects the module to reach a record breaking efficiency rate of solar energy conversion of 40%.

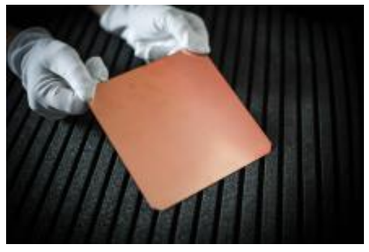
The central objectives should be achieved through novel multi-junction (MJ) solar cell architectures using advanced materials and processes for better spectral matching as well as through innovative high concentrating photovoltaics (HCPV) module concepts with improved optical and interconnection designs, including novel light management approaches.

The ambition for this project is not less than to achieve the highest efficiencies on solar cell and module level world-wide, making Europe the top player for concentration photovoltaic technology.

DISC

Double side contacted cells with innovative carrier-selective contacts

727529



Programme:
H2020 Energy

Topic:
LCE-07-2016-2017

Call for proposals:
H2020-LCE-2016-RES-CCS-RIA

Duration:
01/10/2016 to 30/09/2019

Funding scheme:
RIA

Total cost:
€6,620,246

EU contribution:
€4,743,519

Coordinator:
INSTITUT FUR SOLARENERGIEFORSCHUNG GMBH

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/205805_en.html

The DISC project will develop key technologies for the next generation of high-performance photovoltaic (PV) solar cells and modules, allowing ultra-low solar electricity costs with minimum environmental impact.

PV cells are essentially diodes functioning in reverse, instead of using electricity to provide light, they absorb light and produce electricity. This electricity is extracted from the cell trough metal contacts that gather the electricity produced in the cell in the form of the charge carrying particles (charge carriers). However one of the limiting factors for the efficiency of the PV cell is the loss of these carriers before they are extracted from the cell (a physical phenomenon called recombination).

DISC focuses on one of the remaining improvements to be explored to fully exploit the potential of silicon PV cells to its maximum: through the use of carrier selective contacts. These novel contacts allow charge carriers to be extracted without recombination.

Such contacts allow for PV cells with a simple structure as the one considered in DISC - non-patterned double-side contacted cells – which can be easily fabricated either by upgrading existing or within future production lines.

In DISC, a unique consortium of experienced industrial actors will collaborate with a set of institutes with demonstrated record devices and worldwide exceptional experience in the R&D field of carrier selective contacts. DISC will target efficiencies >25.5% on large area cell and >22% at module level while demonstrating pilot manufacturing readiness at competitive costs.

Nano-Tandem

Nanowire based Tandem Solar Cells

641023

Programme:

H2020 Energy

Topic:
LCE-01-2014

Call for proposals:
H2020-LCE-2014-1

Duration:
01/05/2015 to 30/04/2019

Funding scheme:
RIA

Total cost:
€4,332,342

EU contribution:
€3,561,842

Coordinator:
LUNDS UNIVERSITET

Project website:
https://nano-tandem.ftf.lth.se/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193777_en.html

Solar cells made of crystalline silicon are the most efficient cells available in the market. They have however an upper limit of how much light they can convert to electricity as they only absorb a certain part of the sunlight reaching them. This limit has been around 25% for the last 15 years.

One way to overcome this limit and reach higher efficiencies is to stack on top a transparent solar cell that can absorb the part of the sunlight that the silicon cell underneath it is not capable of using. This combination is called a "tandem solar cell".

The Nano-Tandem project develops a tandem cell using nanowires. These molecule-thin rods of material (about 1,000 atoms wide) can be manufactured and tailored to let through the solar radiation that is used by the bottom cell and absorb as much of the rest as possible. The project seeks to develop a tandem cell that will convert more than 25% of the light reaching it to electricity.

The project aims to strengthen the European knowledge base in nanotechnology, additionally addressing concerns regarding potential human health and environmental hazards related to the properties of nanowires.

NextBase

Next-generation interdigitated back-contacted silicon heterojunction solar cells and modules by design and process innovations

727523

Programme:

H2020 Energy

Topic:
LCE-07-2016-2017

Call for proposals:
H2020-LCE-2016-RES-CCS-RIA

Duration:
01/10/2016 to 30/09/2019

Funding scheme:
RIA

Total cost:
€5,668,751

EU contribution:
€3,800,421

Coordinator:
FORSCHUNGSZENTRUM JULICH GMBH

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/205821_en.html

Photovoltaic cells convert solar energy directly into electricity. The best crystalline silicon (c-Si) cells, which are the most common type of mass produced cell, can convert around 25% of the solar energy they receive in lab conditions, whereas the modules (arrays of cells) available off the shelf in the market have about 16-20% efficiency.

The NextBase project will develop innovative high-performance c-Si solar cells and modules based on a novel solar cell concept, the interdigitated back-contacted silicon heterojunction cell (IBC-SHJ). Cells will be produced which will reach efficiencies above 26%, a record for silicon cells without concentration.

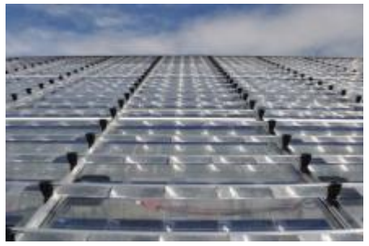
Using these cells, corresponding solar modules will achieve efficiencies above 22%. These efficiency values will be achieved by introducing a number of new design and process innovations throughout the wafer, cell and module fabrication that go beyond the state-of-the-art.

At the same time, the NextBase project will develop a new industrial manufacturing tool and low-cost processes for the IBC-SHJ solar cells. Through these innovations a competitive IBC-SHJ solar module cost below 0.35 €/Wp will be demonstrated, which is around 45% cheaper than the average cost of high performance PV modules currently available in the market.

PVSITES

Building-integrated photovoltaic technologies and systems for large-scale market deployment

691768



Programme:

H2020 Energy

Topic:
LCE-03-2015

Call for proposals:
H2020-LCE-2015-2

Duration:
01/01/2016 to 30/06/2019

Funding scheme:
IA

Total cost:
€8,490,473

EU contribution:
€5,467,612

Coordinator:
FUNDACION TECNALIA RESEARCH & INNOVATION

Project website:
http://www.pvsites.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/200257_en.html

Building-integrated photovoltaics (BIPV) technology market uptake has been hindered in the past years because the sector has failed to provide solutions that comply with the key demands from the market. Essentially, end-users (architects, builders, clients) expect BIPV systems to replace normal building elements (façades, roofs, skylights) and keep the same structural and aesthetic performance as the material they are replacing. Additionally, they should be cost-effective and should provide an attractive profitability from the generated energy.

PVSITES provides robust BIPV technology solutions that comply with these needs. The ultimate goal is to significantly enhance BIPV market deployment in the short and medium term.

PVSITES develops a wide portfolio of BIPV products based on crystalline silicon and CIGS photovoltaic technologies that comply with these requirements and demonstrate the reliability of these solutions in real conditions. The BIPV systems with advanced modules, grid interface and energy management technologies are demonstrated in six real buildings which cover different EU electricity markets and climates, building uses (residential, industrial, commercial), and vary from new buildings to retrofitting, and from public to private property. This wide range of architectural implementations provides a large potential for replication.

Finally, PVSITES develops software tools that will help end users integrate BIPV in the design, construction and management of their buildings. These will include:
• an accurate, user-friendly, integrated software tool for predicting the performance of BIPV products and their impact on building energy performance;
• libraries of pre-designed BIPV products ready to be used in normal building design software, including information on compliance with legal requirements.

Sharc25

Super high efficiency Cu(In,Ga)Se2 thin-film solar cells approaching 25%

641004

Programme:

H2020 Energy

Topic:
LCE-02-2014

Call for proposals:
H2020-LCE-2014-1

Duration:
01/05/2015 to 31/10/2018

Funding scheme:
RIA

Total cost:
€6,152,979

EU contribution:
€4,563,123

Coordinator:
ZENTRUM FUR SONNENENERGIE- UND WASSERSTOFF-FORSCHUNG BADEN-WURTTEMBERG

Project website:
http://sharc25.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193776_en.html

Photovoltaic (PV) cells convert solar energy directly into electricity. Today commercially available cells can convert around 16%-20% of the solar energy they receive. The most efficient are PV cells with complex structures and exotic materials (with efficiencies of 44% in the lab) but they are still expensive. One promising cost-reducing alternative is to use thinner PV cells that use less material, so-called "thin-film solar cells". They are significantly cheaper, but less efficient.

The main objective of the Sharc25 project is to boost the performance and improve the efficiency of Cu(In,Ga)Se2 (CIGS)-based thin-film photovoltaic technology towards theoretical limits. With innovative processes and advanced materials, the single-junction CIGS solar cell power conversion efficiency will be pushed towards 25%, 3% more than the previous best mark for this material.

The aim of the Sharc25 project is to understand and ultimately overcome the current limitations in high efficiency CIGS solar cells and to bring practical performance closer to the theoretical limits. Two leading institutes involved in the project, ZSW and Empa, independently develop innovative ideas to push the solar cell efficiency above 20% for their respective processes.
A realistic strategy will then be provided to bring these processes to large-area industrial module production with envisaged cost targets of <0.35 EUR/Wp and <0.60 EUR/Wp for installed systems, along with a reduced Capex of <0.75 EUR/Wp for factories of >100 MWp.

SiTaSol

Application relevant validation of c-Si based tandem solar cell processes with 30 % efficiency target

727497

Programme:

H2020 Energy

Topic:
LCE-07-2016-2017

Call for proposals:
H2020-LCE-2016-RES-CCS-RIA

Duration:
01/05/2017 to 31/10/2020

Funding scheme:
RIA

Total cost:
€4,298,201

EU contribution:
€4,298,201

Coordinator:
FRAUNHOFER GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V.

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/209742_en.html

Crystalline silicon wafer solar cells have been dominating the photovoltaic market so far due to the availability and stability of c-Si and the decades of Si technology development. Without new ways to improve the conversion efficiencies however, further significant cost reductions will be difficult to achieve and the c-Si technology will not be able to maintain its dominant role. The SiTaSol project explores conversion efficiency of c-Si solar cells to increase it to 30 % by combining it with III-V top absorbers.

Such a tandem solar cell will result in significant savings of land area and material consumption for photovoltaic electricity generation and will offer clear advantages compared to today's products.

SiTaSol will evaluate processes which can meet the challenging cost target and will try to prove that such a solar cell can be produced in large scale. Key priorities are focused on the development of a new growth reactor with an efficient use of the precursor gases, enhanced waste treatment, recycling of metals and low-cost preparation of the c-Si growth substrate.

Industrial partners as well as the most well-known research institutes in the fields are part of the consortium.

SWInG

Development of thin film Solar cells based on WIde band Gap kesterite absorbers

640868

Programme:

H2020 Energy

Topic:
LCE-01-2014

Call for proposals:
H2020-LCE-2014-1

Duration:
01/06/2015 to 31/05/2018

Funding scheme:
RIA

Total cost:
€3,254,755

EU contribution:
€3,254,755

Coordinator:
INTERUNIVERSITAIR MICRO-ELECTRONICA CENTRUM

Project website:
http://swing-h2020.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/196579_en.html

PV solar cell technologies are becoming cheaper and more efficient in terms of converting sunlight into electricity. Further progress, with higher efficiencies and lower cost, requires improving current technologies in new ways, whilst using cheap, abundant materials. Kesterites are potentially one group of promising materials, but it still needs to be established which kind of kesterites is the most suitable and what is the best way to manufacture them.

The SWInG project aims to validate in a laboratory one promising technique: a tandem solar cell using Kesterite. A tandem solar cell is a thin transparent solar cell stacked on a standard silicon cell. The thin transparent kesterite cell will absorb part of the sunlight that the solar cell underneath it cannot use. This will increase the overall amount of sunlight converted to electricity.

Based in the unique characteristics of kesterites, the main objective of SWInG is to develop a sustainable wide band gap Thin Film solar cell technology based on non-toxic and earth-abundant kesterite absorbers, which could be used in low-cost and stable tandem PV devices with 30% efficiency.

The key research challenges will be:
• developing up-scalable processes for the synthesis of the absorbers;
• defining the specifications for high-quality wide-band gap absorbers as well as suitable back contact and buffer layer;s
• assessing the potential of this technology for PV applications.

The wide-band gap thin-film kesterite solar cells developed in this project are expected to reach a stable efficiency of 15% at the laboratory scale and 12% in a mini-module prototype.

FLEXTURBINE

Flexible Fossil Power Plants for the Future Energy Market through new and advanced Turbine Technologies

653941

Programme:

H2020 Energy

Topic:
LCE-17-2015

Call for proposals:
H2020-LCE-2015-1-two-stage

Duration:
01/01/2016 to 31/12/2018

Funding scheme:
RIA

Total cost:
€9,634,574

EU contribution:
€6,477,596

Coordinator:
DOOSAN SKODA POWER SRO

Project website:
http://www.flexturbine.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/200282_en.html

The project aims to improve the responsiveness of turbines in fossil-fuel power plants. The increasing share of energy generated from variable renewable energy sources highlights a challenge of stable electricity supply in Europe. In the medium-term perspective potential energy gaps stemming from the intermittent nature of renewable energy could be best backed up by conventional fossil fuel power plants. However, this requires developing more flexible power plants operation. Current power plants cannot fill this role immediately without impeding their efficiency and engine lifetime through increased wear and damage induced by the higher number of (shorter) operating/loading cycles. New technologies need to be introduced to balance demand peaks with renewable output fluctuations at minimal fuel consumption and emissions without negative effects on cycling operation.

The FLEXTURBINE project has developed a medium to long term technology roadmap addressing future and existing power plants. It is the first step in such technology roadmap and consists of:

- new solutions for extended operating ranges to predict and control flutter;
- improved sealing and bearing designs to increase turbine lifetime and efficiency by reducing degradation/damages;
- an improved lifecycle management through better control and prediction of critical parts to improve competitive costs by more flexible service intervals and planned downtime, and by reducing unplanned outages.

This will allow power plants to react quicker to larger changes in demand and so be better back-ups to variable sources of renewable electricity.

GRIDSOL

SMART RENEWABLE HUBS FOR FLEXIBLE GENERATION: SOLAR GRID STABILITY

727362

Programme:

H2020 Energy

Topic:
LCE-07-2016-2017

Call for proposals:
H2020-LCE-2016-RES-CCS-RIA

Duration:
01/10/2016 to 30/09/2019

Funding scheme:
RIA

Total cost:
€3,421,448

EU contribution:
€3,421,448

Coordinator:
COBRA INSTALACIONES Y SERVICIOS S.A

Project website:
http://www.gridsolproject.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/205815_en.html

GRIDSOL aims to improve stability and efficiency of electricity produced from various renewable energy sources.

The project proposes the concept of smart renewable hubs, where a core of synchronous generators (in the concentrated solar power and biogas combined cycle HYSOL) is integrated with solar energy under a dynamic control system (DOME). These smart renewable hubs are designed to be self-regulating and to provide ancillary grid services thanks to firm, flexible generation on a single output, tailored to a specific location. In turn, this will help relieve pressure on TSOs.

The project will carry out research on an advanced control system to ensure operation efficiency and stability of electrical grids with a high level of renewable energy sources. It will also develop a multi-tower concept for reducing costs of concentrated solar power and improving its efficiency.

By getting the most of each renewable primary source, the GRIDSOL projects hopes to contribute to providing secure, clean and efficient electricity in Europe.

RE-SERVE

Renewables in a Stable Electric Grid

727481

Programme:

H2020 Energy

Topic:
LCE-07-2016-2017

Call for proposals:
H2020-LCE-2016-RES-CCS-RIA

Duration:
01/10/2016 to 30/09/2019

Funding scheme:
RIA

Total cost:
€4,996,653

EU contribution:
€4,996,653

Coordinator:
ERICSSON GMBH

Project website:
http://www.re-serve.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/205820_en.html

The RE-SERVE project is looking for a new way to stabilise energy systems with up to 100% renewable energy sources (RES) to help them maintain a stable and sustainable energy supply.

The project will address this challenge by developing new energy system concepts. They will be implemented as new system support services and will enable distributed, multi-level control of the energy system through the use of pan-European unified network connection codes. The project will propose innovative, 5G-based ICT solution to provide near to a real-time control of the distributed energy network.

RE-SERVE energy system models will be based on energy system use scenarios supplied by various energy providers. Through integrating energy simulations and live 5G communications, the project will assess the performance of the new control mechanisms. By bringing together the best facilities in Europe, Re-SERVE also plans to create a pan-European multi-site simulation test bed.

The project expects to develop new models of system support services based on an innovative architecture. Moreover, it will develop a model for pan-European unified network connection codes. RE-SERVE results will be promoted to standardisation organisations. When commercialised, the project results will provide a wide range of enhanced professional solutions and services for the energy system based on RES. for me ok your re drafted version.

AURES

Auctions for Renewable Energy Support: Effective use and efficient implementation options

646172

Programme:

H2020 Energy

Topic:
LCE-04-2014

Call for proposals:
H2020-LCE-2014-3

Duration:
01/01/2015 to 31/12/2017

Funding scheme:
CSA

Total cost:
€1,552,601

EU contribution:
€1,552,601

Coordinator:
DANMARKS TEKNISKE UNIVERSITET

Project website:
http://auresproject.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194421_en.html

Auctions, as a competitive and market-based mechanism, are on the verge of becoming a prevailing feature in support policies for renewable energy in Europe. A comprehensive assessment of auctions and their suitability for renewable support in Europe is urgently needed to facilitate their successful design and cost-efficient implementation. Auctions have the potential to significantly improve the performance of renewable electricity support in Europe, but there are potential pitfalls and difficulties to be avoided.

AURES combines dedicated, detailed and target-oriented analysis of auctions and their interactions with other energy policy mechanisms and markets with capacity building of policy makers and market participants. The project will identify and evaluate suitable auction design options and their effects under different market conditions using tailored theoretical, empirical, experimental, and model-based approaches, and so develop best practices and policy recommendations for future auction design.

Building on worldwide experiences with auctions in energy policy and other industries and on close cooperation with ongoing auction implementation cases in Europe, a strong knowledge base will be developed, enabling policy makers and market participants to make informed decisions. This knowledge base will be processed in a flexible policy support tool that provides policy makers with tailor-made information suited to their specific situation and policy preferences. By facilitating an intense and continuous stakeholder dialogue and by establishing a knowledge sharing network via workshops, webinars, bilateral meetings, and expert consultations, the project will serve as capacity building platform.

The project consortium consists of eight renowned public institutions and private firms representing seven European countries and includes some of the leading energy policy experts in Europe.

BestRES

Best practices and implementation of innovative business models for Renewable Energy aggregatorS

691689

Programme:

H2020 Energy

Topic:
LCE-04-2015

Call for proposals:
H2020-LCE-2015-3

Duration:
01/03/2016 to 28/02/2019

Funding scheme:
CSA

Total cost:
€1,994,813

EU contribution:
€1,994,813

Coordinator:
WIRTSCHAFT UND INFRASTRUKTUR GMBH & CO PLANUNGS KG

Project website:
http://bestres.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/200557_en.html

The project is supporting a better market integration of renewable energies by investigating and improving best-practice business models for renewable electricity in Europe.

The main focus of the BestRES project is on the so-called aggregators of renewable energies, which are electric utility companies aggregating the demand and the generation of energy in the market and aiming to optimise energy supply and consumption.

In particular, the project analyses the currently available business models for renewable energy aggregators by considering the type of renewable sources involved, the options available for energy storage and the way flexible energy demand is managed. At the same time, the project identifies the possible barriers (legal, regulatory and market-related) for the further expansion of those models.

Once the best-practice models are identified, they will be further improved within the project in order to include opportunities and synergies associated with the specific market design and conditions in the renewable energy sector.

Finally, the improved business models will be tested and validated in nine different countries (Austria, Belgium, Cyprus, France, Germany, Italy, Portugal, Spain and United Kingdom) through the involvement of six existing European renewable energy aggregators. The main outputs of the projects will consist in policy recommendations and will be addressed to regulators, system operators and policy makers.

The ultimate objective of the project is a better integration of renewable sources in the energy market through increasing the profitability for the involved players and through establishing a robust regulatory framework to encourage new investments in the sector.

CoolHeating

Market uptake of small modular renewable district heating and cooling grids for communities

691679

Programme:

H2020 Energy

Topic:
LCE-04-2015

Call for proposals:
H2020-LCE-2015-3

Duration:
01/01/2016 to 31/12/2018

Funding scheme:
CSA

Total cost:
€1,644,340

EU contribution:
€1,644,340

Coordinator:
WIRTSCHAFT UND INFRASTRUKTUR GMBH & CO PLANUNGS KG

Project website:
http://www.coolheating.eu/en/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/200840_en.html

The project is supporting the implementation of small modular renewable district heating and cooling grids for communities in South-Eastern Europe.

The objective of CoolHeating will be achieved through knowledge transfer and mutual activities of partners in countries where renewable district heating and cooling examples exist (Austria, Denmark, Germany) and in countries where it remains to be developed (Croatia, Slovenia, Macedonia, Serbia, Bosnia-Herzigowina).

Besides techno-economical assessments, core activities of the CoolHeating project include measures to stimulate the interest of communities and citizens to set up renewable district heating and cooling systems as well as the capacity building about financing and business models. The outcome will be the initiation of new renewable heating and cooling grids in the target countries.

CoolHeating expects to mobilize about 98 GWh heat or cooling per year in the five target communities. This would create about 100 direct and 100 indirect jobs and stimulate EUR 44 million investments.

CrowdFundRES

Unleashing the potential of Crowdfunding for Financing Renewable Energy Projects

646435

Programme:

H2020 Energy

Topic:
LCE-04-2014

Call for proposals:
H2020-LCE-2014-3

Duration:
01/02/2015 to 31/01/2018

Funding scheme:
CSA

Total cost:
€1,994,915

EU contribution:
€1,893,003

Coordinator:
WIRTSCHAFT UND INFRASTRUKTUR GMBH & CO PLANUNGS KG

Project website:
http://www.crowdfundres.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194428_en.html

One of the reasons for deceleration of the development of renewable energy in Europe is the difficulty to finance certain types of projects. Reduced access to conventional financing options has triggered innovative financing schemes to emerge, with crowdfunding attracting a lot of attention.

The objective of the project is to contribute to the acceleration of the renewable energy growth in Europe by unleashing the potential of crowdfunding for financing renewable energy projects.

The project has been developed for and in cooperation with three important target groups such as renewable energy project developers whose access to financing is getting more challenging, the general public having an interest in investing even very small amounts of their savings in renewable energy projects and crowdfunding platforms who act as intermediaries facilitating the financial transaction between the public and the project developers.

The project will result in better understanding of the public's perception of crowdfunding. It will provide an analysis of the challenges faced by the application of crowdfunding for renewable energy projects in Europe and develop guidelines that support easier, more effective and wider accepted practices in crowdfunding renewable energy projects. It wll also help apply the guidelines based on practical experience and promote the crowdfunding concept and its advantages among those who could contribute or raise funds.

IndustRE

Innovative Business Models for Market Uptake of Renewable Electricity unlocking the potential for flexibility in the Industrial Electricity Use

646191

Programme:

H2020 Energy

Topic:
LCE-04-2014

Call for proposals:
H2020-LCE-2014-3

Duration:
01/01/2015 to 31/12/2017

Funding scheme:
CSA

Total cost:
€1,897,228

EU contribution:
€1,897,228

Coordinator:
WIRTSCHAFT UND INFRASTRUKTUR GMBH & CO PLANUNGS KG

Project website:
http://www.industre.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194437_en.html

Large industrial consumers electricity demand is often flexible. At the same time the generation of electricity from renewable energy sources is very variable and sometimes unpredictable. This complementarity between the demand (industry) and supply (electricity generation from renewable energy sources) sides represents an opportunity to develop innovative business models aiming to develop renewable electricity.

In this project large industries are working with the renewable energy community to identify and implement business models creating win-win situations. INDUSTRE intends to identify and implement business models for supplying variable renewable electricity to industrial users with flexibility in their demand, creating win-win situations.

The business models will be adapted to five industrial sectors (chemicals, non-ferrous metals, cold storage, steel, and water treatment) and six target countries (Belgium, France, Germany, Italy, Spain and UK). Tools will be developed to facilitate adoption of the business models: model contracts adapted to the target countries and the different business models, as well as a methodology that assesses the flexibility in industrial units and its value within the business models.

progRESsHEAT

Supporting the progress of renewable energies for heating and cooling in the EU on a local level

646573

Programme:

H2020 Energy

Topic:
LCE-04-2014

Call for proposals:
H2020-LCE-2014-3

Duration:
01/03/2015 to 31/10/2017

Funding scheme:
CSA

Total cost:
€1,728,306

EU contribution:
€1,728,305

Coordinator:
TECHNISCHE UNIVERSITAET WIEN

Project website:
http://www.progressheat.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194458_en.html

EU directives require EU Member States to develop policies and national plans for the use of renewable heating and cooling networks. The progRESsHEAT project assists national policy makers in Austria, Czech Republic, Denmark, Germany, Portugal and Romania in developing and implementing integrated, effective and efficient policy strategies achieving a fast and strong penetration of renewable energy sources (RES) and energy efficiency (EE) in heating and cooling.

The activities include the analysis of cross-sectorial effects between RES and EE measures in industry, buildings and district heating and cooling (DHC) as well as their link to the electricity system. Together with the authorities, heating and cooling strategies are developed through a deep analysis of their specific situation, including barriers and drivers and a model-based assessment of policy intervention in scenarios up to 2050.

A key part of the project is the communication and capacity building process with policy makers, administrative staff and other stakeholders at local, regional and national level, including setting up policy group meetings, expert consultations, experience sharing and capacity building workshops as well as webinars.

PV FINANCING

PV FINANCING

646554

Programme:

H2020 Energy

Topic:
LCE-04-2014

Call for proposals:
H2020-LCE-2014-3

Duration:
01/01/2015 to 30/06/2017

Funding scheme:
CSA

Total cost:
€2,050,939

EU contribution:
€2,050,939

Coordinator:
BSW - BUNDESVERBAND SOLARWIRTSCHAFT E.V.

Project website:
http://www.pv-financing.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194454_en.html

In many EU countries the rapid deployment of solar photovoltaic power generation has been associated with a particular type of government incentive, the Feed In Tariff (FIT). In this scheme the renewable electricity producer was paid a price that was higher than the market price for the energy that was supplied to the grid. These higher prices were typically guaranteed for long periods of time in order to make investments attractive.

As many EU countries are now phasing out FITs, solar companies and electric utilities, in partnership with financial institutions, will have to come up with new business models and financing schemes for investors in PV.

The project will identify the most profitable business models and financing schemes for PV systems, disseminate them among stakeholders and try to shape the necessary policy framework for their adoption. The goal of PV FINANCING is to help stakeholders from specific PV segments to implement projects based on these new business models, while applying innovative equity and debt financing schemes. In doing so, the project will help investors, commercial banks and insurance companies improve their understanding of the PV business models, which will decrease the transaction costs and increase the availability of financing for PV projects.

RiCORE

Risk Based Consenting of Offshore Renewable Energy Projects

646436

Programme:

H2020 Energy

Topic:
LCE-04-2014

Call for proposals:
H2020-LCE-2014-3

Duration:
01/01/2015 to 30/06/2016

Funding scheme:
CSA

Total cost:
€1,393,533

EU contribution:
€1,393,533

Coordinator:
THE ROBERT GORDON UNIVERSITY

Project website:
http://ricore-project.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194433_en.html

The consenting of offshore renewable energy is often cited as one of the main non-technical barriers to the development of this sector. A significant aspect of this is the uncertainty inherent in the potential environmental impacts of novel technology.

To ensure consents are compliant with EU and national legislation, costly and time consuming surveys are required even for perceived lower risk technologies in sites which may not be of highest environmental sensitivity. It was therefore the aim of the RiCORE project to establish a risk-based approach to consenting where the level of survey requirement is based on the environmental sensitivity of the site, the risk profile of the technology and the scale of the project.

RiCORE studied the legal framework in place in the partner EU Member States to ensure the framework developed will be applicable for rollout across these countries and further afield.

The RiCORE project considered the practices, methodologies and implementation of pre-consent surveys, post-consent and post-deployment monitoring. This allowed feedback for the development of the risk-based framework for the environmental aspects of consent and provide best practice.

The project achieved these aims by engaging with the relevant stakeholders including the regulators, industry and Environmental Impact Assessment practitioners, through a series of expert workshops and through developing their outcomes into guidance.

The impact of the project is to improve, in line with the requirements of the Renewable Energy Directive, specifically Article 13 (1), consenting processes to ensure cost efficient delivery of the necessary surveys, clear and transparent reasoning for work undertaken, improving knowledge sharing and reducing the non-technical barriers to the development of the Offshore Renewable Energy sector so it can deliver clean and secure energy.

SDHp2m

Advanced policies and market support measures for mobilising solar district heating investments in European regions and countries

691624

Programme:

H2020 Energy

Topic:
LCE-04-2015

Call for proposals:
H2020-LCE-2015-3

Duration:
01/01/2016 to 31/12/2018

Funding scheme:
CSA

Total cost:
€2,087,297

EU contribution:
€1,919,298

Coordinator:
STEINBEIS INNOVATION GGMBH

Project website:
http://solar-district-heating.eu/SDHrelatedprojects/AboutSDHp2m.aspx

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199617_en.html

The SDHp2m project focuses on developing and implementing advanced policies and support measures for the use of large-scale solar thermal plants combined with other renewable energy sources (RES) in district heating and cooling (DHC) systems.

By involving nine European regions, the project aims to mobilise investments in solar district heating (SDH) and to encourage a significant market rollout. These goals will be achieved through improving policy, regulation and financing frameworks, as well as embedding efficient market support and capacity building measures.

The activities in the participating regions focus on strategy and action planning based on a survey, an exchange of best practices and a stakeholder consultation. From an early stage, the project also ensures an efficient dissemination of the technology at national and international level.

As an outcome, the project expects to trigger an installation and planning of new RES DHC and SDH systems, corresponding to a total investment of EUR 350 million. This will lead to a production of an estimated 1,420 GWh of energy from RES per year in DHC systems.

FlexiFuel-CHX

Development of a fuel flexible and highly efficient ultra low emission residential-scale boiler with coupled heat recuperation based on flue gas condensation

654446

Programme:

H2020 Energy

Topic:
LCE-02-2015

Call for proposals:
H2020-LCE-2015-1-two-stage

Duration:
01/01/2016 to 31/12/2018

Funding scheme:
RIA

Total cost:
€4,309,610

EU contribution:
€3,514,398

Coordinator:
WINDHAGER ZENTRALHEIZUNG TECHNIK GMBH

Project website:
https://wupperinst.org/en/p/wi/p/s/pd/600/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199622_en.html

The FlexiFuel-CHX project aims to develop a new fuel flexible and highly efficient residential biomass heating technology (20 - 130 kW). It is based on an innovative concept that can produce gas from wood chip and biomass pellets. This gas is then used in a low-emission burner to produce hot water.

Moreover, a compact flue gas condensation system capable to operate with highly aggressive gases from agricultural fuel combustion will be developed to increase the efficiency of the whole system up to 110%. An advanced control system as well as measures for improved system integration shall additionally increase the annual utilisation rate up to 95%.

The main results of the project will be:
• a highly efficient and fuel flexible residential heat production at almost zero CO and gaseous carbon (OGC) emissions;
• a reduction by 50% of the harmful nitrogen oxides (NOx) emissions and ultra-low particles emissions below 13 mg/MJ.

Fuel flexibility as well as high efficiency, and therefore reduced operation costs, could increase the attractiveness of biomass based heating systems, leading to a significant growth of the biomass use for residential heating.

Residue2Heat

Renewable residential heating with fast pyrolysis bio-oil

654650

Programme:

H2020 Energy

Topic:
LCE-02-2015

Call for proposals:
H2020-LCE-2015-1-two-stage

Duration:
01/01/2016 to 31/12/2019

Funding scheme:
RIA

Total cost:
€5,466,479

EU contribution:
€5,465,728

Coordinator:
RHEINISCH-WESTFAELISCHE TECHNISCHE HOCHSCHULE AACHEN

Project website:
http://www.residue2heat.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199298_en.html

Residue2Heat analyses the use of sustainable, ash rich biomass and residues for residential heating applications (20-200 kWth) to provide sustainable heat at a competitive price.

Various second generation agricultural and forestry residue streams are converted into a liquid energy carrier near the biomass origin at an economic viable scale of 15-30 MWth using the fast pyrolysis process. Subsequently, the fast pyrolysis bio-oil (FPBO) is distributed to a large number of residential end-users. The FPBO obtained fulfils at least the draft European Committee for Standardisation (CEN) specification for replacement of domestic heating oil and comply with REACH regulation, as well as quality control aspects include the removal of extractives and solids. The final outcome is fuelling modified residential heating systems with FPBO, for which manufacturing capabilities, market development and product distribution are already in place. The emission control and energy efficiency of the heating systems are being optimised by dedicated modelling of FPBO atomisation and combustion kinetics, supported by single droplet combustion tests and spray characterisation.

The main target of the project is to enable the production of standardized FPBO at a maximum price of 15 EUR/GJ, aiming for a heat price between EUR 65 to EUR 100 per MWhth. In addition, a total reduction of over 50 kt/year of SO2 is theoretically possible assuming the lower sulphur content in the fuel oil.

SOLPART

High Temperature Solar-Heated Reactors for Industrial Production of Reactive Particulates

654663

Programme:

H2020 Energy

Topic:
LCE-02-2015

Call for proposals:
H2020-LCE-2015-1-two-stage

Duration:
01/01/2016 to 31/12/2019

Funding scheme:
RIA

Total cost:
€4,558,688

EU contribution:
€4,366,563

Coordinator:
CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE CNRS

Project website:
http://solpart-project.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199440_en.html

The main objective of the SOLPART project is to develop, at pilot scale, a high temperature (950°C) solar process suitable for particle treatment in energy intensive industries, such as the cement or lime industries.

The main idea is to supply, totally or partially, the required thermal energy for limestone calcination by using high temperature solar heat. This will help reduce the life cycle environmental impacts of the process and increasing the attractiveness of renewable heating technologies in process industries.

To achieve this goal, the project merges three advanced technologies:
• high temperature solar reactor;
• transport of high temperature solid materials;
• high temperature thermal storage.
The synergy between these technologies lies in using the solar-treated particles as storage medium.

The project is building a pilot scale solar reactor suitable for calcium carbonate decomposition and for simulate a 24h/day industrial process. The system will operate at 950°C and will include a 30 kWth solar reactor producing 30 kg/h CaO and a 16h hot CaO storage.

The development of a such innovative technology for continuous particle processed by concentrated solar energy at about 950°C is unique in the world. Thanks to the solar unit integration in the industrial process (potentially combined with CO_2 capture), this will result in a considerable reduction of the carbon footprint of the CO_2 emitter industries and open a new market for renewable energies.

FracRisk

Furthering the Knowledge Base For Reducing the Environmental Footprint of Shale Gas Development (FracRisk)

636811

Programme:

H2020 Energy

Topic:
LCE-16-2014

Call for proposals:
H2020-LCE-2014-1

Duration:
01/06/2015 to 31/05/2018

Funding scheme:
RIA

Total cost:
€2,939,998

EU contribution:
€2,939,998

Coordinator:
THE UNIVERSITY OF EDINBURGH

Project website:
http://www.fracrisk.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193422_en.html

The project is improving understanding of the potential impact of shale gas exploration and exploitation by hydraulic fracturing. It also aims to develop a decision-support tool for quantifying the environmental impacts.

FracRisk is addressing key knowledge gaps identified from the literature, research and industrial experience. For this purpose, it is focusing on modelling six scenarios selected to show the highest risk of negative environmental impacts. The modelling of the scenarios is directed by the aim to reduce the uncertainty and assess the risk of different events during shale gas exploration and exploitation. The consortium will validate scenarios on the basis of the available literature and existing data from several shale gas sites in Europe and the United States.

As a result, effective monitoring procedures and applicable mitigation techniques will be determined and evaluated. Scientific recommendations will be formulated and legislative refinement suggested. Public concerns about the management of risk related to fracking operations will be addressed. A firm scientific basis and demonstrable data to validate recommendations will be provided. The technological readiness level from a number of multidisciplinary approaches and applications will be noticeably improved. FrakRisk will lead to a more focused, coherent and scientifically founded approach that will be useful to EU Member States willing to enable and regulate the shale gas industry.

M4ShaleGas

M4ShaleGas: Measuring, monitoring, mitigating managing the environmental impact of shale gas

640715

Programme:

H2020 Energy

Topic:
LCE-16-2014

Call for proposals:
H2020-LCE-2014-1

Duration:
01/06/2015 to 30/11/2017

Funding scheme:
RIA

Total cost:
€2,999,649

EU contribution:
€2,999,648

Coordinator:
NEDERLANDSE ORGANISATIE VOOR TOEGEPAST NATUURWETENSCHAPPELIJK ONDERZOEK TNO

Project website:
http://www.m4shalegas.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193743_en.html

The accelerated development of shale gas is accompanied by growing public concern regarding the safety of shale gas extraction and its impact on human health and the environment.

Even if it has proved successful in the US, for Europe there are a number of important gaps in our present understanding of shale gas exploration and exploitation, and a strong need for independent, science- based knowledge of its potential impacts in a European context.

The M4ShaleGas program focuses on reviewing and improving existing best practices and innovative technologies for measuring, monitoring, mitigating and managing the environmental impact of shale gas exploration and exploitation in Europe.

The technical and social research activities will yield integrated scientific recommendations for:
• how to minimize environmental risks to the subsurface, surface and atmosphere;
• risk reduction and mitigation measures;
• how to address the public attitude towards shale gas development.

Eighteen research institutes from ten EU Member States that collaborate in the M4ShaleGas consortium cover different geopolitical regions in Europe, including countries that are at the forefront regarding shale gas exploration and exploitation in Europe as well as countries where shale gas exploitation is not yet being actively pursued.

Knowledge and experience on best practices is imbedded by direct collaboration with US and Canadian research partners and input from representatives from the industry. During the project, results will be public and actively disseminated to all stakeholders.

ShaleXenvironmenT

Maximizing the EU shale gas potential by minimizing its environmental footprint

640979

Programme:

H2020 Energy

Topic:
LCE-16-2014

Call for proposals:
H2020-LCE-2014-1

Duration:
01/09/2015 to 31/08/2018

Funding scheme:
RIA

Total cost:
€3,399,202

EU contribution:
€2,999,201

Coordinator:
UNIVERSITY COLLEGE LONDON

Project website:
http://shalexenvironment.org/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193771_en.html

The ShaleXenvironmenT project is assessing the environmental footprint (water usage and contamination, induced seismicity and emissions) of shale gas exploitation in Europe. It is carrying out laboratory-based experiments and modelling activities to better understand rock-fluid interactions, fluid transport, fracture initiation and propagation.

ShaleXenvironmenT holds a transparent discussion with all stakeholders, including the public, and will suggest ideas for approaches on managing shale gas exploitation, impacts and risks in Europe, and eventually worldwide.

The proposed research will bring economic benefits for consultancy companies, service industry, and oil and gas conglomerates.

European Commission

SHEER

SHale gas Exploration and Exploitation induced Risks

640896

Programme:

H2020 Energy

Topic:
LCE-16-2014

Call for proposals:
H2020-LCE-2014-1

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
RIA

Total cost:
€2,680,470

EU contribution:
€2,601,720

Coordinator:
AMRA - ANALISI E MONITORAGGIO DEL RISCHIO AMBIENTALE SCARL

Project website:
http://www.sheerproject.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193758_en.html

The SHEER project analyses best practices for assessing and mitigating the environmental risks related to the exploration and exploitation of shale gas. This includes development of a probabilistic procedure for assessing short and long-term risks associated with groundwater contamination, air pollution and induced seismicity.

SHEER is developing methodologies and procedures to track and model fracture evolution around shale gas exploitation sites and a robust, statistically-based, multi-parameter methodology to assess an environmental impact and risks across the operational lifecycle of shale gas.

The developed methodologies are being applied and tested using a comprehensive database, which includes information on seismicity, changes of the quality of ground-waters and air, ground deformations, and operational data collected from past case studies. They are being improved by the high quality data which is being collected from a shale gas exploitation site in Poland.

The project will develop best practices to be applied in Europe to monitor and minimise any environmental impacts related to exploration and exploitation of shale gas.

European Commission

GrowSmarter

GrowSmarter

646456

Programme:

H2020 Energy

Topic:
SCC-01-2014

Call for proposals:
H2020-SCC-2014

Duration:
01/01/2015 to 31/12/2019

Funding scheme:
IA

Total cost:
€34,560,206

EU contribution:
€24,820,974

Coordinator:
STOCKHOLMS STAD

Project website:
http://www.grow-smarter.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194441_en.html

The project brings together the cities of Barcelona, Cologne and Stockholm to demonstrate 12 smart, integrated solutions for city services such as renovation, heating, waste management, mobility and other, as a way of preparing for a wider market rollout. All the smart solutions are fit into the "Lighthouse cities" strategic development plans and the "Follower cities" replication plans. The solutions will involve five "Follower cities" and other European and international study groups.

The solutions solve common urban challenges such as:
• the renewal of existing buildings by demonstrating the cost efficient refurbishment of 100.000 square meters of nearly zero or low energy districts reducing energy demand by 70-90%;
• integrated infrastructures for ICT, street lighting, smart grids district heating and smarter waste handling;
• sustainable urban mobility for both passenger and gods integrated in smart grids, biofuels from household waste thus reducing local air quality emissions by 60%.

The consortium includes industrial and research partners that will convert the solutions adopted into smart cities business case to be replicated in other EU cities.

Innovation and Networks Executive Agency

mySMARTLife

Smart Transition of EU cities towards a new concept of smart Life and Economy

731297

Programme:

H2020 Energy

Topic:
SCC-1-2016-2017

Call for proposals:
H2020-SCC-2016

Duration:
01/12/2016 to 30/11/2021

Funding scheme:
IA

Total cost:
€21,724,075

EU contribution:
€18,625,602

Coordinator:
FUNDACION CARTIF

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/206242_en.html

The mySMARTLife project supports the transformation of EU cities through proposing an Urban Transformation Strategy based on the smart people and smart economy pillars. The strategy will be demonstrated in the 'lighthouse cities' of Hamburg (Germany), Helsinki (Finland) and Nantes (France), taking into account challenges facing these cities. The project will also define long term advanced urban plans that consider a rigorous impact assessment, an active citizen engagement in the decision-making process and a structured business approach.

Developing and testing of integrated innovative solutions in the 'lighthouse cities' focuses on the following areas:
• high performance district (smart homes, smart buildings, renewables, district heating and cooling);
• smart grids;
• mobility (electric vehicles, smart charging infrastructure)

The project deploys an extensive monitoring and evaluation programme to assess the effectiveness of mySMARTLife actions and interventions as compared to the initial situation, the project's objectives and expected results.

Replication of the results is a very important aspect of the project. Four 'follower cities' - Bydgoszcz (Poland), Rijeka (Croatia) and Palencia (Spain) and Varna (Bulgaria) - will take up on the solutions deployed in the 'lighthouse cities'. Additionally, as part of the replication efforts, the project plans to launch the 'mySMARTLife Cities Network', which will gather cities that are interested in exchanging experiences with the lighthouse and follower cities.

REMOURBAN

REgeneration MOdel for accelerating the smart URBAN transformation

646511

Programme:

H2020 Energy

Topic:
SCC-01-2014

Call for proposals:
H2020-SCC-2014

Duration:
01/01/2015 to 31/12/2019

Funding scheme:
IA

Total cost:
€23,791,530

EU contribution:
€21,541,949

Coordinator:
FUNDACION CARTIF

Project website:
http://www.remourban.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194449_en.html

The cities of Nottingham, Tepebasi and Valladolid implement actions at the nexus of the energy, transport and ICT sectors which, if successful, can be replicated throughout the EU.

In these three cities, more than 190 electric vehicles (including public, private and city cars), coupled with recharging points, are introduced, and more than 900 flats (over 63,000m2 of surface) are retrofitted to increase their energy efficiency.

To reduce dependency on the electric grid and to drastically reduce CO2 emissions, the project helps produce solar and biomass energy, and it develops storage and smart grid management solutions.

In addition, an ICT city platform provides information to public authorities and citizens allowing a real-time monitoring of, for example, vehicle locations and energy consumption. By providing high added-value services to the citizens, the platform facilitates users' decisions and encourages changes in their behaviour.

All these actions, accompanied by a strong citizen engagement strategy involving almost 15,000 citizens in these cities, will lead to achieving total savings of 7.29 GWh/yr in the energy consumption in households and urban mobility and will help reduce CO2 emission by 3.29 Mt/yr.

The implementation and demonstration of these actions will lead to the development of a holistic and highly replicable urban regeneration model based on the joint transformation of districts, urban mobility and infrastructures. It will therefore pave the way for a greener and more sustainable future in European cities.

REPLICATE

REnaissance of Places with Innovative Citizenship and TEchnolgy

691735

Programme:

H2020 Energy

Topic:
SCC-01-2015

Call for proposals:
H2020-SCC-2015

Duration:
01/02/2016 to 31/01/2021

Funding scheme:
IA

Total cost:
€29,250,564

EU contribution:
€24,965,263

Coordinator:
AYUNTAMIENTO DE DONOSTIA SAN SEBASTIAN

Project website:
http://replicate-project.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/200256_en.html

The cities of San Sebastian, Bristol and Florence are deploying smart city solutions which integrate energy, mobility and information & communication technologies in city districts. Their objectives are to address urban complexities, specific to these cities, and to develop a model which will be replicated in other cities throughout Europe after the project.

The synergic demonstration of activities will reduce energy use and carbon emissions, improve the air quality in cities a; enhance quality of life and stimulate economic development.

The project selected a district in each of the three cities, which integrates different solutions and activities. In particular, they demonstrate the use of local renewable power generation and energy storage, the use of 'intelligent lighting', able to adjust automatically the amount of light needed; the retrofitting of 'intelligent buildings' which use the latest domotic solutions able to decrease energy consumption, and integrated with the electricity grid; use electric mobility, such as e-cars, or e-bikes, but also solutions for deliveries.

Last, but not least, they put the people at the heart of their project. They will analyse the complexities of the cities, and propose solutions to get tangible benefits for the citizens. All the proposed solutions are supported by the latest ICT technologies and platform, accessible to all the citizens.

Ruggedised

Rotterdam, Umea and Glasgow: Generating Exemplar Districts In Sustainable Energy Deployment

731198

Programme:

H2020 Energy

Topic:
SCC-1-2016-2017

Call for proposals:
H2020-SCC-2016

Duration:
01/11/2016 to 31/10/2021

Funding scheme:
IA

Total cost:
€19,562,868

EU contribution:
€17,692,858

Coordinator:
GEMEENTE ROTTERDAM

Project website:
http://www.ruggedised.eu

Project description on CORDIS:
http://cordis.europa.eu/search/result_en?q=ruggedised

The RUGGEDISED project will create urban spaces in the lighthouse cities of Rotterdam, Umea and Glasgow powered by secure, affordable and clean energy, smart electro-mobility, smart tools and services. The overall goals are:

• Improving the quality of life of citizens, by offering them a clean, safe, attractive, inclusive and affordable living environment.

• Reducing the environmental impact by reducing significantly CO2 emissions, investing and popularising the use of renewable energy sources (RES) and deploying more electric vehicles.

• Creating a stimulating environment for sustainable economic development, by generating more sustainable jobs, stimulating community involvement in smart solutions and boosting start-up and existing companies to exploit the opportunities of the green digital economy and Internet of Things.

A key innovation challenge to achieve these goals in all three cities is to propose successful combinations of integrated smart solutions for energy and e-mobility (enabled by ICT platforms and open data protocols) and business models with the right incentives for stakeholders to invest and participate in a smart society. Specific challenges are:

• managing peak load variation in thermal and electrical energy supply and demand;
• developing suitable cooperation structures and business models for exchange of energy;
• developing Smart City open data platforms and energy management systems

RUGGEDISED has identified ten specific objectives and planned 32 smart solutions to meet the challenges. Implementing these solutions in the three lighthouse cities is not the primary goal of the project, but a necessary means to find the right incentives and to validate business cases to enable large-scale deployment and replication of solutions. The three follower cities of Brno, Gdansk and Parma have selected 27 solutions to be implemented in the lighthouse cities, with a goal to prepare for their deployment in the future.

SHAR-LLM

Sharing Cities

691895

Programme:

H2020 Energy

Topic:
SCC-01-2015

Call for proposals:
H2020-SCC-2015

Duration:
01/01/2016 to 31/12/2020

Funding scheme:
IA

Total cost:
€28,068,094

EU contribution:
€24,753,945

Coordinator:
GREATER LONDON AUTHORITY

Project website:
http://www.sharingcities.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/200153_en.html

The SHAR-LLM project will allow the cities of London, Lisbon and Milan to develop and implement ten goals that will turn them into smart cities and help roll out the concept all over Europe. the SHAR-LLM project has four key objectives.

• To achieve scale in the European smart cities market by proving that properly designed smart city solutions can be integrated in complex urban environments. This will be done in a way that exhibits their true potential and allows for the significant scale-up and consequent increase in social, economic and environmental value.

• To adopt a digital first approach which proves the extent to which ICT integration can improve and connect up existing infrastructure, as well as the design and running of new city infrastructure. This will also allow for the creation of a new set of next stage digital services which will help citizens make better and beneficial choices around energy efficiency and mobility.

• To accelerate the market to understand, develop and trial business, investment and governance models, essential for the true aggregation and replication of smart city solutions in cities.

• To share and collaborate for society in order to respond to increasing demand for participation, to enhance mechanisms for citizens' engagement and to improve local governments' capacity for policy making and service delivery through collaboration and co-design. This will result in outcomes that are better for citizens, businesses and visitors.

SmartEnCity

Towards Smart Zero CO2 Cities across Europe

691883

Programme:

H2020 Energy

Topic:
SCC-01-2015

Call for proposals:
H2020-SCC-2015

Duration:
01/02/2016 to 31/07/2021

Funding scheme:
IA

Total cost:
€32,201,606

EU contribution:
€27,890,139

Coordinator:
FUNDACION TECNALIA RESEARCH & INNOVATION

Project website:
http://smartencity.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/200259_en.html

SmartEnCity is testing smart solutions in the areas of energy, transport and ICT, demonstrating that their synergic use fosters sustainable, smart and resource-efficient urban environments in cities.

The project integrates planning and implementation of measures aimed to improve energy efficiency in several energy consuming sectors in cities, while increasing their supply of renewable energy. In addition, the project is developing a highly adaptable and replicable systemic approach towards urban transformation, which can be adapted in all European cities.

The underlying concept of the project is the Smart Zero Carbon City concept, where city's carbon footprint and energy demand are kept to a minimum through the use of advanced ICT technologies that save energy and help promote awareness; energy supply is entirely renewable and clean; and local energy resources are intelligently managed by aware citizens, as well as coordinated public and private stakeholders. This approach is implemented in the three selected cities of Vitoria-Gasteiz in Spain, Tartu in Estonia and Sonderborg in Denmark.

The three cities develop a number of coordinated actions aimed to reduce energy demand of the existing residential building stock through cost-effective low-energy retrofitting actions on a district scale, increase the share of renewable energy and deploy clean mobility solutions.

SMARTER TOGETHER

Smart and Inclusive Solutions for a Better Life in Urban Districts

691876

Programme:

H2020 Energy

Topic:
SCC-01-2015

Call for proposals:
H2020-SCC-2015

Duration:
01/02/2016 to 31/01/2021

Funding scheme:
IA

Total cost:
€29,119,448

EU contribution:
€24,742,979

Coordinator:
LYON CONFLUENCE

Project website:
http://smarter-together.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199963_en.html

The SMARTER TOGETHER project's overarching vision is to find the right balance between smart technologies and organisational governance dimensions in order to deliver smart and inclusive solutions and to improve citizen's quality of life.

The project gathers the European Lighthouse cities Lyon, Munich, Vienna, the Follower cities Santiago de Compostela, Sofia, Venice as well as Kyiv and Yokohama as observer cities, which bring the perspective of East Europe and Asia.

SMARTER TOGETHER delivers five clusters of co-created, smart and integrated solutions:
• living labs for citizens' engagement
• district heating and renewable energy sources (RES) for low energy districts
• holistic refurbishment for low energy districts addressing public and private housing
• Smart Data management platform and smart services
• e-mobility solutions for sustainable mobility.

A large-scale replication of the results of the project will be prepared in the Lighthouse cities, the Follower cities, which already selected their target area, as well as a group of 15-20 other cities ensuring a broad geographical and climate coverage. Commercial exploitation will be enhanced by the development of new business models for widespread use by the stakeholders.

Triangulum

Triangulum: The Three Point Project / Demonstrate. Disseminate. Replicate.

646578

Programme:

H2020 Energy

Topic:
SCC-01-2014

Call for proposals:
H2020-SCC-2014

Duration:
01/02/2015 to 31/01/2020

Funding scheme:
IA

Total cost:
€29,501,431

EU contribution:
€25,420,602

Coordinator:
FRAUNHOFER GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V.

Project website:
http://www.triangulum-project.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194459_en.html

The cities of Manchester, Stavanger and Eindhoven are deploying smart city solutions which integrate energy, mobility and information & communication technologies (ICT) in city districts. The goal is to reduce energy use and carbon emissions, enhance quality of life and stimulate economic development.

The project will demonstrate that this model, integrating existing technologies in the field of energy, transport and ICT, can be replicated throughout Europe.

Within the framework of the project, a district in each city has been selected. Each district will apply different technological solutions that will decrease the use of energy, reduce carbon emissions, and improve air quality in cities.

The technologies used vary from local renewable power generation and energy storage, geothermal pumps or storage batteries integrated in the electricity grid, to use of electric mobility (e-cars and e-bikes) as well as refurbishment over 100,000 m² of housing.

BioEnergyTrain

BioEnergyTrain
656760

Programme:

H2020 Energy

Topic:
LCE-20-2014

Call for proposals:
H2020-LCE-2014-2

Duration:
01/05/2015 to 30/04/2019

Funding scheme:
CSA

Total cost:
€3,697,580

EU contribution:
€3,697,579

Coordinator:
EUROPEAN SUSTAINABLE ENERGY INNOVATION ALLIANCE - ESEIA, VEREIN FUR FORDERUNG DER EUROPAIESCHEN INNOVATION FUR ERNEUERBARE ENERGIEN

Project website:
http://www.bioenergytrain.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/195318_en.html

Development and adoption of renewable and sustainable energy has become a top priority in Europe. Research into new energy methods required to reduce the carbon footprint is an urgent and critical need. Bioenergy is a particularly important field in this respect as it is at the cross-roads of several important European policies, from the Strategic Energy Technology Plan Roadmap on Education and Training (SET-Plan) to the European Bioeconomy Strategy to European Food Safety and Nutrition Policy. European development in this field is stalled due to a lack of qualified personnel, a lack of cohesion and integration among stakeholders, and poor linkage between professional training and industry needs.

To address these problems, the BioEnergyTrain project brings together fifteen partners from six EU countries to create new post-graduate level curricula in key bioenergy disciplines, and a network of tertiary education institutions, research centres, professional associations, and industry stakeholders encompassing the whole value chain of bioenergy from field/forest to integration into the sustainable energy systems of buildings, settlements and regions.

The project fosters European cooperation to provide a highly skilled and innovative workforce across the whole bioenergy value chain, closely following the recommendations of the SET-Plan Education Roadmap.

ECHOES

Energy CHOices supporting the Energy union and the Set-plan
727470

Programme:

H2020 Energy

Topic:
LCE-31-2016-2017

Call for proposals:
H2020-LCE-2016-RES-CCS-RIA

Duration:
01/11/2016 to 31/10/2019

Funding scheme:
RIA

Total cost:
€3,999,664

EU contribution:
€3,999,664

Coordinator:
NORGES TEKNISK-NATURVITENSKAPELIGE UNIVERSITET NTNU

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/205916_en.html

ECHOES is a multi-disciplinary research project providing policy makers with comprehensive information, data, and policy-ready recommendations on how to successfully implement the Energy Union and the SET-Plan.

The project aims to provide a multi-disciplinary social sciences knowledge to support a system change in order to reduce greenhouse gas emissions and create a better Energy Union. It focuses on three cross-cutting issues, set as recurrent themes throughout the project lifetime:
- smart energy technologies;
- electric mobility;
- buildings.

In the framework of the project, ECHOES carries out a multi-disciplinary analysis of individual and collective energy choices and social acceptance of energy transitions. It uses three complementary perspectives to account for the rich contexts in which individuals and collectives administer their energy choices:
- individual decision-making as part of collectives;
- collectives constituting energy cultures and life-styles;
- formal social units such as municipalities and states.

The project's comprehensive methodology includes a multinational survey covering all 28 EU Member States plus Norway and Turkey, syntheses of existing data and literature, policy assessments, as well as quantitative experiments, interviews, netnography, focus groups, workshops, site visits and case studies in eight countries.

The data collected in the project will be encoded in a database that will serve both as an analytical tool throughout the project and as a valuable source of knowledge for stakeholders and researchers after the project will come to an end.

ENABLE.EU

Enabling the Energy Union through understanding the drivers of individual and collective energy choices in Europe

727524

Programme:

H2020 Energy

Topic:
LCE-31-2016-2017

Call for proposals:
H2020-LCE-2016-RES-CCS-RIA

Duration:
01/11/2016 to 31/10/2019

Funding scheme:
RIA

Total cost:
€3,337,416

EU contribution:
€3,337,416

Coordinator:
ISTITUTO DI STUDI PER L'INTEGRAZIONE DEI SISTEMI (I.S.I.S) - SOCIETA'COOPERATIVA

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/205866_en.html

The ENABLE.EU project focuses on citizens-oriented energy transition to a low-carbon EU energy system. It aims to define key determinants of individual and collective energy choices in three key consumption areas - transportation, heating & cooling, and electricity – and in the shift to prosumption (users-led initiatives of decentralised energy production and trade).

The project investigates the interrelations between individual and collective energy choices and their impact on regulatory, technological and investment decisions. The analysis is based on national household and business surveys in eleven countries, as well as research-based comparative case studies.

ENABLE.EU aims to strengthen the knowledge base for energy transition patterns by analysing existing public participation mechanisms, energy cultures, social mobilisation, and scientists engagement with citizens. Gender issues and concerns regarding energy vulnerability and affluence are given particular attention.

The project also develops participatory-driven scenarios for the development of energy choices until 2050 based on the E3ME model created by Cambridge Econometrics.

The project plans to feed the findings from the modelling exercise into the formulation of strategic and policy recommendations for overcoming the gaps in the social acceptability of the energy transition and the Energy Union plan. Results will be disseminated to relevant national and EU-level actors as well as to the general public.

ENERGISE

European Network for Research, Good Practice and Innovation for Sustainable Energy

727642

Programme:

H2020 Energy

Topic:
LCE-31-2016-2017

Call for proposals:
H2020-LCE-2016-RES-CCS-RIA

Duration:
01/12/2016 to 30/11/2019

Funding scheme:
RIA

Total cost:
€3,720,454

EU contribution:
€3,176,514

Coordinator:
NATIONAL UNIVERSITY OF IRELAND, GALWAY

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/205823_en.html

The ENERGISE project is an innovative pan-European research initiative aiming to achieve a greater scientific understanding of social and cultural influences on energy consumption. It plans to develop, test and assess scenarios for a bottom-up transformation of energy use in households and communities across Europe.

Understanding how culture-specific views and practices and energy policy and governance both shape and reflect individual and collective energy choices is of paramount importance for the success of the Energy Union. ENERGISE responds to these challenges by engaging in frontier energy consumption scholarship. It adopts a Living Labs approach to directly observe existing energy cultures in a real-world setting and to test both household and community-level initiatives to reduce energy consumption.

A comprehensive review and classification of household and community energy initiatives from 30 European countries provides the foundation for the development of two prototype 'ENERGISE Living Labs' designed to capture influences on individual and collective energy consumption. Data collection before, during and after the roll-out of 16 living labs to eight partner countries will be instrumental in contributing to the design and assessment of future energy consumption initiatives across Europe.

The project's primary objectives are to:
1. Move beyond existing sustainable consumption research by developing an innovative theoretical framework that fuses social practice and energy cultures approaches,
2. Assess and compare the impact of European energy consumption reduction initiatives,
3. Advance the use of Living Lab approaches for researching and transforming energy cultures,
4. Produce new research-led insights into the role of routines and ruptures in shifting energy use towards greater sustainability,
5. Enhance multi-way engagement with actors from society, politics and industry and effectively transfer ENERGISE's outputs to further the implementation of the European Energy Union

The project opens new research horizons and enhances Europe's capacity for high-impact, gender-sensitive consumption research. It also offers support for decision-makers in order effectively reduce household energy consumption.

ENTRUST

Energy System Transition Through Stakeholder Activation, Education and Skills Development

657998

Programme:

H2020 Energy

Topic:
LCE-20-2014

Call for proposals:
H2020-LCE-2014-2

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
RIA

Total cost:
€3,476,395

EU contribution:
€3,476,395

Coordinator:
UNIVERSITY COLLEGE CORK - NATIONAL UNIVERSITY OF IRELAND, CORK

Project website:
http://www.entrust-h2020.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/196643_en.html

The project aims to improve understanding of how people's energy-related behaviour is shaped by technological systems and socio-demographics (e.g. gender, age and socio-economic status). It will develop community engagement tools to stimulate dialogue and break down barriers to communities changing their behaviour and adopting new technologies.

The role of gender will be illuminated by intersectional analyses of energy-related behaviour and attitudes towards energy technologies, which will assess how multiple identities and social positions, combine to shape practice. These analyses will be integrated within a transitions management framework which takes account of the complex meshing of human values and identities with technological systems.

Central to the project will be an in-depth engagement with five very different communities across the continent, who will be invited to be co-designers of their own energy transition.

INPATH-TES

PhD on Innovation Pathways for TES

657466

Programme:

H2020 Energy

Topic:
LCE-20-2014

Call for proposals:
H2020-LCE-2014-2

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
CSA

Total cost:
€4,301,073

EU contribution:
€4,301,073

Coordinator:
UNIVERSIDAD DE LLEIDA

Project website:
http://www.inpathtes.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/195450_en.html

The INPATH-TES project will create a network of universities and research institutes to implement a joint PhD programme on thermal energy storage (TES) technologies. The PhD programme is composed of different modules that can be adapted by the participating institutions to the needs of academic institutions, research centres or industry. It aims to develop the programme contents and joint activities and enrol the first set of students by the end of the project.

The final result of such a network is to educate professionals on these technologies for the European research and industry institutions. The consortium includes 14 universities that will implement the joint PhD programme, two research institutions (AIT and PROMES-CNRS), three companies and two SME (Arcelik, Abengoa Solar NT, KIC InnoEnergy, UFP and LAIF), that will cooperate in defining the programme and in its implementation and deployment.

The specific objectives of the project will lead to the qualification of professionals for the European research and industry institutions, necessary for Europe to continue maintain leadership in these technologies. The partners in the proposal will be the core of a future larger network of excellent R&D institutions and industries that will supply the necessary skilled workforce for future thermal energy storage development in Europe.

NATCONSUMERS

NATural Language Energy for Promoting CONSUMER Sustainable Behaviour

657672

Programme:

H2020 Energy

Topic:
LCE-20-2014

Call for proposals:
H2020-LCE-2014-2

Duration:
01/05/2015 to 30/06/2017

Funding scheme:
CSA

Total cost:
€2,048,279

EU contribution:
€2,032,529

Coordinator:
ARIOSZ SZOLGALTATO INFORMATIKAI ESTANACSADO KORLATOLT FELELOSSEGU TARSASAG

Project website:
http://natconsumers.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/195485_en.html

The NATCONSUMERS project aims to define different types of energy consumers in the EU and design tailored actions that will lead them to use less energy.

Residential energy consumption represents 28% of all EU energy consumption. If commercial buildings are also considered, this percentage increases to 40%, which is equal to 36% of EU CO2 emissions. Changing the consumer behaviour provides an opportunity for considerable energy savings in residential buildings. So far, most of the energy efficiency measures implemented in Europe involved technological interventions. In contrast, everyday energy consuming behaviours are largely habitual and therefore actions focused on consumer behaviour have the potential for decreasing energy consumption at home, although some limitations exist.

The key goal of the NATCONSUMERS project is to develop an advanced and integral user-centred framework for the implementation of efficient energy feedback programmes in the domestic area. The approach relies on establishing the complete characteristics of the EU energy consumer, and then designing specific personalised actions, based on the use of natural language and emotional contents, tailored to each of the consumer pattern. In this context, the provision of feedback to consumers has resulted in promising results, achieving savings in the range of 5% to 20%.

BAoBaB

Blue Acid/Base Battery: Storage and recovery of renewable electrical energy by reversible salt water dissociation

731187

Programme:

H2020 Energy

Topic:
LCE-01-2016-2017

Call for proposals:
H2020-LCE-2016-SGS

Duration:
01/05/2017 to 30/04/2021

Funding scheme:
RIA

Total cost:
€3,998,750

EU contribution:
€3,998,750

Coordinator:
STICHTING WETSUS, EUROPEAN CENTRE OF EXCELLENCE FOR SUSTAINABLE WATER TECHNOLOGY

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/210037_en.html

The goal of the BAoBab project is to develop a novel, environmentally-friendly acid/base battery for storing energy.

The “Blue Acid/Base Battery” (BAoBaB), which stores electrical energy using pH and salinity differences in water, will be developed from the technology readiness level 3 to 5. The principle of BAoBaB is based on altering the acid-base balance by means of an excess of available electricity to obtain acid and base from its corresponding salt solution. When electricity is needed, acid and base are recombined into their corresponding salt solution, while the electric work is obtained from the entropy and enthalpy gain.

The project's objectives are:
• to establish and improve the potential of the BAoBaB battery to become a reliable and eco-friendly way of storing (renewable) electricity;

• to understand and enhance mass transfer in round-trip conversion techniques and hence to improve the energy conversion efficiencies of the BAoBaB system, aiming at efficiency of over 80% and energy density 10 times higher than in the pumped hydropower storage;

• to validate an automatically operated BAoBaB system (with corresponding battery management) at a scale of 1 kW power and 7 kWh energy storage;

• to pave the way for cost-competitive energy storage with a focus on life-cycle costs and performance, aiming at the cost of less than 0.05 €/ kWh/cycle.

The BAoBaB battery operates on hourly and daily basis, and hence it is a promising solution for a better integration of renewable energy sources in the grid. BAoBaB offers not only huge storage capacities (kWh to MWh), but it also uses resources that are plentiful (salt and water) and constitutes close to no environmental risks, thanks to its non-toxic nature. The battery could also be installed in almost any location.

The BAoBab technology could help better integrate renewables in the energy mix in Europe, at the same time becoming Europe's export product.

CryoHub

Developing Cryogenic Energy Storage at Refrigerated Warehouses as an Interactive Hub to Integrate Renewable Energy in Industrial Food Refrigeration and to Enhance PowerGrid Sustainability

691761

Programme:

H2020 Energy

Topic:
LCE-09-2015

Call for proposals:
H2020-LCE-2015-3

Duration:
01/04/2016 to 30/09/2019

Funding scheme:
IA

Total cost:
€8,322,737

EU contribution:
€7,045,594

Coordinator:
LONDON SOUTH BANK UNIVERSITY LBG

Project website:
http://www.cryohub.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199618_en.html

The CryoHub project is preparing demonstration of the liquid air energy storage (LAES) technology to show that it is an economic low-carbon option for refrigerated warehouses and food factories.

This technology uses electricity to cool air until it liquefies, stores the liquid air in a tank, and then brings the liquid air back to a gaseous state (by exposure to ambient air or with waste heat from industrial processes) and uses this gas to drive turbines and generate electricity.

By employing renewable energy sources (RES) to liquefy and store air, CryoHub will balance the power grid, while meeting the cooling demand of a refrigerated food warehouse and recovering the waste heat from its equipment and components.

The LAES is a promising technology enabling on-site storage of RES energy during periods of high generation and its use at peak grid demand. However, to date LAES applications have been rather limited by the poor round trip efficiency due to unrecovered energy losses. The CryoHub project is therefore designed to maximise the LAES efficiency by recovering energy from cooling and heating in a perfect RES-driven cycle of air liquefaction, storage, distribution and efficient use.

If successfully demonstrated, this energy storage technology could be widely replicated, complementing and supporting the use of variable renewable energy sources.

ELSA

Energy Local Storage Advanced system (ELSA)

646125

Programme:

H2020 Energy

Topic:
LCE-08-2014

Call for proposals:
H2020-LCE-2014-3

Duration:
01/04/2015 to 31/03/2018

Funding scheme:
IA

Total cost:
€13,144,250

EU contribution:
€9,861,613

Coordinator:
BOUYGUES ENERGIES & SERVICES

Project website:
http://elsa-h2020.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194415_en.html

The project is testing lithium-ion batteries of electric vehicles (Nissan and Renault) and other direct and indirect storage options, including heat storage, demand-side management for small-scale energy storage in different types of buildings and small districts. The energy storage systems are being deployed and tested in office buildings in the UK and France, a Nissan factory in Spain, a research centre in Germany, a residential district in Germany and in the local low voltage branch of smart grid in Italy.

The core idea is to consider storage as a service towards building and district managers for local energy management optimisation, and towards distribution system operators (DSOs) for enhanced network operations.

Data models ensuring interoperability among building, districts and DSOs and novel business models enabled by energy storage “as-a-service” are also being developed.

Safety issues and social acceptance are being dealt with by communication and product reliability demonstration.

A technical, economic and environmental validation, involving relevant stakeholders, is being carried out to nurture the European-wide replication of the ELSA concept, prepare the ground for a concrete roll out and provide input for regulatory framework adaptation.

EnergyKeeper

Keep the Energy at the right place!

731239

Programme:

H2020 Energy

Topic:
LCE-01-2016-2017

Call for proposals:
H2020-LCE-2016-SGS

Duration:
01/01/2017 to 31/12/2019

Funding scheme:
RIA

Total cost:
€3,995,255

EU contribution:
€3,995,255

Coordinator:
LIETUVOS ENERGETIKOS INSTITUTAS

Project website:
http://www.energykeeper.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/206240_en.html

The overall aim of the EnergyKeeper project is to design, develop and test a novel, scalable, sustainable and cost competitive battery based on organic reduction–oxidation (redox) active materials.

The project will construct a 100kW battery with a capacity of 350 kWh and equip it with an interoperable battery management system enabling plug-and-play integration into a Smart Grid. Communications architecture, grid control and demand side management systems will be designed and demonstrated to show the added value of using energy storage systems to provide ancillary services to the distribution grid.

The demonstration will take place at Lelystand (NL) and will integrate the developed technologies with real renewable energy sources, electric vehicle chargers and variable power consumption. Testing activities will last 9 months. Normal and abnormal grid operation situations, together with different production and consumption profiles, will be simulated. A deep analysis of the test results will serve to optimise the control system and the operation mode of the battery under different circumstances.

The project will also analyse the policy and standards framework for electrical energy storage and electrical and communication grids, including security requirements for the handled data and business models. Finally the project will develop business models for different types of communities to demonstrate that the EnergyKeeper storage system will bring economic profit to end-users while providing stability to the electricity grid.

NAIADES

Na-Ion bAttery Demonstration for Electric Storage

646433

Programme:

H2020 Energy

Topic:
LCE-10-2014

Call for proposals:
H2020-LCE-2014-3

Duration:
01/01/2015 to 31/12/2018

Funding scheme:
RIA

Total cost:
€6,492,263

EU contribution:
€6,492,262

Coordinator:
COMMISSARIAT A L ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES

Project website:
http://www.naiades.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194439_en.html

The NAIADES project is one of the first large research projects developing a sodium-ion (Na-ion) battery for stationary electric energy storage applications and aims to demonstrate it under realistic conditions as an effective alternative to the lithium-ion (Li-ion) battery.

The concept of the project is based on two complementary approaches: the former focusing on developing the materials and the latter on developing the system. In the framework of the project, the Na-ion battery will be developed up to a module demonstration in a realistic application environment, based on the knowledge and successes accomplished at the laboratory scale. The work encompasses developing all the battery components, i.e. active materials and electrolytes, final electrodes and electrochemical cells, as well as the battery management system. A 1kW Na-ion cell model will be tested in a grid environment at substation level. By the end of the project, a full electricity storage system based on the Na-ion battery will be developed.

The new battery has a huge potential for reducing costs compared to the already mature and widespread Li-ion technology. An increasing demand for lithium, and the challenges posed by its extractions, will further emphasise this difference. As sodium is widely available and low-cost, sodium-based batteries could meet the energy storage needs of the electricity grid and therefore facilitate the use of renewable energy sources.

The project is also elaborating policy proposals on how to integrate the Na-ion battery in smart grids and promote renewable energy in the electric network.

NETFFICIENT

Energy and economic efficiency for today's smart communities through integrated multi storage technologies

646463

Programme:

H2020 Energy

Topic:
LCE-08-2014

Call for proposals:
H2020-LCE-2014-3

Duration:
01/01/2015 to 31/12/2018

Funding scheme:
IA

Total cost:
€11,404,647

EU contribution:
€8,993,599

Coordinator:
AYESA ADVANCED TECHNOLOGIES SA

Project website:
http://netfficient-project.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194443_en.html

The project is testing different local small-scale energy storage technologies in a real electrical grid on the German island of Borkum. These technologies include ultracapacitors, Li-ion batteries, old batteries from electric vehicles, thermal storage and home hybrid technologies.

An energy management system to exploit the synergies between the different local energy storage technologies, the smart grid and citizens is being developed. Real environment testing is being carried out using real cases such as Peak shaving and ancillary services in the market, Street lighting, Heating integration. Peak shaving use case will connect a high-capacity storage system, based on Ultracapacitors and Li-ion batteries, to the medium voltage grid of the island to make the grid functioning more efficient and stable. The main aim of the street lighting use case is to consume the energy supplied by the sun during daytime for lighting at night. Heating integration use case will transform and store available electricity generated by PV into cool or hot water to regulate the temperature of water in the local island aquarium. The thermal energy stored in that way can then be used later in accordance with different needs.

The project identifies viable business models and set out proposals for changes of the regulatory framework to reduce the barriers for deployment of small scale storage technologies in the grid environment. If successful, the energy storage concepts and technologies could be widely replicated, complementing and encouraging the use of variable renewable energy sources.

RealValue

Realising Value from Electricity Markets with Local Smart Electric Thermal Storage Technology

646116

Programme:

H2020 Energy

Topic:
LCE-08-2014

Call for proposals:
H2020-LCE-2014-3

Duration:
01/06/2015 to 31/05/2018

Funding scheme:
IA

Total cost:
€15,413,331

EU contribution:
€11,987,430

Coordinator:
GLEN DIMPLEX HEATING & VENTILATION IRELAND UNLIMITED COMPANY

Project website:
http://www.realvalueproject.com/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/196841_en.html

The project will test whether using smart domestic electric radiators and boilers to store heat brings cost-reductions to consumers and helps increase the use of energy generated from variable renewable sources.

RealValue installs smart electric radiators and boilers in 1,250 homes in Germany, Ireland and Latvia to feed the results into modelling of the technology's technical and commercial potential.

To validate the trial at large scale, RealValue uses desktop techno-economic modelling to predict the future potential of local small-scale energy storage in millions of homes across more broadly representative EU regions. The project also carries out in-depth analysis of the potential European market for local small-scale energy storage, including socio-economic, policy and regulatory aspects. Consumer engagement is a key aspect of RealValue and behavioural analysis studies are carried out during the whole life of the project.

RealValue will provide an innovative means to mitigate the challenges associated with, and maximise the value of clean energy from renewable sources. It has a strong focus on developing new and innovative business models and will bring benefits in terms of energy balancing, grid security and supply, network congestion and management, price arbitrage, new tariff development, decarbonisation and future market design.

SENSIBLE

Storage-Enabled Sustainable Energy for Buildings and Communities

645963

Programme:

H2020 Energy

Topic:
LCE-08-2014

Call for proposals:
H2020-LCE-2014-3

Duration:
01/01/2015 to 30/06/2018

Funding scheme:
IA

Total cost:
€15,403,636

EU contribution:
€11,842,397

Coordinator:
SIEMENS AKTIENGESELLSCHAFT

Project website:
http://www.h2020-project-sensible.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194405_en.html

The SENSIBLE project demonstrates different types of small-scale energy storage that can be integrated into buildings and communities in Evora (Portugal), Nottingham (UK), and Nuremberg (Germany). Such storage can improve the integration of variable renewable energies, improve the customers' energy security and facilitate self-production and consumption.

By integrating different storage technologies into local energy grids as well as homes and buildings, and by connecting these storage facilities to the energy markets, the project SENSIBLE will have a significant impact on local energy flows in energy grids as well as on the energy utilization in buildings and communities.

The impacts range from increased self-sufficiency, power quality and network stability all the way to sustainable business models for local energy generation and storage.

SHAR-Q

Storage capacity sharing over virtual neighbourhoods of energy ecosystems

731285

Programme:

H2020 Energy

Topic:
LCE-01-2016-2017

Call for proposals:
H2020-LCE-2016-SGS

Duration:
01/11/2016 to 31/10/2019

Funding scheme:
RIA

Total cost:
€4,043,875

EU contribution:
€4,043,875

Coordinator:
ATOS SPAIN SA

Project website:
http://www.sharqproject.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/206241_en.html

Energy storage will be a crucial component of the future smart grid with large share of energy generated from variable renewable energy sources (RES). The unit cost of energy retrieved from storages is however still relatively high. It is therefore necessary to optimise storage capacities deployed in the grid.

The objective of the SHAR-Q project is to optimise storage capacities for the small energy sites, such as distributed generation resources (DER) and microgrids belonging to prosumers. SHAR-Q is based on a bottom-up approach. It hopes to optimise storage capacities by encouraging collaboration between peer-to-peer interoperability networks that connect neighbourhooding RES and storage ecosystems, and enabling them to share their storage capacities.

SHAR-Q develops an open platform, which resembles well-known social web portals, to enable peer-to peer networks to connect. The platform allows users to independently manage their contribution to the collaborative models (e.g. they can control with whom they wish to share specific storage capacities).

The project will demonstrate the viability of the collaborative business models in 3 different pilots in Portugal, Austria and Greece, targeting 3 different segments of end-users such as neighbourhoods of distributed renewable energy systems, coalitions of prosumers and locations with e-vehicle charging stations.

SHAR-Q's research and innovation activities will be driven by the opinion of stakeholders involved in the project's stakeholder advisory board. Their feedback will be carefully analysed throughout the project duration. By adopting this approach, the project hopes to maximise chances for adoption of the SHAR-Q collaborative concept.

Storage4Grid

Storage4Grid
731155

Programme:

H2020 Energy

Topic:
LCE-01-2016-2017

Call for proposals:
H2020-LCE-2016-SGS

Duration:
01/12/2016 to 30/11/2019

Funding scheme:
RIA

Total cost:
€3,617,900

EU contribution:
€3,617,900

Coordinator:
ISTITUTO SUPERIORE MARIO BOELLA SULLE TECNOLOGIE DELL'INFORMAZIONE E DELLE TELECOMUNICAZIONI ASSOCIAZIONE

Project website:
http://www.storage4grid.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/206505_en.html

Storage4Grid aims at boosting the uptake of storage technologies between the distribution grid level and the end-user level, by developing a novel, holistic methodology for modelling, planning, integrating, operating and evaluating distributed Energy Storage Systems - including storage at user premises and storage at substation level, Electrical Vehicles, innovative energy metering and energy routing technologies.

Storage4Grid will consider 3 scenarios, each associated to a different test site:
• A scenario for “Advanced Cooperative ESS” leveraging the Energy Router and DC buses will be developed and demonstrated in the MicroDERLab facilities in Bucharest (RO).
• A “ESS Coordination” scenario will focus ESS deployed for maximize self-consumption and RES exploitation at prosumer level. It will be developed and evaluated in a deployment in Fur (DK).
• The “Cooperative EV Charging” scenario will focus on use of storage to support large deployments of EV charging stations. It will be defined and validated in real-life settings in Bolzano (IT).

The project will include dedicated activities to analyse business models supporting the deployment and operation of storage in the smart grid business context. The business analysis will be based on adoption projections and forecasts (e.g. for RES, PVs, storage adoption) centred in the 2020-2025 period.

STOREandGO

Innovative large-scale energy STOragE technologies AND Power-to-Gas concepts after Optimisation
691797

Programme:

H2020 Energy

Topic:
LCE-09-2015

Call for proposals:
H2020-LCE-2015-3

Duration:
01/03/2016 to 29/02/2020

Funding scheme:
IA

Total cost:
€27,973,370

EU contribution:
€17,937,359

Coordinator:
DVGW DEUTSCHER VEREIN DES GAS- UND WASSERFACHES - TECHNISCH-WISSENSCHAFTLICHER VEREIN EV

Project website:
http://www.storeandgo.info

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/200559_en.html

The project is to demonstrate three innovative "Power-to-Gas" (PtG) concepts in Germany, Italy and Switzerland that will help to accommodate more renewable electricity in the energy mix. The main idea is to convert excess electricity produced from renewable energy sources to gas (methane). The gas produced will be then stored in the existing gas storage infrastructure, which is connected to the gas grid, and used later for heating or reconversion to electricity.

The demonstrations will pave the way to an integration of PtG storage into flexible energy supply and distribution systems with a high share of renewable energy. Using methanation processes as bridging technologies, the project will demonstrate and investigate in which way these innovative PtG concepts will be able to solve the main problems of renewable energy: its fluctuating production, consideration of renewables as suboptimal power grid infrastructure, high costs and a lack of storage solutions for renewable power at the local, national and European level.

At the same time, PtG concepts will contribute to maintaining natural gas or SNG within the existing huge European infrastructure and to improving its environmental footprint as an important primary/secondary energy carrier. So, STORE&GO will show that new PtG concepts can bridge the gap associated with renewable energies and security of energy supply.

STORY

STORY- Added value of STORage in distribution sYstems

646426

Programme:

H2020 Energy

Topic:
LCE-08-2014

Call for proposals:
H2020-LCE-2014-3

Duration:
01/05/2015 to 30/04/2020

Funding scheme:
IA

Total cost:
€15,353,839

EU contribution:
€12,484,339

Coordinator:
Teknologian tutkimuskeskus VTT Oy

Project website:
http://horizon2020-story.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194425_en.html

The main objective of the STORY project is to show the added value that energy storage can bring to a flexible, secure and sustainable energy system.

STORY provides relevant and wide-covering demonstrations that serve as input for a thorough and transparent analysis on what the impact of energy storage can be for the involved stakeholders. Energy storage is considered as a mean, while not neglecting other competing technologies that could provide a similar or complementary functionality.

The project is testing the potential of different energy storage concepts and technologies such as batteries, small scale thermal storage, seasonal thermal storage, fuel cells, compressed air and improved monitoring and control tools in real-life settings. All of these concepts have innovative aspects, such as the storage technology, the storage integration and control systems, and the business model. The tests include integrating energy storage in residential buildings and neighbourhoods, industrial areas in Belgium, Spain, Germany, Slovenia and the United Kingdom.

It is expected that the project will provide strong evidence of the opportunities and the benefits provided by the intelligent integration of energy storage in the grid. STORY will also provide a comprehensive guide for policy makers and regulators showing the pros and cons of different approaches to the integration of energy storage. If successful, the energy storage concepts and technologies tested within the project could be widely replicated, and could complement and encourage the use of variable renewable energy sources.

TILOS

Technology Innovation for the Local Scale, Optimum Integration of Battery Energy Storage

646529

Programme:

H2020 Energy

Topic:
LCE-08-2014

Call for proposals:
H2020-LCE-2014-3

Duration:
01/02/2015 to 31/01/2019

Funding scheme:
IA

Total cost:
€13,738,570

EU contribution:
€11,008,623

Coordinator:
Technological Educational Institute of Piraeus

Project website:
http://www.tiloshorizon.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194451_en.html

The TILOS project is testing the integration of an innovative local-scale, molten-salt battery (NaNiCl2) energy-storage system in the real grid environment on the island of Tilos (Greece).

It is planned to test smart grid control system and provision of multiple services, ranging from microgrid energy management, maximisation of RES penetration and grid stability, to export of guaranteed energy amounts and provision of ancillary services to the main grid. The battery system is used to support both stand-alone and grid-connected operations, while ensuring its interoperability with the rest of microgrid components and demand side management.

New case studies examining different battery technologies and microgrid configurations (stand-alone, grid connected and power market-dependent) are being prepared using advanced microgrid simulating tool (the Extended Microgrid Simulator).

Social issues are also well considered through public engagement, and by developing novel business models and policy instruments.

The prototype molten-salt, battery-storage system will improve micro-grid energy management and grid stability, increase renewable energy use and provide services to the main grid. If successful, this energy storage technology could be widely replicated on islands to complement and encourage the use of variable renewable energy sources.

FHP

Flexible Heat and Power, Connecting heat and power networks by harnessing the complexity in distributed thermal flexibility.

731231

Programme:

H2020 Energy

Topic:
LCE-01-2016-2017

Call for proposals:
H2020-LCE-2016-SGS

Duration:
01/11/2016 to 31/10/2019

Funding scheme:
RIA

Total cost:
€3,823,606

EU contribution:
€3,801,998

Coordinator:
VLAAMSE INSTELLING VOOR TECHNOLOGISCH ONDERZOEK N.V.

Project website:
http://www.fhp-h2020.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/206238_en.html

The electricity generated by solar power and wind power varies during the day and night and from day to day. This means that sometimes more power is being generated than is needed so power sources have to be turned off (curtailed). Instead of turning the power off, one possibility is to convert power to heat.

The power-to-heat solutions such as thermal inertia of buildings and thermal storage holds an enormous potential for electric flexibility. Heat pumps, central heating and cooling installations, and forced ventilation systems act as interfaces connecting the thermal storage and building thermal inertia to the electrical distribution grid.

The main objective of the FHP project is to utilise the excess of renewable generation, reduce renewable energy curtailments, and provide services to the distribution system operators and RES producers by using heat pumps, large thermal stores and building thermal inertia. The project plans to test practical prototypes in two different scenarios in the Netherlands and Sweden, representing diverse parts of the European power grid.

The main expected project outputs are: Novel algorithms for heating systems management in complex buildings; Autonomous and self-adapting grid sensitivity characterisation tool supporting grid operators to resolve local voltage problems using distributed flexible resources; Grid Flexible Heat Pump including a generic, standard and cost effective flexibility interface to control it; Better performing model-free building thermal characterisation technology.

By using power to heat solutions FHP aims to increase the share of renewable energy sources in the total electric energy consumption by 22% and shifting 17% of the total electricity demand from day to the night.

PENTAGON

Unlocking European grid local flexibility trough augmented energy conversion capabilities at district-level

731125

Programme:

H2020 Energy

Topic:
LCE-01-2016-2017

Call for proposals:
H2020-LCE-2016-SGS

Duration:
01/12/2016 to 30/11/2019

Funding scheme:
RIA

Total cost:
€4,437,834

EU contribution:
€2,834,758

Coordinator:
EXERGY LTD

Project website:
http://www.pentagon-project.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/206503_en.html

The PENTAGON project investigates the potential of wider deployment of energy conversion technologies and strategies at a district level, with the aim to foster flexibility in the low-voltage and medium-voltage energy grid.

The project's approach is based on the rationale that multi-vector smart districts can act as key enablers of future smart grids, provided their flexibility capabilities are augmented with adequate energy conversion technologies.

To this end, PENTAGON will deliver two key technology assets: a highly efficient power-to-gas installation sized for coupling with typical district heating plants and a multi-vector multi-scale district energy management platform for the combined monitoring and management of all district energy carriers.

The power-to-gas technology will achieve a 15% to 25% energy gain compared to current performances. The multi-vector multi-scale district energy management platform will be 15% to 20% more flexible at a district level, allowing for a 25% increase of renewable energy sources penetration, by leveraging building and district power to heat conversion capabilities.

These impacts will be thoroughly assessed through validation and demonstration activities. The project plans to start with lab-scale individual component testing, continue with a focused deployment in district-scale experimental facilities, and conclude with a wider simulation-based assessment at distribution grid level.

If the validation and demonstration phase brings positive outcomes, the project will exploit the results in preparation for their commercialisation (5-years post-project horizon). It will also define and plan targeted dissemination of innovative local energy aggregation business models, leveraging a 200+ member stakeholder community and connections between PENTAGON and relevant market design standardisation initiatives.

SABINA

SmArt BI-directional multi eNergy gAteway

731211

Programme:

H2020 Energy

Topic:
LCE-01-2016-2017

Call for proposals:
H2020-LCE-2016-SGS

Duration:
01/11/2016 to 31/10/2020

Funding scheme:
RIA

Total cost:
€4,611,041

EU contribution:
€3,789,869

Coordinator:
SMS ENERGY SERVICES LIMITED

Project website:
http://www.sabina-project.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/206237_en.html

The SABINA project focuses on energy storage and synergies between electrical and thermal networks. The main idea of the project is the conversion of excess electrical energy to thermal energy and its storage in the building fabric.

At the grid level, the project wishes to contribute to balancing power generation and consumption by using the thermal inertia of buildings to couple heat and power to add flexibility to the electrical and thermal networks. At the local level, the project intends to control local consumption (related to heating and cooling, for direct usage or storage thanks to thermal inertia) when it is most needed and optimise the way grid-feeding inverters are controlled.

The project plans to achieve the above overarching objectives through development of:
• novel management algorithms at building level and aggregation strategies at district level
• an automatic identification method for assessing the thermal inertia of buildings;
• bidirectional gateways installed in participating buildings.

The selected concepts will first be tested at a small scale and in lab environment to physically confirm the analytical predictions and preliminary results. Afterwards, full system tests will be carried out in a laboratory and at a larger scale, under real conditions at test sites in Denmark and Greece.

The concepts are compatible with both new and existing buildings. In addition, SABINA is also compatible with other storage elements such as batteries and/or thermal tanks to further extend the potential of renewable energy integration. If the project succeeds, the proposed concepts could be widely replicated. They could complement and encourage the use of variable renewable energy sources in the energy mix.

MEDEAS

Guiding European Policy toward a low-carbon economy. Modelling Energy system Development under Environmental And Socioeconomic constraints

691287

Programme:

H2020 Energy

Topic:
LCE-21-2015

Call for proposals:
H2020-LCE-2015-2

Duration:
01/01/2016 to 31/12/2019

Funding scheme:
RIA

Total cost:
€3,735,309

EU contribution:
€3,735,309

Coordinator:
AGENCIA ESTATAL CONSEJO SUPERIOR DEINVESTIGACIONES CIENTIFICAS

Project website:
http://www.medeas.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199303_en.html

The transition to a low carbon economy needs to achieve multiple aims: competitiveness, protection of the environment, creation of quality jobs, and social welfare. Thus policy-makers and other key stakeholders require tools which focus beyond the energy sector by including these other domains.

MEDEAS aims to solve the current needs of integration and transparency by developing a leading-edge policy modelling tool based on WoLiM, TIMES and LEAP models and incorporating input-output analysis, which allows for accounting of environmental, social and economic impacts. The modular design of the tool will take into account the necessary flexibility to deal with different levels and interests of stakeholders at great sectorial and spatial detail.

This policy modelling tool will identify the key physical parameters (net energy available to society, amount and costs of required materials) and their relationship with economic indicators, socio-economic variables and environmental impacts. Moreover, the tool will highlight emerging challenges, such as the impact of technological parameters, and how to overcome possible drawback.

Finally the tool will suggest strategies to face such challenges when designing the roadmap towards a European sustainable energy system. Open access freeware distribution of the model, based on the open access programming language (Python), will be guaranteed. Moreover, a detailed user manual addressed to a wider non-specialist audience and including free internet courses and learning materials will be made available.

REEEM

Role of technologies in an energy efficient economy – model-based analysis of policy measures and transformation pathways to a sustainable energy system

691739

Programme:

H2020 Energy

Topic:
LCE-21-2015

Call for proposals:
H2020-LCE-2015-2

Duration:
01/02/2016 to 31/07/2019

Funding scheme:
RIA

Total cost:
€3,997,459

EU contribution:
€3,997,459

Coordinator:
KUNGLIGA TEKNISKA HOEGSKOLAN

Project website:
http://www.reeem.org/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199362_en.html

REEEM aims to gain a clear and comprehensive understanding of the system-wide implications of energy strategies in support of the transition to a competitive low-carbon EU society.

Comprehensive technology impact assessments target the full integration: from demand to supply and from an individual to an entire system. Case studies allow a more detailed assessment of the implications of technology transitions on a region or a country as well as on innovation of individual technologies.

The assessments performed within REEEM focus on integrated pathways, which are clustered around the four integrated challenges of the Integrated Roadmap of the Strategic Energy Technology (SET) Plan and the five dimensions of the Energy Union. The implications of these pathways on the environment, economy and society are assessed to form recommendations. These recommendations consider aspects such as the impact of the time horizon of political decisions, uncertainty and sensitivity of key assumptions, and resilience of the derived energy systems.

A number of reports and decision support tools are made available to policy makers to help them understand the implications of the different pathways and derive the supportive strategies.

Moreover, technology roadmaps are developed, including an assessment of the Innovation Readiness Level of different technologies. All developed models of the tools recommendations will be open source. Several dissemination tools will be also made available, including a Stakeholder Interaction Portal and an Energy System Learning Simulation, for e-learning purposes.

REFLEX

Analysis of the European energy system under the aspects of flexibility and technological progress

691685

Programme:

H2020 Energy

Topic:
LCE-21-2015

Call for proposals:
H2020-LCE-2015-2

Duration:
01/05/2016 to 30/04/2019

Funding scheme:
RIA

Total cost:
€3,285,530

EU contribution:
€2,779,700

Coordinator:
TECHNISCHE UNIVERSITAET DRESDEN

Project website:
http://reflex-project.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/200841_en.html

REFLEX aims to analyse and evaluate the development towards a low-carbon energy system with a focus on flexibility options in the EU. The future energy system is challenged by the intermittent nature of renewable energy sources and requires therefore several flexibility options. Moreover, the interaction between different options, the optimal portfolio and the impact on environment and society are so far unknown.

The analyses carried out in the project are based on a modelling environment that considers the full extent to which current and future energy technologies and policies interfere and how they affect the environment and the society. At the same time technological learning of low-carbon and flexibility technologies are considered.

Each partner focusses on one of three research fields:
- Techno-economic learning,
- Fundamental energy system modelling
- Environmental and social life cycle assessment.

To link and apply these three research fields in a compatible way, an innovative and comprehensive Energy Models System (EMS) is developed, which couples the models and tools from all project partners. The model is based on a common database and scenario framework.

The results from the EMS will help to understand the complex links, interactions and interdependencies between different actors, available technologies and impact of the different interventions on all levels, from the individual to the whole energy system.

The results will assist policy makers and several other stakeholders in the energy field in identifying and analysing effective strategies and technology pathways for a transition to an efficient low-carbon energy system.

SET-Nav

Navigating the Roadmap for Clean, Secure and Efficient Energy Innovation

691843

Programme:

H2020 Energy

Topic:
LCE-21-2015

Call for proposals:
H2020-LCE-2015-2

Duration:
01/04/2016 to 31/03/2019

Funding scheme:
RIA

Total cost:
€3,999,411

EU contribution:
€3,999,411

Coordinator:
TECHNISCHE UNIVERSITAET WIEN

Project website:
http://www.set-nav.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/200842_en.html

SET-Nav aims to develop a model-based decision support for decision making in Europe, enhancing innovation towards a clean, secure and efficient energy system. The project results will enable the European Commission, national governments and regulators to facilitate the development of optimal technology portfolios by market actors.

The project is structured around three main pillars:

1. Modelling: the project will develop and strengthen modelling capabilities and overcome limitations of existing modelling tools. A modelling hierarchy of the models used by the partners in the consortium will be built. This will allow developing already established linkages between models and broadening the range of questions that could be answered.

2. Strategic policy analysis: Using the project's strengthened modelling capabilities in an integrated modelling hierarchy, the project will analyse multiple dimensions of impact of future pathways: sustainability, reliability and supply security, global competitiveness and efficiency. This analysis will combine bottom-up ‘case studies’ linked to the full range of SET-Plan themes with holistic ‘transformation pathways’.

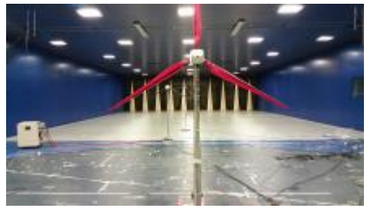
3. Stakeholder dialogue and dissemination: a number of dissemination activities including workshops, bilateral meetings and expert seminars will be organised to tackle all relevant stakeholders and establish a two-way feedback process: on one side, present results to the stakeholders, on the other one, explore and understand their needs and develop products matching their expectations.

The final objective is to ensure that policy and market actors can navigate effectively through the diverse options available on energy innovation and system transformation.

CL-Windcon

Closed Loop Wind Farm Control

727477



Programme:

H2020 Energy

Topic:
LCE-07-2016-2017

Call for proposals:
H2020-LCE-2016-RES-CCS-RIA

Duration:
01/11/2016 to 31/10/2019

Funding scheme:
RIA

Total cost:
€4,931,423

EU contribution:
€4,931,423

Coordinator:
FUNDACION CENER-CIEMAT

Project website:
http://www.clwindcon.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/205917_en.html

CL-WINDCON will develop new and advanced dynamic closed-loop algorithms at the farm level by treating the entire wind farm as a comprehensive real-time optimisation system. The key enabler for advanced control and optimisation strategies will be the development of dynamic farm-level simulation models. Control algorithms leveraging these tools will be validated in simulations and in wind tunnel tests. Open and closed loop validations will be performed in field tests too.

The expected outcome of this project is a LCoE reduction of 10%, achieved through an increase in the wind farm energy production by 4-5%, a reduction of O&M costs by 4%, a lifetime extension of 1%, and a material cost reduction for turbine components by 3-4%.

CL-WINDCON will include a comprehensive analysis of economic and environmental impact of the technical improvements resulting from the project, as well as a review of standards for the future wind turbine and farms design.

DEMOGRAVI3

Demonstration of the GRAVI3 technology – innovative gravity foundation for offshore wind

691717

Programme:

H2020 Energy

Topic:
LCE-03-2015

Call for proposals:
H2020-LCE-2015-2

Duration:
01/01/2016 to 31/12/2019

Funding scheme:
IA

Total cost:
€26,523,603

EU contribution:
€19,037,466

Coordinator:
EDP RENOVAVEIS SA

Project website:
http://demogravi3.com/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199361_en.html

The DEMOGRAVI3 project aims to demonstrate an innovative gravity-based foundation for offshore wind turbines designed for water depths between 35 m and 60 m. The competitiveness of the offshore wind business is strongly related to substructures and offshore logistics. DEMOGRAVI3 addresses these areas through a very promising solution called GRAVI3.

The project plans to design, engineer, build, assemble, transport, install and demonstrate a full scale foundation, equipped with a 2 MW offshore wind turbine, in a consented and grid connected demonstration site. The complete unit (turbine and steel-concrete foundation) will be built and assembled onshore and towed while floating to the deployment site (Aguçadoura, off the Portuguese coast).

Additionally, the project undertakes further technology development for improved design and perform an in-depth evaluation of the technology's future industrialisation, competitiveness and bankability. The solution will sustainably reduce the levelised cost of energy by up to 15% by combining the following vectors:

• using three concrete caissons, with water ballast, instead of more complex and costly steel solutions and anchoring systems;
• using a smaller steel structure;
• performing all construction and assembly onshore and towing the complete unit to the site where it is submerged with an innovative and robust method;
• preventing the use of heavy lift vessels and reducing the level of complexity and risk of offshore operations.

EcoSwing

EcoSwing - Energy Cost Optimization using Superconducting Wind Generators - World's First Demonstration of a 3.6 MW Low-Cost Lightweight DD Superconducting Generator on a Wind Turbine

656024

Programme:

H2020 Energy

Topic:
LCE-03-2014

Call for proposals:
H2020-LCE-2014-2

Duration:
01/03/2015 to 28/02/2019

Funding scheme:
IA

Total cost:
€13,846,594

EU contribution:
€10,591,734

Coordinator:
ENVISION ENERGY (DENMARK) APS

Project website:
http://ecoswing.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/195203_en.html

EcoSwing works on the world's first demonstration of a superconducting low-cost, lightweight drive train on a modern 3.6 MW wind turbine.

The project aims to demonstrate the advantages of using superconducting materials in wind turbines at Thyborøn in Denmark.

The EcoSwing generator is the first full size direct drive superconductive generator for a wind turbine and promises a step change in generator development. Most direct advantage of the EcoSwing generator is an expected weight saving of more than 40% compared to conventional direct drive generators. For the entire nacelle this results in 25% less weight, and of course proportionally less material usage. A particularly welcomed side effect is that the EcoSwing technology uses close to no rare earths, i.e. commodities of scarce supply and price fluctuations.

Based on the extensive experience in industrially applied superconductivity the consortium is multidisciplinary with a focus on industrial partners aiming to introduce HTS drive-train as a game changer technology in the energy sector.

ELICAN

SELF-INSTALLING TELESCOPIC SUBSTRUCTURE FOR LOW-COST CRANELESS INSTALLATION OF COMPLETE OFFSHORE WIND TURBINES. DEEP OFFSHORE 5MW PROTOTYPE

691919

Programme:

H2020 Energy

Topic:
LCE-03-2015

Call for proposals:
H2020-LCE-2015-2

Duration:
01/01/2016 to 31/12/2018

Funding scheme:
IA

Total cost:
€17,107,301

EU contribution:
€11,181,987

Coordinator:
ESTEYCO SAP

Project website:
http://www.luk3.org/elisa/elican.html

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199304_en.html

The ELICAN project will design, build, certify and fully demonstrate in operative environment (off the coast of Las Palmas - the Canary Islands) a cost-effective substructure for offshore wind energy that can work in deep waters. The substructure consists of an integrated, self-installing, pre-cast concrete, telescopic tower and foundation allowing crane-free, offshore installation of the substructure and wind turbine. This will overcome dependence on heavy-lift vessels for installation.

The main benefits to be provided by this ground-breaking technology are:
• significant cost reduction (>35%) compared with current solutions;
• direct scalability in terms of turbine size, water depth, infrastructure and installation means;
• complete independence of heavy-lift vessels;
• excellently suited for fast industrialised construction;
• robust and durable concrete substructure for reduced OPEX costs and improved asset integrity;
• suitable for most soil conditions, including rocky seabeds;
• enhanced environmental friendliness regarding both impact on sea life and carbon footprint.

LIFES 50plus

Qualification of innovative floating substructures for 10MW wind turbines and water depths greater than 50m.

640741

Programme:

H2020 Energy

Topic:
LCE-02-2014

Call for proposals:
H2020-LCE-2014-1

Duration:
01/06/2015 to 30/09/2018

Funding scheme:
RIA

Total cost:
€7,274,838

EU contribution:
€7,274,838

Coordinator:
SINTEF OCEAN AS

Project website:
http://lifes50plus.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/196802_en.html

The project focus is on large floating wind turbines installed at water depths roughly between 50m and 200m. Large wind turbines (10MW) are indeed the most effective way of reducing the levelised cost of electricity in the short term.

The objectives will be achieved through:

• multi-fidelity numerical tools in the context of qualifying and optimising large substructures;

• experimental techniques specific to floating offshore wind turbines;

• early concept industrialisation by design;

• uncertainty and risk assessments related to unprecedented large wind turbine substructures.

The project will contribute to an increased scientific and industrial knowledge on numerical and experimental design methodologies and procedures, with key performance indicators (KPI)-based developments. Ultimately, a considerable reduction of the cost of generation for large floating offshore wind farms is expected.

Riblet4Wind

Riblet-Surfaces for Improvement of Efficiency of Wind Turbines
657652

Programme:

H2020 Energy

Topic:
LCE-03-2014

Call for proposals:
H2020-LCE-2014-2

Duration:
01/06/2015 to 30/11/2018

Funding scheme:
IA

Total cost:
€4,031,853

EU contribution:
€3,307,172

Coordinator:
FRAUNHOFER GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V.

Project website:
http://www.riblet4wind.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/196901_en.html

Starting from a technology already applied in aeronautics, the project intends to demonstrate that a "shark skin" riblet surface on rotor blades can improve efficiency and reduce wind turbine noise

The main objective of Riblet4Wind is the transfer of a technology that has already demonstrated its capacity for increasing the energy efficiency in the aeronautics sector, to the wind energy industry. Application of functional coatings with riblet structure will improve the drag to lift ratio of rotor blades significantly.

Wind tunnel experiments have proven the capability of this riblet-coating technology to increase the efficiency of wind turbines by up to 6%.

This direct effect will allow gaining the same amount of electrical energy with smaller rotor blades. Indirect effects will increase the benefit to approximately more than 10%:
• The improved drag to lift ratio will allow operation at lower wind speeds. The earlier cut-in of the WTG will improve the facility to balance in the electrical grid system.
• The riblet structure improves the stall and turbulence behaviour of the rotor blades thus allowing also operation at higher wind speeds and/or operation in less optimum wind conditions, e.g. changing wind directions or gusts.
• The improved drag to lift ratio will reveal design options due to changes of the design loads.
• The riblet structure will also result in a substantial reduction of noise emissions.

ROMEO

Reliable OM decision tools and strategies for high LCoE reduction on Offshore wind
745625

Programme:

H2020 Energy

Topic:
LCE-13-2016

Call for proposals:
H2020-LCE-2016-RES-IA

Duration:
01/06/2017 to 31/05/2022

Funding scheme:
IA

Total cost:
€16,376,051

EU contribution:
€9,999,813

Coordinator:
IBERDROLA RENOVABLES ENERGIA SA

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/210289_en.html

The ROMEO project aims to develop and demonstrate an O&M information management platform enabling improved decision-making processes in order to reduce O&M costs, improve reliability and extend the lifetime of off-shore wind turbines and wind farms.

The flexible and interoperable platform will provide a better understanding of the real-time behaviour of the main components of the wind turbines under operating conditions, maximizing their life-time and reducing the need for maintenance, and thus reduce component failure and OPEX.

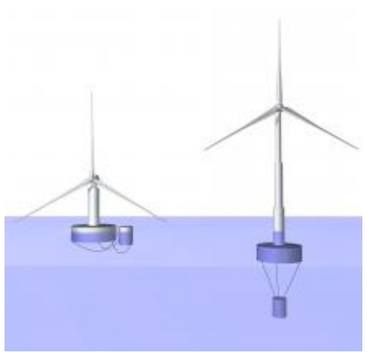
ROMEO's consortium consists of a well-balanced set of experts (12 entities from 7 countries) representing the whole offshore value chain such as wind turbine component manufacturers and service providers, wind farm operators together with IT market leaders, thus ensuring that results will have a strong market impact.

Innovation and Networks Executive Agency

TELWIND

INTEGRATED TELESCOPIC TOWER AND EVOLVED SPAR FLOATING SUBSTRUCTURE FOR LOW-COST DEEP OFFSHORE WIND AND NEXT GENERATION OF 10MW+ TURBINES

654634



Programme:

H2020 Energy

Topic:
LCE-02-2015

Call for proposals:
H2020-LCE-2015-1-two-stage

Duration:
01/12/2015 to 31/05/2018

Funding scheme:
RIA

Total cost:
€3,498,530

EU contribution:
€3,498,530

Coordinator:
ESTEYCO SAP

Project website:
http://www.luk3.org/telwind/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199267_en.html

The TELWIND project will elaborate and test in a lab environment a novel floating substructure with a self-erecting telescopic tower. Together they should enable the effective development of the next generation of extremely large (10MW+) offshore wind turbines, which are key to further reducing the costs of energy production.

The TELWIND concept integrates a novel floating substructure and a pioneering self-erecting telescopic tower. The former provides all the performance advantages of a spar-buoy substructure while allowing for lower material usage, the latter enables a full onshore preassembly of the overall system and a highly beneficial reduction of offshore works and auxiliary means. Together they overcome the limitations imposed by the available inshore infrastructure and offshore heavy lift vessels, and thus generate a fully scalable system, perfectly fitted for the effective integration of the next generation of extremely large (10MW+) offshore wind turbines which are key to reduce the levelised cost of energy (LCOE). The concept, which has already undergone trial tank testing with overly positive results, will enable a radical cost reduction both in terms of material usage and required means and operations.

The system will also profit from the proven structural efficiency and economy of precast concrete, a material particularly well suited for low-cost industrialized production of repetitive units. Robust, reliable and virtually maintenance-free marine constructions result, reducing OPEX costs, greatly increasing durability and fatigue tolerance, and setting the ground for extended service life of the infrastructure, which could further magnify the system's capacity for drastic reduction of the LCOE.

Innovation and Networks Executive Agency

Horizon 2020

Transport

ACASIAS

Advanced Concepts for Aero-Structures with Integrated Antennas and Sensors

723167

Programme:

H2020 Transport

Topic:
MG-1.1-2016

Call for proposals:
H2020-MG-2016-Two-Stages

Duration:
01/06/2017 to 31/05/2020

Funding scheme:
RIA

Total cost:
€5,836,430

EU contribution:
€5,836,430

Coordinator:
STICHTING NATIONAAL LUCHT- EN RUIMTEVAARTLABORATORIUM

Project website:
http://www.acasias-project.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/209710_en.html

The ACASIAS project is developing advanced concepts for aero-structures with multifunctional capabilities. ACASIAS intends to embed sensors and antennas into typical structures of aircraft (for instance fuselage panels, winglets and tails). The expected outcomes of ACASIAS are prototype structures of:

• Composite stiffened fuselage panel for integrating Ku-band SATCOM antenna tiles.
• Fuselage panel with integrated sensors, actuators and wiring for reduction of cabin noise.
• Smart winglet with integrated blade antenna.
• Fibre Metal Laminate GLARE panel with integrated VHF communication slot antenna.

The ACASIAS structural concepts will contribute to the reduction of energy consumption of future aircraft by improving aerodynamic performance through structurally integrated antennas and by facilitating the integration of novel efficient propulsion systems such as contra-rotating open rotor (CROR) engines.

AERIALIST

AdvancEd aicRaft-noIse-AlLeviation devIceS using meTamaterials

723367

Programme:

H2020 Transport

Topic:
MG-1-4-2016-2017

Call for proposals:
H2020-MG-2016-Two-Stages

Duration:
01/06/2017 to 31/05/2020

Funding scheme:
RIA

Total cost:
€2,424,330

EU contribution:
€2,424,330

Coordinator:
UNIVERSITA DEGLI STUDI ROMA TRE

Project website:
https://www.aerialist-project.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/209480_en.html

The objective of the AERIALIST project is to uncover the potential of acoustic metamaterials in aeronautical applications.

AERIALIST aims to design innovative and unconventional noise mitigation devices, thereby contributing to the noise reduction targets envisaged in Flightpath 2050. The ability of acoustic metamaterials to direct and control sound waves will be used to reduce noise propagation from nacelle intakes and to enhance shielding effects.

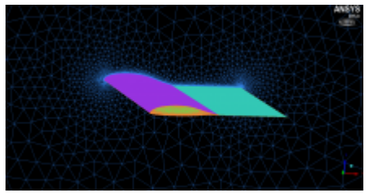
AERIALIST represents the first international research initiative entirely focused on the development and validation of a general theory for the modelling of acoustic metamaterials in the aeroacoustic context.

The AERIALIST research and innovation action aims at extending the fundamental theory of metamaterials taking into account the effect of aerodynamic flow. Tailored numerical methods will be developed and applied to the design of sample devices. These devices will be manufactured and validated in wind-tunnel experiments.

AEROGUST

Aeroelastic Gust Modelling

636053



Programme:

H2020 Transport

Topic:
MG-1.1-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
RIA

Total cost:
€4,289,986

EU contribution:
€4,237,652

Coordinator:
UNIVERSITY OF BRISTOL

Project website:
http://www.aerogust.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193369_en.html

The AeroGust project is a state of the art engineering computer simulation project investigating gust interactions with aircraft (commonly referred to as turbulence) that will develop innovative methods that allow radical aircraft design changes.

Gust loads are important as they often define the maximum load that an aircraft can experience in service; with the gust loads process allowing engineers to simulate the various conditions that an aircraft experiences. The current approach relies on expensive wind tunnel testing that incorporates gust loads relatively late, when the aircraft design options have been narrowed. AeroGust aims to change this by producing more accurate simulation-based gust loads process using reduced order models (ROMs) that will decrease reliance on wind tunnel testing - cutting lead times and helping to produce superior products at lower cost.

AeroGust's consortium members are experts in numerical modelling and aeroelasticity. Their knowledge will allow a better representation of real-world physics using Computational Fluid Dynamics (CFD), which will result in the development of more sophisticated models than the current standard. Whilst the project mainly focusses on the problems associated with aeroelastic aircraft, the fundamental physics is common to large wind turbines - this means the methodology of AeroGust will find direct application in wind turbine design. The project is led by the University of Bristol its partners combine academic (Universities of Bristol, Liverpool and Cape Town); industrial (Airbus Defence and Space, Dassault Aviation and Piaggio Aerospace); research institution (DLR, INRIA and NLR) and SME (NUMECA, Optimad and VALEOL) expertise.

AERO-UA

Strategic and Targeted Support for Europe-Ukraine Collaboration in Aviation Research

724034

Programme:

H2020 Transport

Topic:
MG-1-5-2016-2017

Call for proposals:
H2020-MG-2016-SingleStage-INEA

Duration:
01/10/2016 to 30/09/2019

Funding scheme:
CSA

Total cost:
€1,000,000

EU contribution:
€1,000,000

Coordinator:
INTELLIGENTSIA CONSULTANTS SARL

Project website:
http://www.aero-ua.eu

Project description on CORDIS:
http://cordis.europa.eu/project/reference/724034

The AERO-UA project aims to stimulate aviation research collaboration between the European Union and Ukraine (UA) through strategic and targeted support.

AERO-UA focuses solely on Ukraine due to the country's huge aerospace potential and comparatively low level of aviation research collaboration with the EU. Ukrainian aerospace organisations possess unique skills and knowledge that can help Europe to address the challenges and goals identified in the ACARE Strategic Research and Innovation Agenda, Flightpath 2050 report, the Clean Sky 2 initiative and H2020 Transport.

The AERO-UA project will achieve its overall aim via four high-level objectives:
• Identifying the barriers to increased EU-UA aviation research collaboration
• Providing strategic support to EU-UA aviation research collaboration
• Supporting EU-UA aviation research knowledge transfer pilot projects
• Organising awareness-raising and networking between EU-UA stakeholders

AGILE

Aircraft 3rd Generation MDO for Innovative Collaboration of Heterogeneous Teams of Experts

636202


Programme:

H2020 Transport

Topic:
MG-1.1-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/06/2015 to 31/05/2018

Funding scheme:
RIA

Total cost:
€8,965,932

EU contribution:
€7,074,807

Coordinator:
DEUTSCHES ZENTRUM FUER LUFT - UND RAUMFAHRT EV

Project website:
http://www.agile-project.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193384_en.html

The AGILE project is developing the next generation of aircraft multidisciplinary design and optimisation processes, which target significant reductions in aircraft development costs and time to market, leading to cheaper and greener aircraft solutions.

When a project for a new aircraft is initiated, designers need knowledge and competences from many different disciplines in order to make the right decisions on the aircraft's systems and functions. From the start of the aircraft design process computer simulations play a major role in the prediction of the physical properties and behaviour of the aircraft. A major challenge arises in aircraft design as the properties from different disciplines (aerodynamics, structures, stability and control, etc.) are in constant interaction with each other. It is therefore important not only to connect the simulation models but also the corresponding experts to combine all competences and accelerate the design process to the best possible solution.

The AGILE project has set ambitious performance targets for the end of 2018:
• 20% reduction in time needed to the design optimisation of an aircraft
• 40% reduction in time needed to setup and solve the multidisciplinary optimization in a team of heterogeneous specialists

Overall, these will lead to improved aircraft designs and a 40% increase in performance is expected for large-passenger unconventional aircraft compared to today's ones.

AGILE is implementing the third generation of multidisciplinary design and optimisation through efficient collaboration among international multi-site aircraft design teams. The project builds on key technologies that have been developed over the last ten years at DLR, the German Aerospace centre, such as the Common Parametric Aircraft Configuration Schema (CPACS).

AMOS

Additive Manufacturing Optimization and Simulation Platform for repairing and re-manufacturing of aerospace components

690608

Programme:

H2020 Transport

Topic:
MG-1.9-2015

Call for proposals:
H2020-MG-2015_SingleStage-A

Duration:
01/02/2016 to 31/01/2020

Funding scheme:
RIA

Total cost:
€1,396,189

EU contribution:
€1,396,189

Coordinator:
THE UNIVERSITY OF SHEFFIELD

Project website:
http://amos-project.com

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199911_en.html

The AMOS project is investigating the potential of additive manufacturing (AM) processes to repair and remanufacture aerospace components, such as turbine blades and landing gear. This could significantly reduce the time and cost of regular maintenance and repair for the aerospace industry, while cutting on material waste and extending the life of expensive components.

Currently repairs are labour-intensive and there is no automatic method to quantify component damage and deliver bespoke solutions. While AM techniques are already used to build near net shape parts, manufacture and repair of metallic components creates particular challenges. Partners in AMOS are studying a number of wire and powder processes to determine their suitability for repair operations (accuracy, repeatability, surface integrity, interface between the repair and the component).

A modelling system is being developed in parallel to allow defects to be automatically recognised and a file containing the reconstruction toolpath to be generated, taking into account the process to be used. Those which are deemed suitable for repair will begin the qualification process.

AMOS is a joint EU-Canadian project with nine partners - five from Canada and four from Europe. It is fostering collaboration between European and Canadian companies and research institutes, allowing them to learn from each other. The European partners are the University of Sheffield AMRC in the UK; Ecole Centrale de Nantes in France; GKN Aerospace Engine Systems, based in Sweden; and DPS, a French SME specialising in process simulation and optimisation. Canadian partners are McGill University in Montreal; the University of Ottawa; jet engine manufacturer Pratt & Whitney Canada; landing gear supplier Héroux-Devtek Inc; and automated welding specialist Liburdi.

ASuMED

Advanced Superconducting Motor Experimental Demonstrator

723119

Programme:

H2020 Transport

Topic:
MG-1-4-2016-2017

Call for proposals:
H2020-MG-2016-Two-Stages

Duration:
01/05/2017 to 30/04/2020

Funding scheme:
RIA

Total cost:
€4,776,226

EU contribution:
€4,007,476

Coordinator:
OSWALD ELEKTROMOTOREN GMBH

Project website:
http://asumed.oswald.de/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/209910_en.html

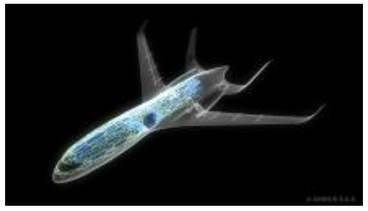
The ASuMED project is building the first fully superconducting motor prototype achieving the power densities and efficiencies needed for hybrid-electric distributed propulsion (HEDP) of future large civil aircraft. HEDP offers a route to achieve the reductions in fuel burn and emission targeted by Flightpath 2050, namely a reduction in CO2 by 75%, NOx and particulates by 90% and noise by 65% compared to 2000.

The ASuMED prototype will outperform state-of-the-art e-motors with normal conductive technologies. The project work focuses on the development of an innovative motor topology, a superconducting stator and rotor, a magnetization system as well as a light and highly efficient cryostat for the motor. In addition, novel numerical modelling methods and a new airborne cryogenic cooling system design are developed. Further, a highly dynamic, fail-safe and robust control of superconducting machines is realized by a modular inverter topology. Final tests evaluate the technology´s benefits and allow its integration into designs for future aircraft.

Bionic Aircraft

Increasing resource efficiency of aviation through implementation of ALM technology and bionic design in all stages of an aircraft life cycle

690689



Programme:

H2020 Transport

Topic:
MG-1.2-2015

Call for proposals:
H2020-MG-2015_TwoStages

Duration:
01/09/2016 to 31/08/2019

Funding scheme:
RIA

Total cost:
€7,968,812

EU contribution:
€6,441,062

Coordinator:
LZN LASER ZENTRUM NORD GMBH

Project website:
http://www.bionic-aircraft.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/204147_en.html

The BIONIC AIRCRAFT project develops new technologies, methodologies and concepts for the aircraft's additive manufacturing (AM). In particular, the project is working on new design concepts and materials that can boost the weight saving potential of AM, as well as new concepts for quality control, repair, recycling and spare parts logistics.

The project is expected to significantly develop the AM sector and enhance its application in civil aircrafts. This will help reduce the aircraft's weight by up to one ton in the medium term and develop completely new types of aircrafts with weight saving potential of 30% in the long term, leading to important reduction of emissions. Due to the resource efficiency of AM technologies and new possibilities for spare parts logistics, the environmental impact will be further reduced.

CENTRELINE

ConcEpt validatioN sTudy foR fusElage wake-filLIng propulsioN intEgration

723242

Programme:

H2020 Transport

Topic:
MG-1-4-2016-2017

Call for proposals:
H2020-MG-2016-Two-Stages

Duration:
01/06/2017 to 31/05/2020

Funding scheme:
RIA

Total cost:
€3,680,521

EU contribution:
€3,680,520

Coordinator:
BAUHAUS LUFTFAHRT EV

Project website:
http://www.centreline.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/209713_en.html

The AERO-UA project aims to stimulate aviation research collaboration between the European Union and Ukraine (UA) through strategic and targeted support.

AERO-UA focuses solely on Ukraine due to the country's huge aerospace potential and comparatively low level of aviation research collaboration with the EU. Ukrainian aerospace organisations possess unique skills and knowledge that can help Europe to address the challenges and goals identified in the ACARE Strategic Research and Innovation Agenda, Flightpath 2050 report, the Clean Sky 2 initiative and H2020 Transport.

The AERO-UA project will achieve its overall aim via four high-level objectives:
• Identifying the barriers to increased EU-UA aviation research collaboration
• Providing strategic support to EU-UA aviation research collaboration
• Supporting EU-UA aviation research knowledge transfer pilot projects
• Organising awareness-raising and networking between EU-UA stakeholders

ComBoNDT

Quality assurance concepts for adhesive bonding of aircraft composite structures by advanced NDT

636494

Programme:

H2020 Transport

Topic:
MG-1.1-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
RIA

Total cost:
€4,617,226

EU contribution:
€4,617,226

Coordinator:
FRAUNHOFER GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V.

Project website:
http://combondt.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193403_en.html

The ComBoNDT project addresses the need in the aeronautic industry for adhesive bonding as a joining technology for the manufacturing of load-critical lightweight primary structures made of Carbon fibre reinforced polymers (CFRP). It will develop a quality assurance concept applicable within the whole life cycle of the aircraft, in order to overcome the current limitations regarding certification of composites.

The project is developing extended non-destructive testing (ENDT) techniques for surface and bond-line quality assurance of aircraft composite parts, towards ensuring the reliable strength of joint structures.

Furthermore, the ComBoNDT partners are working towards improving safety, reducing costs and obtaining more reliable and long-lasting adhesive bonding in aircraft composite parts, which will effectively improve the competitiveness of the European aeronautics industry. More specifically, the project aims to achieve up to 15% weight savings, 20% reduction in fuel consumption, 70% time savings during production, maintenance, repair and overhaul (MRO) and up to 50% higher cost efficiency for ground operations. Finally, direct operational costs (e.g. for fuel) will be further reduced as a result of the extended and optimized implementation of lightweight materials, leading to a greener air transport.

ComBoNDT aims at introducing further developments and maturation of extended non-destructive testing (ENDT) methods suitable for pre- and post-bond inspection of adhered surfaces and adhesively bonded joints. Quality assurance processes for adhesively bonded CFRP primary structures that are not load-critical already exist, however up to now it is not possible to detect defects like kissing bonds or bondline weakening by in- and post-process NDT techniques.

The project brings together 13 partners from eight European countries. It meets the European Aviation Safety Agency's certification requirements for structural bonding. The project builds on the findings of the ENCOMB project.

DORA

Door to Door Information for Airports and Airlines

635885

Programme:
H2020 Transport

Topic:
MG-1.3-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/06/2015 to 31/05/2018

Funding scheme:
RIA

Total cost:
€4,682,895

EU contribution:
€4,682,895

Coordinator:
EURESCOM-EUROPEAN INSTITUTE FOR RESEARCH AND STRATEGIC STUDIES IN TELECOMMUNICATIONS GMBH

Project website:
https://dora-project.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193356_en.html

The DORA project aims to design and establish an integrated information system that helps passengers to optimise travel time from an origin of the travel to the airplane at the departing airport, to the arrival airport, to the final destination. With it, the DORA integrated information system, which will be created within the project together with necessary software platforms and end user applications, is aiming at reduction of overall time needed for a typical European air travel, including necessary time needed for transport to and from the airports. To ensure this, the DORA system will provide mobile, seamless, and time-optimised route recommendations for the travels to the airport and time optimised routing within the airports, leading the passengers through terminals to the right security and departure gates.

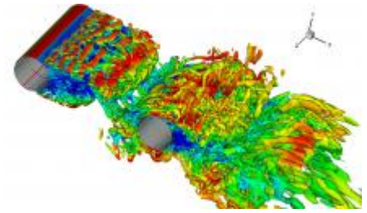
The DORA will integrate all necessary real time information on disruptions in the land transport environments and on incidents in the airport terminals to provide the fastest route alternatives, ensuring the accessibility of airport and airplane at any time in accordance with individual passengers' requirements. The DORA system will be designed in a generic way, to ensure that it can be widely adopted independently on passengers and airports locations. In the project, the DORA system will be implemented and tested in realistic environments involving the cities of Berlin and Palma de Mallorca, as well as their corresponding airports in both cities with involvement of approximately 500 real end users - passengers - in the trials.

To support the passengers' route optimisation, the DORA project will investigate and design technologies for recognition of waiting queues and indoor location services in airports, which will be integrated into the DORA system and tested within the project trials. Furthermore, the project will analyse usability of the provided solution from the perspective of the end users and other relevant stakeholders, by considering potential benefits for various stakeholder groups and related impacts, perform a technical evaluation of the overall solution, including performance evaluation of the system, and investigate business perspectives of the DORA system.

DRAGY

Drag Reduction in Turbulent Boundary Layer via Flow Control

690623



Programme:
H2020 Transport

Topic:
MG-1.10-2015

Call for proposals:
H2020-MG-2015_SingleStage-A

Duration:
01/04/2016 to 31/03/2019

Funding scheme:
RIA

Total cost:
€1,827,686

EU contribution:
€1,827,686

Coordinator:
CENTRE INTERNACIONAL DE METODES NUMERICS EN ENGINYERIA

Project website:
http://www.cimne.com/dragy

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199572_en.html

The DRAGY project is working on the problem of drag reduction in aircraft through the investigation of flow-control techniques. Almost 50% of total drag is related to the friction drag of the aircraft caused by the interaction of the air-flow with the aircraft surface. Studies on the aircraft and flow interactions, together with developments of advanced flow-control technologies, can effectively reduce about 15% of the total drag, which has, therefore, major implications on fuel consumption.

In addition, by using new algorithms and exploiting efficiently large computing facilities, the project is improving the understanding of the underlying physics behind the control techniques and their interaction with the air-flow in the vicinity of the aircraft surface (i.e. the boundary layer) to maximize their efficiency.

Turbulent Boundary Layer Control for skin-friction drag reduction is a relatively new technology made possible through the advances in computational-simulation capabilities, which have improved our understanding of the flow structures of turbulence. Advances in micro-electronic technology have enabled the fabrication of actuation systems capable of manipulating these structures. The combination of simulation, understanding and micro-actuation technologies offer new opportunities to significantly decrease drag, and by doing so, increase fuel efficiency of future aircraft.

Almost 50% of total drag is due to the viscous drag, which is directly related to the friction drag of the aircraft caused by the interaction of the turbulent boundary layer flow with the aircraft surface. Studies on the aircraft and turbulent boundary layer interactions, together with developments of advanced flow-control technologies, can effectively reduce more than 40% of the viscous drag (if the actuation power is ignored), which is equivalent to about 15% of the total drag, and has, therefore, major implications to fuel consumption of commercial aircraft, even if a small proportion of this reduction level is realised.

The project will result in mutual benefits for industry, as well as European and Chinese research communities that work on the drag reduction technologies. 12 European and 12 Chinese partners, including major industries, universities and research centres, collaborate in the project.

ECO-COMPASS

Ecological and Multifunctional Composites for Application in Aircraft Interior and Secondary Structures

690638

Programme:

H2020 Transport

Topic:
MG-1.10-2015

Call for proposals:
H2020-MG-2015_SingleStage-A

Duration:
01/04/2016 to 31/03/2019

Funding scheme:
RIA

Total cost:
€1,893,685

EU contribution:
€1,893,685

Coordinator:
DEUTSCHES ZENTRUM FUER LUFT - UND RAUMFAHRT EV

Project website:
http://www.eco-compass.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199913_en.html

The ECO-COMPASS project is developing ecological improved composite materials for aircraft interior and secondary structures in a cooperation of Chinese and European partners.

Nowadays, composites are important materials used in aircrafts due to their excellent mechanical performance combined with relatively low weight to enable the reduction of fuel consumption. Carbon fibre reinforced plastics are used in fuselage and wing structures and increasingly replace classic metals. Glass fibre reinforced plastics are mainly used for the interior panels. All these composite materials applied in aviation have one thing in common: they are man-made. Renewable materials like bio-fibres and bio-resins are under investigation for a long time but they have not made it into modern aircraft in noticeable amounts yet.

ECO-COMPASS brings together Chinese and European partners to develop these organic materials.

During the project bio-based and recycled materials will be assessed for their application in aviation. To fulfil the safety requirements and to withstand the special stress in aviation environment, protection technologies to mitigate risks like fire, lightning and moisture uptake will be investigated. An adapted modelling and simulation will enable the optimization of the composite design. Electrical conductive composites for electromagnetic interference shielding and lightning strike protection will be investigated as well. In parallel, a life cycle assessment will be carried out to compare the eco-composites with the state-of-the-art materials.

EFFICOMP

Efficient Composite parts manufacturing

690802

Programme:

H2020 Transport

Topic:
MG-1.8-2015

Call for proposals:
H2020-MG-2015_SingleStage-A

Duration:
01/04/2016 to 31/03/2019

Funding scheme:
RIA

Total cost:
€1,759,736

EU contribution:
€1,759,736

Coordinator:
AIRBUS GROUP SAS

Project website:
https://efficomp.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199477_en.html

The EFFICOMP project main objective is to reduce manufacturing cost and lead time of composite structure manufacturing for aerospace application. It will address all aspects of the manufacturing steps from low cost material development to mold preparation, to new fast curing solutions, to the development of new forming and joining solutions.

Many manual operations are still present in conventional composite part manufacturing, such as mold preparation and bagging positioning. EFFICOMP will address the development of reusable bagging, and permanent release agent development associated with low cost tooling development. A working time reduction of more than 15% is foreseen at the end for this preparation phase.

The polymerization phase with autoclave process takes long time, up to 20 hours for large parts and use high quantity of energy. EFFICOMP will address this point with the development of new out of autoclave process and materials with the objective to reduce the global energy consumption by a factor 5 and to reduce the polymerization cycle time by 50%.

EFFICOMP will also address composite part forming and assembly with the objective to have a forming cycle time reduction of about 30%. An important activity of the project will be linked with cost estimation of the developed concept in comparison with state of the art of processes currently used today in aerospace factories to produce composite structures.

The countries involved in EFFICOMP project are The Netherlands (Delft University), Germany (Stuttgart University and DLR), Belgium (EASN) France (AIRBUS GROUP Innovations) and Japan (National composite center, TORAY, Fuji Heavy Industries and RIMCOF).

EMUSIC

Efficient Manufacturing for Aerospace Components USing Additive Manufacturing, Net Shape HIP and Investment Casting

690725

Programme:

H2020 Transport

Topic:
MG-1.10-2015

Call for proposals:
H2020-MG-2015_SingleStage-A

Duration:
01/04/2016 to 31/03/2019

Funding scheme:
RIA

Total cost:
€2,193,279

EU contribution:
€1,799,994

Coordinator:
THE UNIVERSITY OF BIRMINGHAM

Project website:
http://www.birmingham.ac.uk/generic/emusic

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199614_en.html

The EMUSIC project aims to develop more efficient manufacturing processes to produce a range of aerospace components to their final shape in one step. If successful, these processes will use 95% of alloy feedstock instead of the current 10% to produce components that are equivalent to or better than the conventional ones, at a lower cost.

All but two of these processes are additive manufacturing methods in which components are built up layer by layer. They allow building complex shapes directly from powder or wire by melting them locally by laser or an electron beam. The other two processes are compressing powder at high pressure and temperature to final shape and investment casting first used by the Egyptians thousands of years ago.

All of these technologies aim to manufacture components to "near net shape" so that they require minimal machining or surface treatment, thus significantly reducing manufacturing costs.

In order to ensure that EMUSIC's work is relevant to the industry, five aircraft companies have specified the components to be made during the project. One of the most important aspects of the research programme is that the method used to optimise the many process routes will be process modelling which is used to predict shape and volume changes during processing of powders, the stress levels developed during processing which can lead to distortions of components and the microstructure developed by each process-route; this approach is vital to increase the efficiency of the experimental programmes. State-of-the-art components will be manufactured and assessed by partners and by the aircraft companies.

The cost of the process route for components will be defined and this, together with the assessment of the quality of these products, will allow the companies to decide whether to transfer the technologies to their supply chain.

The project will deliver six different components and processing technologies. The consortium consists of three European and two Chinese aircraft companies, a European and two Chinese Universities, seven European and three Chinese research laboratories, thus ensuring the required experimental facilities, modelling expertise and equipment required to assess mechanical properties.

EPICEA

Electromagnetic Platform for lightweight Integration/Installation of electrical systems in Composite Electrical Aircraft

689007

Programme:

H2020 Transport

Topic:
MG-1.9-2015

Call for proposals:
H2020-MG-2015_SingleStage-A

Duration:
01/02/2016 to 31/01/2019

Funding scheme:
RIA

Total cost:
€1,749,920

EU contribution:
€1,749,920

Coordinator:
OFFICE NATIONAL D'ETUDES ET DE RECHERCHES AEROSPATIALES

Project website:
http://www.epicea-env714.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199476_en.html

The EPICEA project aims to release, validate and verify a unique computer environment, the EPICEA platform, assimilating a complete understanding of electromagnetic issues on a composite electric aircraft (CEA).

Energy performance, safety and limited emissions are a priority for aircraft manufacturers and their supply chains. Composite lightweight materials, electrification of functions on board aircraft and operations at higher altitude/latitude are parts of the fundamental levers for optimising the performance of existing and future generations of aircraft. However, this results in the exacerbation of electromagnetic (EM) hazards and exposure to cosmic radiations (CR) risks. Specific electric systems protection measures are leading to additional weight and jeopardising the emergence of energy-efficient CEA. Hence, the development and optimisation of electrical systems integration is crucial for CEA.

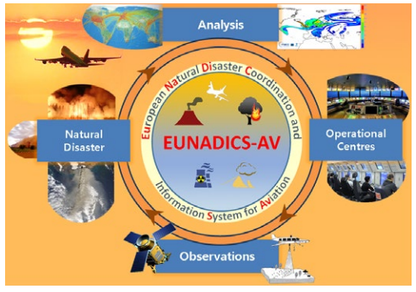
EPICEA's overall ambition is to make possible the development and delivery of the CEA of the future (i.e. safe, energy-efficient and able to fly at higher altitude) by proposing a modelling environment that can design appropriate EM protection of electrical systems (i.e. more robust, lightweight, cost effective, safety compliant and easy to maintain systems).

EPICEA is a collaborative project between Europe and Canada that involves nine partners led by ONERA for Europe and Polytechnique Montreal for Canada.

EUNADICS-AV

European Natural Airborne Disaster Information and Coordination System for Aviation

723986



Programme:

H2020 Transport

Topic:
MG-3.1-2016

Call for proposals:
H2020-MG-2016-SingleStage-INEA

Duration:
01/10/2016 to 30/09/2019

Funding scheme:
RIA

Total cost:
€7,509,319

EU contribution:
€7,441,814

Coordinator:
ZENTRALANSTALT FUR METEOROLOGIE UNDGEODYNAMIK

Project website:
http://www.eunadics.eu

Project description on CORDIS:
http://cordis.europa.eu/project/reference/723986

Aviation is one of the most critical infrastructures of the 21st century. Even comparably short interruptions, for instance, due to natural hazards, can cause damage worth billions.

The EUNADICS-AV project addresses airborne hazards with an extremely high impact (environmental emergency scenarios), including volcano eruptions, nuclear accidents and other scenarios where aerosols and certain trace gases are injected into the atmosphere.

Before the 1990s, insufficient monitoring as well as limited data analysis capabilities made it difficult to react to and to prepare for this type of rare, high-impact events. Nowadays there are many data available during crisis situations, and the data analysis technology has improved significantly. However, there is still a major gap in the Europe-wide availability of real time hazard measurement and monitoring information for airborne hazards describing “what, where, how much” in three dimensions, combined with a near-real-time European data analysis and assimilation system.

The main objective of EUNADICS-AV is to close this gap and allow all stakeholders in the aviation system obtain fast, coherent and consistent information. This would allow a seamless response on a European scale, including ATM, ATC, airline flight dispatching and individual flight planning

EXTREME

EXTREME Dynamic Loading - Pushing the Boundaries of Aerospace Composite Material Structures

636549

Programme:

H2020 Transport

Topic:
MG-1.1-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/09/2015 to 31/08/2019

Funding scheme:
RIA

Total cost:
€5,277,598

EU contribution:
€5,277,598

Coordinator:
UNIVERSITY OF BATH

Project website:
http://www.extreme-h2020.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193408_en.html

The EXTREME project is developing novel material characterisation methods, in-situ measurement techniques, and simulation tools to support the design, manufacturing, testing and validation of aerospace composite structures under extreme dynamic loading.

By getting the design right under extreme loading conditions, aircraft industries will be in position to reduce the number of prototypes, manufacturing and operation costs. This will be achieved by developing novel high speed imaging, tougher materials, advanced sensing measurements and algorithms, and multiscale modelling that will allow to finetune new lighter energy efficient designs leading to an increase of environmental sustainability without compromising on safety.

The EXTREME project, involves 14 European partners including some of the world's leading aerospace industries (Rolls Royce, Agusta Westland, Israeli Aerospace Industries, Dynamore and MSC software), universities and a research centre (Delft University of Technology, Ghent University, Brunel University, University of Patras, National Research Council), and SMEs (Dynamore, Dynawave, Technobis Fiber Technology).

FLEXOP

Flutter Free FLight Envelope eXpansion for ecOnomical Performance improvement

636307

Programme:

H2020 Transport

Topic:
MG-1.1-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/06/2015 to 30/11/2018

Funding scheme:
RIA

Total cost:
€6,692,164

EU contribution:
€6,692,164

Coordinator:
MAGYAR TUDOMANYOS AKADEMIA SZAMITASTECHNIKAI ES AUTOMATIZALASI KUTATOINTEZET

Project website:
https://flexop.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193394_en.html

The FLEXOP project is developing groundbreaking multidisciplinary aircraft design capabilities for Europe that will increase competitiveness with emerging markets, particularly in terms of aircraft development costs.

A closer coupling of wing aeroelasticity and flight control systems in the design process opens new opportunities to explore previously unviable designs. Common methods and tools across the disciplines also provide a way to rapidly adapt existing designs into derivative aircraft, at a reduced technological risk (e.g. using control to solve a flutter problem discovered during development).

The project has the following goals:
• 50% reduction of development and certification costs for next generation airliners
• Integration of shape and loads monitoring in wing structure for sustainability and performance
• 7% fuel efficiency improvement or 20% increased payload

These inter-disciplinary capabilities will improve the design cycle and the verification & validation process of both derivative and new aircraft. Better control of development and certification costs can be achieved if these capabilities are used to address problems early in the design process. Flight test data will be posted on the project website to provide a benchmark for the EU aerospace community.

The project's results will serve as a preliminary outlining of certification standards for future EU flexible transport aircraft.

The consortium consists of 10 partners from six European countries with excellent practical knowledge of wing design and active flexible mode control, which are currently limited in their competitive performance on the world market.

FUCAM

FUture Cabin for the Asian Market

690674

Programme:

H2020 Transport

Topic:
MG-1.8-2015

Call for proposals:
H2020-MG-2015_SingleStage-A

Duration:
01/02/2016 to 31/01/2019

Funding scheme:
RIA

Total cost:
€1,797,665

EU contribution:
€1,797,663

Coordinator:
AIRBUS DEFENCE AND SPACE GMBH

Project website:
http://www.fucam-project.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199914_en.html

The FUCAM project aims to develop a conceptual cabin interior design dedicated to the Asian markets for 2025 onwards.

The Asia Pacific region is the fastest growing air transport market in terms of aircraft deliveries and seat capacity growth. The market has a very large potential, which is supported by the strong economic and demographic growth. More specifically the Japanese airline passenger's needs and requirements are today recognized as anticipation of the societal trends that will affect the world future passenger, thus also the passengers in the EU. These facts will drive FUCAM to contribute to the advancement of the current state of the art in cabin architecture, design and systems development so as to eventually develop the best cabin product, meeting the needs of the Asian market, and become the basis for further future work. This represents a unique opportunity for the EU aeronautics sector to contribute to developing of the future airplane cabin and, at the same time, leveraging the resources, mitigating risks and establishing a long-term relationship with Japan.

Within the FUCAM project the conceptual designs of aircraft seating and cabin interior are expected to better meet the Asian requirements and habits regarding travel behaviour and lifestyle, as the latter differ from those of the Europeans in terms of comfort and enjoyment of the in-flight experience. In parallel, FUCAM will establish a panorama of the innovative cabin technologies emerging in Europe and Japan. From these inputs, it will compose a cabin concept satisfying the collected requirements, while incorporating the most promising enabling technologies. Other aspects, such as efficient cabin installation/re-configuration, power and data distribution, communications and electro-magnetic radiation, will be addressed through the identification of the airline's requirements.

FUCAM is a three-year EU-Japan collaborative project gathering the expertise of eight research and industrial partners from seven European countries and from Japan. FUCAM's project partners represent the entire value chain when designing a new cabin or cabin interiors, from very upstream research to industrial end product.

Future Sky Safety

Future Sky Safety

640597

Programme:

H2020 Transport

Topic:
MG-1.4-2014

Call for proposals:
H2020-MG-2014_SingleStage_A

Duration:
01/01/2015 to 31/12/2018

Funding scheme:
RIA

Total cost:
€16,382,874

EU contribution:
€14,882,894

Coordinator:
STICHTING NATIONAAL LUCHT- EN RUIMTEVAARTLABORATORIUM

Project website:
http://www.futuresky-safety.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193734_en.html

Future Sky Safety is the largest European safety research and innovation action currently ongoing. The Programme develops new tools and new approaches to further improve aeronautic safety. Future Sky Safety contributes to the achievement less than 1 accident per 10 million commercial aircraft flight departures, and an 80% reduction of the accident rate compared to 2000 for specific operations.

The focus is on four main themes, each consisting of a small set of projects:
• Reducing risk of accidents
• Improving processes and technologies to achieve near-total control over the safety risks
• Improving safety performance under unexpected circumstances
• Building ultra-resilient vehicles and improving the cabin safety

The Programme also helps to coordinate the research and innovation agendas of the main national Aeronautical research establishments in Europe (the institutes), and to create synergies with other EU initiatives in the field (e.g. SESAR, Clean Sky).

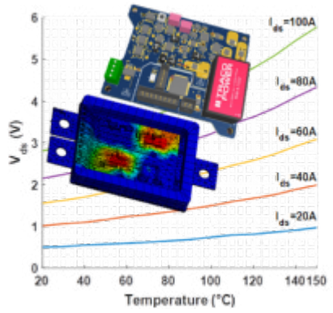
Future Sky Safety provides safety research in direct support of new safety rules, regulations, measures and standards, and in the longer term to fulfil ACARE SRIA and Flightpath 2050 goals concerning safety.

The Programme is coordinated by NLR, and involves EREA institutes, civil aviation authorities (CAA UK, DGAC), airlines (KLM, Lufthansa), aircraft and equipment manufacturers (Airbus, Thales, Embraer, Boeing, Zodiac), an Air Navigation Service Provider (ENAV), EUROCONTROL, SMEs, and five universities.

I2MPECT

Integrated, Intelligent modular power electronic converter

636170



Programme:

H2020 Transport

Topic:
MG-1.1-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
RIA

Total cost:
€7,180,893

EU contribution:
€6,734,626

Coordinator:
SIEMENS AKTIENGESELLSCHAFT

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193382_en.html

Modular power electronic converters are the key technology enabling a 'more electric' aviation. A more electrically driven aircraft has the potential to significantly reduce the airplane weight and therefore to reduce fuel consumption and the carbon footprint of today's airplanes.

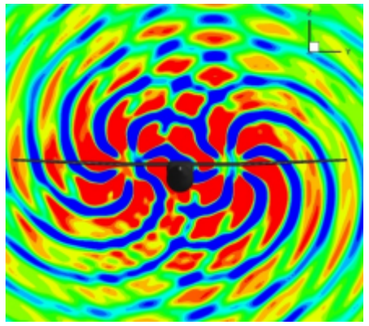
The I²MPECT project will demonstrate important advances in power converters for harsh environments. Innovative 3D device packaging based on planar interconnect technologies with new integrated cooling technologies will be implemented for wide band-gap wire-bond free power semiconductor devices. These technological breakthroughs coupled with novel methodologies for active thermal management, lifetime testing, health management and prognosis will contribute to unprecedented levels of power density, efficiency and reliability in aerospace application.

The project consortium consists of nine partners from industry and science with great expertise in the corresponding topics.

IMAGE

Innovative Methodologies and technologies for reducing Aircraft noise Generation and Emission

688971



Programme:

H2020 Transport

Topic:
MG-1.10-2015

Call for proposals:
H2020-MG-2015_SingleStage-A

Duration:
01/04/2016 to 31/03/2019

Funding scheme:
RIA

Total cost:
€1,799,810

EU contribution:
€1,799,810

Coordinator:
CHALMERS TEKNISKA HOEGSKOLA AB

Project website:
http://www.cimne.com/image

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199882_en.html

IMAGE is working on innovative aircraft noise control/reduction technologies and strategies for effective manipulation and suppression of airframe and engine noise generation and propagation, as well as on improved computational and experimental methodologies enabling robust aero-acoustic analysis. In particular, it focuses on noise control and aero-acoustic optimisation of both landing-gear and high-lift devices, as well as novel acoustic liners and optimal installation effects for noise emission reduction of the engine.

The most promising control devices under analysis are plasma actuation, turbulence screens (meshes) and innovative porous materials (acoustic liners). In order to unveil and model the physical mechanisms devices enabling control and a reduction of airframe and engine fan noise, comprehensive investigation will be conducted by studying simplified yet representative configurations of the landing-gear noise, high-lift (HL) noise and engine noise. Installation effects will be assessed with simplified engine-jet/wing configuration.

A fundamental study in the framework of these basic flow configurations provides a consolidate basis for understanding the mechanism of noise generation and control. The investigation will be conducted using advanced experimental technologies and numerical methods. Both the measurement techniques and computational methodologies will undergo further development and improvement to drive the best achievements from the project work.

The success of the IMAGE project will enhance the TRL of noise-reduction technologies developed and will facilitate their potential industrial use. It is expected that IMAGE will lead to the formulation of some technology concepts at TRL 2 of improved noise-reduction technologies. The “proof of concept” will be explored so as to enhance the TRL to 3. Selected technologies will be further optimized and adapted to low-noise configurations, and validated against laboratory experiment, which may support to bring the technologies and low-noise configurations towards TRL 4. Overall, the industrial partners will play a leading role in the assessment of the developed noise-reducing concepts.

IMAGE is an EU-China collaboration project. It consists of 21 partners.

INCEPTION

Incremental Nonlinear flight Control supplemented with Envelope ProtecTION techniques

723515

Programme:

H2020 Transport

Topic:
MG-1-4-2016-2017

Call for proposals:
H2020-MG-2016-Two-Stages

Duration:
01/06/2017 to 31/05/2020

Funding scheme:
RIA

Total cost:
€2,386,456

EU contribution:
€2,386,456

Coordinator:
TEKEVER ASDS

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/209482_en.html

Nowadays, the design of autopilots is model-based, i.e. based on the information on the dynamics of the aircraft. Therefore the autopilots may be sensitive to possible mismatches between the nominal aircraft model and actual one.

The project INCEPTION is developing a new concept of aircraft flight controller with reduced dependence on nominal aircraft model. The proposed concept which will be able to adapt to the system’s configuration and enable increased safety during operations.

In addition, the project will develop fast adaptation methods with advanced identification and fault detection algorithms which would enable the system’s reconfiguration following envisaged, unprecedented and unknown failure scenarios. By incorporating the general physical knowledge about the flight system dynamics (aircraft type, flight envelope) together with INCEPTION’s modular control rules, the project will actually build the basis for platform-independent autopilots. This will lead to cost reductions in the development process, flight testing and parameter identification required for autopilot design.

INCEPTION aims to demonstrate the advantages of this incremental (sensor-based) solution through a comprehensive examination process starting with the hardware-in-the-loop testing, followed by testing in the flight simulator as well as in unmanned flight trials.

JETSCREEN

JET Fuel SCREENing and Optimization

723525

Programme:

H2020 Transport

Topic:
MG-1.1-2016

Call for proposals:
H2020-MG-2016-Two-Stages

Duration:
01/06/2017 to 31/05/2020

Funding scheme:
RIA

Total cost:
€7,469,355

EU contribution:
€7,469,355

Coordinator:
DEUTSCHES ZENTRUM FUER LUFT - UND RAUMFAHRT EV

Project website:
http://www.jetscreen.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/210793_en.html

The JETSCREEN project develops an optimization platform enabling the integration of distributed design tools and experimental based validations to assess the risks and benefits of alternative fuels. The proposed platform will contribute to optimize alternative fuels in terms of achieving the maximal energy density and lowest pollutant emissions.

The project aims to provide fuel producers, aircraft manufacturers, and engine and fuel system OEMs with knowledge-based tools that will:
• analyse and streamline the approval process for alternative aviation fuel
• assess the compatibility of fuel composition and properties with respect to the fuel system and the combustion system
• quantify the added value of alternative fuels
• optimize fuel formulation in order to attain the full environmental potential of synthetic and conventional fuels

The proposed research methodology will particularly focus on the so-called extreme fuels, with targeted experiments and modelling investigations, especially during the development phase of the platform. The project will finally carry out quantitative and qualitative assessments of the impact of fuel on physical sub-processes, on the fuel system or the engine.

MAHEPA

Modular Approach to Hybrid Electric Propulsion Architecture

723368

Programme:

H2020 Transport

Topic:
MG-1.1-2016

Call for proposals:
H2020-MG-2016-Two-Stages

Duration:
01/05/2017 to 30/04/2021

Funding scheme:
RIA

Total cost:
€8,979,179

EU contribution:
€8,979,179

Coordinator:
PIPISTREL PODJETJE ZA ALTERNATIVNO LETALSTVO DOO AJDOVSCINA

Project website:
http://mahepa.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/209717_en.html

The MAHEPA project is developing two new hybrid electric powertrains to enable cleaner, quieter and more efficient aircraft propulsion.

By adopting a modular approach to propulsion system component design, two variants of a serial hybrid-electric powertrain will be tested in flight for the first time. The first variant uses a fuel-driven generator to charge the batteries and power the electric motor, while the second relies on fuel cells to produce power enabling zero-emission flight. Data from flight tests will be used to model future operating scenarios of hybrid electric aviation paving the way towards greener aircraft.

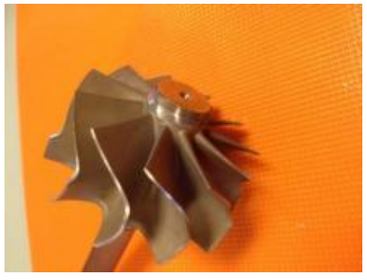
The project is developing key technology and roadmap for market implementation of future hybrid-electric airplanes. After successfully completing ground demonstrations of a hybrid powertrain in the HYPSTAIR (FP7 605305) project, MAHEPA will deliver new, optimized propulsion components with increased reliability suitable for in-flight testing and future commercial deployment in small aircraft.

The first flights of two four-seat airplanes equipped with MAHEPA hybrid electric powertrains are scheduled for 2020.

MMTech

New aerospace advanced cost effective materials and rapid manufacturingtechnologies

633776



Programme:

H2020 Transport

Topic:
MG-1.1-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/05/2015 to 30/04/2019

Funding scheme:
RIA

Total cost:
€5,708,000

EU contribution:
€5,708,000

Coordinator:
THE UNIVERSITY OF SHEFFIELD

Project website:
http://mmtech-nology.com

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193254_en.html

The MMTech project is investigating production techniques to allow a sustainable and cost-effective use of gamma titanium aluminide alloys (?-TiAl) for aerospace components. Because it performs well at the high temperatures found in aircraft engines and is lighter than the currently used nickel alloy, gamma titanium aluminide alloy can reduce aircraft weight, and hence emissions. It will also reduce manufacturing time and cost across the whole aircraft lifecycle, including design, production, maintenance, overhaul, repair and retrofit.

There are several bottlenecks to the general introduction of gamma titanium aluminide alloys in aerospace components. The various alloys are currently expensive and are hard to obtain, thus making machining large blocks of material unattractive. Making parts using near-net techniques has however some challenges. In fact, powder properties can vary across suppliers and even between batches, meaning that process parameters need to be set for each new build. Near net parts also need machining, but because gamma titanium aluminide alloy is brittle at low temperatures, it is extremely hard to finish-machine the components without producing cracks.

MMTECH will develop methods of creating stable, consistent powder batches, as well as investigate adaptive manufacturing techniques which can automatically vary deposition and machining parameters. The project will also look into ways of reducing cracking by using lasers to soften the material. Multi-scale modelling techniques will be applied to the manufacturing route to predict the inherent material properties of the ?-TiAl parts produced and to optimise the laser-assisted machining process for high performance and high-quality production. The expected benefits vary according to the components targeted, but weight-savings of 20-50% are expected, along with reduced raw material use over the lifetime of the part (20%) and reduced production time and cost (~50%).

The consortium includes 13 partners from four countries with four universities, three end users, material providers, machine tool builders and research institutes.

MoNIfly

Mobile-Network Infrastructure for Cooperative Surveillance of low flying drones

723509

Programme:

H2020 Transport

Topic:
MG-1-4-2016-2017

Call for proposals:
H2020-MG-2016-Two-Stages

Duration:
01/06/2017 to 31/05/2020

Funding scheme:
RIA

Total cost:
€2,021,250

EU contribution:
€2,021,250

Coordinator:
TECHNISCHE UNIVERSITAT BRAUNSCHWEIG

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/209481_en.html

The MoNIfly project is developing the first mobile network infrastructure to communicate and enforce flight restriction zones to drones.

The project is developing a mobile network communications device, which will be integrated into drones. With that, bidirectional communications between a server and individual drones is established and used to communicate position data from the drone to the server as well as position data of restriction zones from the server to the individual drones. In drone operations today, no positional data of the drone is known to anyone except the individual user. This poses a threat to low altitude drone flights as separation among drones and other aircraft cannot be guaranteed. In order to ensure separation, MoNIfly uses position data of low-flying aircraft to create safety-zones around these aircraft, prompting drone operators to leave that airspace.

MoNIfly introduces a novel concept to contribute to safe low altitude operation of the expected increasing amount of commercially and privately used drones. Initially, with the exception of recreational radio controlled aircraft, drones have been limited to military use. With increasing market penetration of civil drones and the resulting rise in low altitude air traffic, the aspect of conflicts with civil manned air traffic as well as the influence of drone operations on the public environment requires attention. Forecasts vary greatly among different sources; however, in summary, from 2015-2020 the civil drone market is expected to increase annually at a rate of 20-30 % and with it the expected drone air traffic.

NHYTE

New Hybrid Thermoplastic Composite Aerostructures manufactured by Out of Autoclave Continuous Automated Technologies

723309

The NHYTE project is developing concepts and methodologies enabling the realization of innovative and green integrated aero-structures made by a recyclable hybrid thermoplastic composite material with multifunctional capabilities. This hybrid material will be fabricated by an innovative machine implementing continuous automated production processes: typical aero-structure (part of wing and fuselage) will be produced by a robotic machine using new process such as Automated Fibre Placement (AFP), continuous forming and will be assembled by induction welding, in a similar way as it is done in the automotive industry.

Programme:
H2020 Transport

Topic:
MG-1.1-2016

Call for proposals:
H2020-MG-2016-Two-Stages

Duration:
01/05/2017 to 30/04/2020

Funding scheme:
RIA

Total cost:
€5,250,356

EU contribution:
€5,250,356

Coordinator:
NOVOTECH AEROSPACE ADVANCED TECHNOLOGY SRL

Project website:
http://www.nhyte-h2020.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/209716_en.html

NIPSE

Novel Integration of Powerplant System Equipment

636218

The NIPSE project targets the novel integration of system equipment on next-generation aircraft engines. It addresses installation limitations expected in such future engines, including the thinner nacelles and larger fan modules along with architectures that require more functionality and provide extra thermal constraints through lower ventilation capability and reduced volume availability. The project is therefore seeking to find better placement options for equipment, using locations in the engine, the nacelle and the aircraft itself. NIPSE also addresses the need to improve thermal management of integrated powerplant systems (IPPS).

NIPSE technologies aim to enable potential engine fuel savings of up to 2-3%, gained through a 15% reduction of equipment volume for the next generation engines (such as Ultra-High Bypass Ratio powerplants), along with weight savings and improved thermal management on the more integrated powerplant systems. Additionally, a reduction of development time for the installation of powerplant systems is anticipated.

NIPSE is coordinated by Safran Aircelle SAS (France) and involves nine other European organisations.

Programme:
H2020 Transport

Topic:
MG-1.1-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/06/2015 to 31/05/2018

Funding scheme:
RIA

Total cost:
€6,235,001

EU contribution:
€6,235,001

Coordinator:
SAFRAN NACELLES

Project website:
http://www.nipse.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193385_en.html

PARSIFAL

Prandtlplane ARchitecture for the Sustainable Improvement of Future AirpLanes

723149

Programme:

H2020 Transport

Topic:
MG-1-4-2016-2017

Call for proposals:
H2020-MG-2016-Two-Stages

Duration:
01/05/2017 to 30/04/2020

Funding scheme:
RIA

Total cost:
€2,955,706

EU contribution:
€2,955,706

Coordinator:
UNIVERSITA DI PISA

Project website:
http://parsifalproject.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/209709_en.html

The PARSIFAL project aims to pave the way for the improvement of future aviation, through the introduction of an innovative box-wing aircraft, called “PrandtlPlane”.

The project's main objective is to demonstrate how the payload capacity of present aircraft like the Airbus 320 or Boeing 737 can be raised to the capacity of larger airplanes like A330/B767 by adopting the “PrandtlPlane” configuration, hence contributing to cut emissions per unit weight of transport (passenger or unit weight of freight).

In addition, PARSIFAL is investigating the introduction of PrandtlPlanes in different aircraft categories, ranging from regional turboprop aircraft (ATR-42 and ATR-72 class) to ultra-large airliners.

The advantages of this breakthrough innovation are well quantified from the standpoint of manufacturers, airlines and airport managers, under the guidance of an Advisory Board composed of European industry representatives.

PASSME

Personalised Airport Systems for Seamless Mobility and Experience

636308

Programme:

H2020 Transport

Topic:
MG-1.3-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/06/2015 to 31/05/2018

Funding scheme:
RIA

Total cost:
€4,639,086

EU contribution:
€4,631,212

Coordinator:
TECHNISCHE UNIVERSITEIT DELFT

Project website:
http://www.passme.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193396_en.html

People traffic through European airports is rising year-on-year. PASSME aims to reduce door-to-door airport travel time by one hour and improve the travel experience for passengers despite busy airport environments. The project's researchers investigate critical bottlenecks in the airport experience - including luggage, security, boarding and passenger flow - to develop time-saving solutions that suit passengers' needs.

Some of the project's time-cutting innovations will include improving luggage drop-off and collection; reducing queues at key airport locations; improving communications between airports/airlines and passengers; and developing a PASSME app to make passengers' airport experience seamless and less stressful. The airport environment will also improve for passengers through modern interior design.

The PASSME consortium is composed of partners from seven European countries across the fields of aviation, transport, academia, design, technology and communications. The project's coordinator is the Department of Industrial Design at the Delft University of Technology.

PHOBIC2ICE

Super-IcePhobic Surfaces to Prevent Ice Formation on Aircraft

690819

Programme:

H2020 Transport

Topic:
MG-1.9-2015

Call for proposals:
H2020-MG-2015_SingleStage-A

Duration:
01/02/2016 to 31/01/2019

Funding scheme:
RIA

Total cost:
€1,797,271

EU contribution:
€1,797,271

Coordinator:
FUNDACJA PARTNERSTWA TECHNOLOGICZNEGO TECHNOLOGY PARTNERS

Project website:
http://www.phobic2ice.com

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199478_en.html

The PHOBIC2ICE project is designing materials with anti-icing properties suitable for the development of a more sustainable and energy-efficient coating systems that prevent ice accretion on the surfaces of vital aircraft mechanisms. The accretion of ice represents a significant problem for aircraft, as the presence of even a scarcely visible layer can severely limit the function of wings, propellers, windshields, antennas, vents, intakes and cowlings.

The project aims to develop technologies for avoiding or mitigating this phenomenon. By applying an innovative approach to simulation and modelling, it will enable the design and fabrication of icephobic surfaces with improved functionalities. This knowledge will give a better understanding of the ice accretion process on different coatings and modified surfaces. The proposed solution will be environmentally friendly, will reduce energy consumption, and will eliminate the need for frequent on-ground de-icing procedures. This in turn will reduce pollution, cost, and flight delays.

Several ice protection technologies are presently in use, but most of them have inherent negative effects such as high energy consumption, increased weight, a negative environmental impact, and the need for frequent reapplication among others. Surface engineering can provide a better alternative by reducing or eliminating ice accumulation. An attractive approach to this issue is the development of icephobic coatings and/or treated surfaces that can sufficiently reduce water adhesion and slow down ice creation.

The PHOBIC2ICE's intercontinental research consortium consists of five Canadian and four European partners (Germany, Poland and Spain). Two large industrial partners (Airbus Germany and Pratt & Whitney Canada), as well as two Canadian SMEs (Plasmionique and Dema Aeronautics) are involved. The research backbone of the project is formed by Concordia University and Polytechnique Montréal (both from Montreal), the Spanish National Research Council (CSIC), National Institute for Aerospace Technology (INTA - Spain) and The Technology Partners Foundation (Poland).

RADIAN

Facilitating Collaboration in ReseArch and Development to Foster Further Innovation in European AeroNautics

724109

Programme:

H2020 Transport

Topic:
MG-1-5-2016-2017

Call for proposals:
H2020-MG-2016-SingleStage-INEA

Duration:
01/10/2016 to 30/09/2019

Funding scheme:
CSA

Total cost:
€1,996,663

EU contribution:
€1,996,663

Coordinator:
FRAUNHOFER GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V.

Project website:
http://www.h2020-radian.eu

Project description on CORDIS:
http://cordis.europa.eu/project/reference/724109

The RADIAN project is a multi-step project that aims to overcome the uneven involvement in aviation research across Europe by identifying barriers for international collaboration and developing solutions and measures for various European regions.

The main goal of RADIAN is to contribute to a vision where:
• Researchers at both universities and research organisations cooperate in a fully integrated network irrespective of its location, size and financial possibilities
• Commercial companies in European regions get more involved in aviation research, especially in niche areas
• Europe gets more competitive in emerging areas (e.g. the new market of unmanned aircraft systems - UAS) by building new supply chains if necessary and thus opening opportunities for further European commercial companies
• All supply chains fully utilise the possibilities of new and emerging companies, especially SMEs to strengthen the competitive European position in the global fight for industrial leadership
• The European aeronautics and air transport industry integrates organisations from the geographic Europe (beyond member states and including regions with currently less involvement) in order to provide an added value at the European scale

RINGO

Research Infrastructures - Needs, Gaps and Overlaps

724102

Programme:

H2020 Transport

Topic:
MG-1-5-2016-2017

Call for proposals:
H2020-MG-2016-SingleStage-INEA

Duration:
01/03/2017 to 29/02/2020

Funding scheme:
CSA

Total cost:
€1,957,545

EU contribution:
€1,957,545

Coordinator:
DEUTSCHES ZENTRUM FUER LUFT - UND RAUMFAHRT EV

Project website:
http://www.ringo-project.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/208101_en.html

The Flightpath 2050 (FP2050) strategy document has provided Europe with a vision for aviation and air transportation, identifying goals for the research community and policy makers alike. In order to achieve these challenging long-term goals, it is imperative to ensure that the required infrastructure for research activities addressing these challenges is available both to the necessary extent and in the required timeframe.

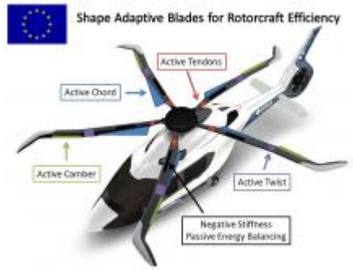
In this context the RINGO project will produce a cohesive and coordinated identification and assessment of the needs, gaps and overlaps for strategic research infrastructures in Europe dedicated to aviation.

The project will also analyse potential sustainable business models and funding schemes for the maintenance and improvement of existing infrastructures, as well as for the development of new ones which are necessary to maintaining the leadership and excellence of future EU aviation research.

SABRE

Shape Adaptive Blades for Rotorcraft Efficiency

723491



Programme:

H2020 Transport

Topic:
MG-1.1-2016

Call for proposals:
H2020-MG-2016-Two-Stages

Duration:
01/06/2017 to 30/11/2020

Funding scheme:
RIA

Total cost:
€6,033,399

EU contribution:
€6,033,399

Coordinator:
UNIVERSITY OF BRISTOL

Project website:
http://www.sabreproject.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/209720_en.html

The SABRE project is developing ground-breaking new helicopter blade morphing technologies which will reduce helicopter fuel burn, CO2, NOx and noise emissions by 5-10%.

SABRE is tackling one of the most fundamental limitations on helicopter performance: the need for rotor blades to have a single fixed geometry which is inherently a compromise between widely different operating conditions. SABRE envisions shape adaptive blades continuously changing their shape to optimise performance in all conditions.

Morphing technologies are being developed that can change the twist, camber, chord, and dynamic behaviour of helicopter blades. A unique goal of the SABRE project is to apply multiple morphing concepts to a single blade, thereby even further increasing its versatility. Major challenges for morphing technologies are the energy and power requirements of the actuation system. This will be addressed by implementing a passive energy balancing system that is capable of reducing the energy requirements by over 90%. The morphing concepts are based on the designs developed in a previous project that was funded by the European Commission (FRIENDCOPTER, 502773).

The design of shape morphing blades will be aided by mixed-fidelity simulations. Low fidelity simulations will be used to explore a large parameter space while high fidelity computational fluid dynamics and computational structure dynamics simulations will allow a detailed analysis of the optimal parameters. The simulations will be supplemented by emission models creating the most detailed and comprehensive analysis framework of its type.

SafeClouds.eu

Data-driven research addressing aviation safety intelligence

724100

SafeClouds.eu

Programme:

H2020 Transport

Topic:
MG-3.1-2016

Call for proposals:
H2020-MG-2016-SingleStage-INEA

Duration:
01/10/2016 to 30/09/2019

Funding scheme:
RIA

Total cost:
€5,576,289

EU contribution:
€5,576,289

Coordinator:
FUNDACION INSTITUTO DE INVESTIGACION INNAXIS

Project website:
http://innaxis.org/safeclouds

Project description on CORDIS:
http://cordis.europa.eu/project/reference/724100

Currently, each aviation stakeholder owns different isolated datasets, which are rarely shared. The SafeClouds project will develop a novel data mining approach for aviation safety and design innovative representations of the results in order to effectively transfer the gained to such users as airlines and air navigation service providers by pooling various datasets. The proposed safety knowledge algorithms and representations will allow identifying and mitigating aviation risks, as well as building a unified vision for the future of safety analytics in Europe.

The project is supported by EASA and powered by a full spectrum of aviation stakeholders - airlines, airports, ANSPs, Eurocontrol, research organisations, safety agencies.

SARAH

Increased Safety and robust certification for ditching of aircrafts and helicopters

724139

Programme:

H2020 Transport

Topic:
MG-3.1-2016

Call for proposals:
H2020-MG-2016-SingleStage-INEA

Duration:
01/10/2016 to 30/09/2019

Funding scheme:
RIA

Total cost:
€6,636,395

EU contribution:
€6,636,394

Coordinator:
IBK-INNOVATION GMBH & CO. KG

Project website:
http://sarah-project.eu

Project description on CORDIS:
http://cordis.europa.eu/project/reference/724139

The SARAH project is establishing novel holistic, simulation-based approaches to the analysis of aircraft ditching that will support a performance-based regulation and certification for next generation aircraft and helicopter, as well as enhance the safe air transport and foster the trustworthiness of aviation services.

Aircrafts and helicopters often travel above water and thus have to ensure safe landing in case of emergency. The motion of the aircraft and the water impact on its structure are therefore tested during the design phase.

Ditching has close links with crash simulation, but also distinctive features, such as hydrodynamic slamming loads on airborne vehicles and complex hydromechanics (partially at very large forward speeds), as well as the interaction of multi-phase fluid dynamics (involving air, water, and vapour phases) and structure mechanics.

Design for ditching involves more than the analysis of loads and subsequent strengthening of the structure. It often requires adjustments in handling of the vehicle during approach and the identification of favourable approach/flight-path conditions in line with the pilots flying capabilities to minimize the remaining kinetic energy of the vehicle to be transferred into the water.

There is a pressing need for more advanced studies to support the development of next-generation, generalized simulation-based ditching-analysis practices, and the SARAH project intends to fill this gap.

The project's consortium involves experts from OEM industries, experienced suppliers of simulation technologies, established research institutions and representatives of the certification authorities.

SHEFAE 2

Surface Heat Exchangers For Aero Engines 2

690808

Programme:

H2020 Transport

Topic:
MG-1.8-2015

Call for proposals:
H2020-MG-2015_SingleStage-A

Duration:
01/02/2016 to 31/01/2021

Funding scheme:
RIA

Total cost:
€1,343,120

EU contribution:
€1,335,887

Coordinator:
ROLLS-ROYCE PLC

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199562_en.html

The SHEFAE2 project is developing new heat exchanger technology to reduce aircraft fuel burn by enabling future engine architectures and reducing component weight.

The project's aim is to develop and demonstrate more compact, lighter, integrated heat exchanger systems for the turbofan engine. Currently in turbofan engines heat exchangers are used to cool the oil that is supplied to the bearing chambers and generators, as well as to keep oil and fuel temperatures within defined limits, thus contributing to better engine performance. In the future, the need to meet environmental challenges will require extensive use of heat exchangers. An example of this is the Rolls-Royce UltraFanTM which has a gearbox between the fan and the turbine to improve performance by allowing the fan and turbine to rotate at their optimum speed. The UltraFanTM will deliver 25% efficiency improvements versus today's Trent 700 engine for the A330 aircraft. However, for such a large geared engine the additional heat generation from the gearbox is approximately 120-150% of the main engine oil system, and the engine has reduced space to physically locate the heat exchangers. Therefore development of compact, lightweight and low cost heat exchanger systems is of great importance.

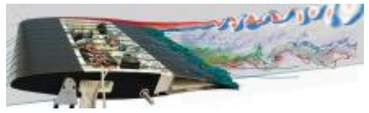
The European-Japanese project is co-funded by EU's Horizon 2020 programme, as well as Japan's Ministry of Economy, Trade and Industry and New Energy and Industrial Technology Development Organisation. Partners are Rolls-Royce from the UK, Paulstra from France, Brandenburg University of Technology (BTU) from Germany, Sumitomo Precision Products (SPP) and the University of Tokyo from Japan. Rolls-Royce coordinates the project and sets its requirements. SPP designs, manufactures and tests the compact, lightweight and low cost heat exchangers. The University of Tokyo conducts research and computational analysis to help achieve the project's objectives. Paulstra designs and manufactures a mounting system for the heat exchangers to enable successful and reliable integration onto the engine. BTU investigates the feasibility of using existing engine's structural and aerodynamic parts as heat exchangers.

SHEFAE2 project is a continuation of SHEFAE where an advanced structural heat exchanger was developed for use on turbofan engines.

SMS

Smart Morphing and Sensing

723402



Programme:

H2020 Transport

Topic:
MG-1.1-2016

Call for proposals:
H2020-MG-2016-Two-Stages

Duration:
01/05/2017 to 30/04/2020

Funding scheme:
RIA

Total cost:
€3,991,688

EU contribution:
€3,991,688

Coordinator:
INSTITUT NATIONAL POLYTECHNIQUE DE TOULOUSE

Project website:
http://www.smartwing.org/SMS/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/209719_en.html

The SMS project is a multi-disciplinary project which develops smart aircraft lifting components of which the shape can be optimized with respect to aerodynamic performance (high lift & low drag) by means of intelligent electro-active actuators.

The project will rely on a new generation of fiber optics based sensors, allowing distributed pressure measurements and in-situ real-time optimisation of the aerodynamic characteristics of the lifting component. The proposed solution will allow the reduction of flow separation and flow instabilities which are the source of aircraft structural vibrations and aerodynamic noise.

The project combines the following methods:
• Advanced integrated aeroelastic design using High-Fidelity Computational Fluid Dynamics-Structural Mechanics (CFDSM);
• Advanced distributed sensing using a new generation of high-fidelity fiber optics sensors;
• Advanced experimental techniques to provide data and high-fidelity simulations for the iterative feedback of the controller design. These experimental techniques will also be used as a basis for the validation of the novel actuation and sensing systems via wind tunnel tests at subsonic (take-off and landing) and transonic (cruise) speeds.
• Controller design by appropriate Flight Control Commands (FCC), to actuate the electro-active material properties in order to enable a real-time in-situ optimisation of the final prototypes in reduced scale and large scale.

SOPRANO

Soot Processes and Radiation in Aeronautical inNOvative combustors

690724

Programme:

H2020 Transport

Topic:
MG-1.2-2015

Call for proposals:
H2020-MG-2015_TwoStages

Duration:
01/09/2016 to 31/08/2020

Funding scheme:
RIA

Total cost:
€6,829,310

EU contribution:
€6,829,310

Coordinator:
SAFRAN SA

Project website:
http://www.soprano-h2020.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/204769_en.html

For decades, most of the aviation research has focused on reducing noise, NOx and CO2 emissions. However, emissions of non-volatile PM from aircraft gas turbine engines, mostly soot particles, are of international concern today. Engine manufacturers have now to deal with both gas and particle emissions having a limited understanding of soot formation processes and characterization in terms of mass and size, as well as partial knowledge of heat transfer caused by soot radiation.

The SOPRANO project aims to deliver new knowledge and improved design tools for:
• Alternative designs of combustion systems for future aircrafts that will enter into service after 2025 and will be able to reduce gaseous pollutants and particles
• Improved liner lifetime assessment methods

The project will deliver more accurate experimental and numerical methodologies for predicting the soot emissions in academic or semi-technical combustion systems. This will contribute to a better understanding of soot particles formation and their impact on heat transfer through radiation. In parallel, the durability of cooling liner materials, related to the walls air flow rate, will be addressed by heat transfer measurements and predictions.

TILDA

Towards Industrial LES/DNS in Aeronautics – Paving the Way for Future Accurate CFD

635962

Programme:

H2020 Transport

Topic:
MG-1.1-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
RIA

Total cost:
€3,048,743

EU contribution:
€2,706,242

Coordinator:
NUMERICAL MECHANICS APPLICATIONS INTERNATIONAL SA

Project website:
http://www.dlr.de/as/tilda

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193362_en.html

The ability to simulate aerodynamic flows using computational fluid dynamics (CFD) methods has progressed rapidly over the last decades and enabled a change in aeronautics design processes. Further improvements are however necessary to overcome the existing lack in confidence in CFD and reduce its computational time (usually a few days).

The TILDA projects develops innovative methods and approaches combining advanced and efficient high-order numerical schemes (HOMs) with innovative approaches for CFD in order to resolve all relevant flow features on several tens of thousands of processors. This will pave the way to very accurate simulated results not exceeding turn-around times of one to two day. By this, an improved physical knowledge together with more accurate predictions of unsteady flows will directly contribute to enhanced reliability of industrial CFD approaches in general.

The project's highly innovative objectives are targeting industrial needs:
• Advances in high fidelity CFD methodologies
• Advances on high order grid generation for CFD
• High Performance Computing (HPC) issues on multiple platforms (CPU/GPU) for high fidelity LES/DNS simulations
• Test cases for industrial relevant applications and demonstration of multi-disciplinary capabilities

TurboNoiseBB

Validation of improved turbomachinery noise prediction models and development of novel design methods for fan stages with reduced broadband noise

690714

Programme:

H2020 Transport

Topic:
MG-1.2-2015

Call for proposals:
H2020-MG-2015_TwoStages

Duration:
01/09/2016 to 29/02/2020

Funding scheme:
RIA

Total cost:
€6,702,851

EU contribution:
€6,702,851

Coordinator:
DEUTSCHES ZENTRUM FUER LUFT - UND RAUMFAHRT EV

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/204768_en.html

The TurboNoiseBB project develops concepts and technologies to reduce aeroengine noise, such as fan broadband noise (BBN), at source. The project will enable a major technical leap based on an improved understanding of the broadband noise source mechanisms and validated broadband noise prediction methods.

In particular, TurboNoiseBB will contribute to major improvements in the noise emission of turbofan engines entering into service after 2025. The project will deliver validated generation three noise reduction concepts and associated tradeoff parameters to pave the way for the demonstration.

ULTIMATE

Ultra Low emission Technology Innovations for Mid-century Aircraft Turbine Engines

633436

Programme:

H2020 Transport

Topic:
MG-1.5-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/09/2015 to 31/08/2018

Funding scheme:
RIA

Total cost:
€3,138,122

EU contribution:
€3,138,122

Coordinator:
CHALMERS TEKNISKA HOEGSKOLA AB

Project website:
http://www.ultimate.aero

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193233_en.html

The ULTIMATE project is developing radically new concepts for aero engines, in line with the EU's long-term emissions reduction target for 2050.

A modern aero engine has an overall efficiency of around 40%. With year 2050 technology it may be possible to reach efficiencies exceeding 60% by combining incremental improvements to conventional components with radically new design concepts to target the major sources of loss inherent in existing engines. The project will mature engine concepts that today only exist as ideas, by combining technologies in an unprecedented way - for instance, a composite engine cycle that combines conventional aero-engine combustion technology with piston engine solutions.

State-of-the-art aero engines experience a drop in pressure in the combustion chamber, but designs that raise pressure during the combustion process can radically increase engine efficiency. Another large source of loss comes from the fact that the exhaust air from the engine is still 500–700 degrees hotter than ambient. If this wasted heat can be recycled then large improvements can be expected. The kinds of radical solutions being explored could completely change the layout and appearance of future engines. To reach the Strategic Research and Innovation Agenda (SRIA) 2050 75% CO_2 reduction target, it is estimated that the last 18% will have to come from new technology developed within the project.

The project team, coordinated by Chalmers University of Technology, includes four of the largest engine manufacturers in Europe: Rolls-Royce (UK), MTU Aero Engines (Germany), Safran Aircraft Engines (France) and GKN Aerospace (Sweden). Four universities - Chalmers University of Technology (Sweden), Cranfield University (UK), Aristotle University of Thessaloniki (Greece) and Institut Supérieur de l'Aéronautique et de l'Espace (France) – as well as the research institute Bauhaus Luftfahrt (Germany) and the technology management company Arttic (France) take part in the project.

The project's innovations are checked with industry, so that concepts that would be unrealistic to put into practice can be discarded at an early stage. The engines to be developed must also be capable of meeting very stringent noise and nitrous oxide emissions targets. Results from the project will be used in industry road mapping to plan technology acquisition for future aero engines.

VISION

Validation of Integrated Safety-enhanced Intelligent flight cONtrol

690811

Programme:

H2020 Transport

Topic:
MG-1.8-2015

Call for proposals:
H2020-MG-2015_SingleStage-A

Duration:
01/03/2016 to 28/02/2019

Funding scheme:
RIA

Total cost:
€1,796,878

EU contribution:
€1,796,878

Coordinator:
OFFICE NATIONAL D'ETUDES ET DE RECHERCHES AEROSPATIALES

Project website:
http://w3.onera.fr/h2020_vision

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/199918_en.html

VISION is a Europe-Japan collaborative research project developing and validating smart technologies for aircraft guidance, navigation and control (GN&C) by integrating on-board vision system and advanced fault detection, as well as resilient methods.

The project contributes to reducing the aircraft accident rate, which is the global civil aviation goal. It targets critical flight situations, especially during the final approach and landing phases.

Due to continuous improvement in reliability and performance of the flight control systems, the accident complexity has increased. The aircrafts nowadays rely on many information sources and hence become more likely to suffer from errors and environmental conditions. To detect and overcome these anomalies, recent European and Japanese projects have evaluated advanced GN&C solutions, but their transfer to industry is slow due to lack of flight validations, the limitations of on-board computers and certification issues. TThe VISION project is capitalising on the know-how and experience acquired in Europe and Japan to make a significant progress and maturation of the Technology Readiness Level (TRL).

The project is tackling two different types of fault scenarios:
• Flight control performance recovery from actuator or sensor failures (e.g. lack of air speed data)
• Navigation and guidance performance recovery from sensor failure (e.g. lack of GPS or ILS - Instrument Landing System) or flight path obstruction

In the first case, fault detection and diagnosis (FDD) and fault tolerant control (FTC) techniques are implemented. In the second one, on-board vision is used to improve the integrity of the classical navigation sensors, and also to increase the situational awareness capability for obstacle clearance.

The developed GN&C solutions will be validated on real aircraft platforms including JAXA MuPAL-alpha experimental airplane in Japan and USOL K-50 unmanned airplane in Europe. VISION will result in flight-validated advanced GN&C solutions with increased TRL.

BRIDGES

Bringing together Research and Industry for the Development of Glider Environmental Services

635359

Programme:

H2020 Transport

Topic:
BG-06-2014

Call for proposals:
H2020-BG-2014-2

Duration:
01/03/2015 to 28/02/2019

Funding scheme:
RIA

Total cost:
€7,791,810

EU contribution:
€7,791,810

Coordinator:
ASSOCIATION POUR LA RECHERCHE ET LE DEVELOPPEMENT DES METHODES ET PROCESSUS INDUSTRIELS

Project website:
http://www.bridges-h2020.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193329_en.html

The BRIDGES project will provide a necessary tool for further understanding, improved monitoring, and responsible exploitation of the marine environment while assuring its long-term preservation. This new tool, a robust, cost-effective, re-locatable, versatile and easily-deployed ocean glider, will support autonomous, long-term in-situ exploration of the deep ocean at large spatio-temporal scales.

The sole European underwater glider SeaExplorer will be modularised, new sensors will be developed, and the operational methodology will be modified to adapt the glider to a new range of services. The glider will have the ability to execute unmanned underwater operations, operate in the deep ocean, and assess the environmental impact of the maritime economy. In addition, BRIDGES will implement and promote the creation of collaborations among sensor and platform manufacturers, oil and gas and mining companies, public health and safety departments, as well as scientific and engineering experts.

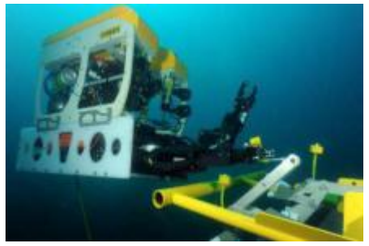
BRIDGES will improve the underwater glider by by:
• Adapting it for deep basins (up to 5000 m)
• Implementing novel payload architecture to increase autonomy and to accommodate the range of sensing capabilities
• Integrating the associated control support system for single and networked operations (mission behaviour, data management, planning, communications)
• The glider's sensing capabilities will also be enhanced.
• The project's main modules are planned for:
• Environmental monitoring for facilitating the effective implementation of an ecosystem-based management
• The oil and gas industry
• The deep sea mining industry

In order to achieve the technological objectives and meet service requirements, an open dialogue between stakeholders will be developed.

DexROV

Dexterous ROV: effective dexterous ROV operations in presence of communication latencies.

635491



Programme:

H2020 Transport

Topic:
BG-06-2014

Call for proposals:
H2020-BG-2014-2

Duration:
01/03/2015 to 31/08/2018

Funding scheme:
RIA

Total cost:
€5,336,006

EU contribution:
€4,631,183

Coordinator:
SPACE APPLICATIONS SERVICES NV

Project website:
http://www.dexrov.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193333_en.html

Underwater operations (e.g. oil industry) are demanding and costly activities for which remotely operated vehicles (ROV) based setups are often deployed in addition to deep divers – contributing to operations risks and costs cutting.

However the operation of a ROV requires significant off-shore dedicated manpower – such a setup typically requires a crew consisting of an intendant, an operator and a navigator. This is a baseline, and extra staffing is often provisioned. Furthermore, customers' representatives often wish to be physically present at the off-shore location in order to advise on, or to observe the course of the operations. Associated costs are high.

In order to reduce the burden of operations, DexROV will work out more cost effective and time efficient ROV operations, where manned support is in a large extent delocalized onshore (i.e. from a ROV control centre), possibly at a large distance from the actual operations, which slows down the communication. DexROV will develop a real time simulation environment to accommodate operators' requests on the onshore side with no delays. The simulated environment will exploit very precise 3D models of the environment built online by the ROV, using data acquired with underwater sensors (3D sonar and vision based). A dedicated cognitive engine will analyse user's control requests as done in the simulated environment, and will turn them into movements that the ROV can execute autonomously in the real environment, despite the communication latencies.

Effective user interfaces will be developed for dexterous manipulation, including a double advanced arm and hand force feedback exoskeleton. The ROV will be equipped with a pair of new force sensing capable manipulators and dexterous end-effectors: they will be integrated within a modular skid.

The outcomes of the project will be evaluated in a series of tests and including a realistic offshore trial.

GRACE

Integrated oil spill response actions and environmental effects

679266

Programme:

H2020 Transport

Topic:
BG-07-2015

Call for proposals:
H2020-BG-2015-2

Duration:
01/03/2016 to 31/08/2019

Funding scheme:
RIA

Total cost:
€5,513,253

EU contribution:
€5,277,554

Coordinator:
SUOMEN YMPARISTOKESKUS

Project website:
http://www.grace-oil-project.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/200292_en.html

The GRACE project will work on improving the response actions after an oil spill in waters. The project's objectives are to:
• Improve the observation and predictions of oil spreading in the sea using novel on-line sensors on-board vessels, fixed structures or gliders, and smart data transfer into operational awareness systems
• Examine the true environmental impacts and benefits of a suite of marine oil spill response methods (mechanical collection in water and below ice, in situ burning, use of chemical dispersants, bioremediation, electro-kinetics, and combinations of these) in cold climate and ice-infested areas
• Assess the impacts on biota of naturally and chemically dispersed oil, in situ burning residues and non-collected oil using biomarker methods and to develop specific methods for the rapid detection of the effects of oil pollution
• Develop a strategic net environmental benefit analysis tool (sNEBA) for oil spill response strategy decision making

A true trans-disciplinary consortium will carry out the project. Oil sensors will be applied to novel platforms such as ferry-boxes, smart buoys, and gliders. The environmental impacts of the oil spill response methods will be assessed by performing pilot tests and field experiments in the coastal waters of Greenland, as well as laboratory tests in Svalbard and the Baltic Sea with the main focus on dispersed oil, in situ burning residues and non-collected oil.

The sNEBA tool will be developed to include and overarch the biological and technical knowledge obtained in the project, as well as integrate with operational assessments being based on expertise on coastal protection and shoreline response. This can be used in establishing cross-border and trans-boundary cooperation and agreements.

The proposal addresses novel observation technology and integrated response methods at extreme cold temperatures and in ice. It also addresses the environmental impacts. The results are vital for the off-shore industry and will enhance the business of oil spill response services.

MARIBE

Marine Investment for the Blue Economy

652629

Programme:

H2020 Transport

Topic:
BG-05-2014

Call for proposals:
H2020-BG-2014-1

Duration:
01/03/2015 to 31/08/2016

Funding scheme:
CSA

Total cost:
€1,977,951

EU contribution:
€1,977,951

Coordinator:
UNIVERSITY COLLEGE CORK - NATIONAL UNIVERSITY OF IRELAND, CORK

Project website:
http://maribe.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194797_en.html

MARIBE is exploring cooperation opportunities for companies that combine different Blue Growth and Blue Economy sectors.

The project aims to unlock the potential of multi-use of space and multi-use platforms in the Blue economy (which forms part of the long-term Blue Growth strategy) to support sustainable growth in the marine and maritime sectors as a whole.

Within the Blue Economy, there are new and emerging sectors comprising technologies that are early stage and novel. These Blue Growth sectors have developed independently for the most part without pursuing cooperation opportunities with other sectors.

MARIBE investigates cooperation opportunities for companies within the four key BG sectors in order to develop these companies and their sectors and to promote the multi-use of space in the offshore economy:

- Marine Renewable Energy
- Aquaculture
- Marine Biotechnology
- Seabed Mining

MARIBE partners will work closely with industry stakeholder to develop collaboration, broker partnerships where necessary and assist with the creation of the business plans and implementation plans required to secure investment.

ADVICE

ADvancing user acceptance of general purpose hybridized Vehicles by Improved Cost and Efficiency

724095

Programme:

H2020 Transport

Topic:
GV-03-2016

Call for proposals:
H2020-GV-2016-INEA

Duration:
01/04/2017 to 31/03/2020

Funding scheme:
IA

Total cost:
€12,694,011

EU contribution:
€9,990,501

Coordinator:
VOLVO PERSONVAGNAR AB

Project website:
http://www.project-advice.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/208459_en.html

The ADVICE project aims at increasing the number of Hybrid Electric Vehicles (HEVs) and Plugin-HEVs to up to 10% of all vehicles registered in the mid-term range. This will be achieved by focusing on a market segment called "premium class", which covers vehicles ranging from medium to luxury class as well as SUVs. In ADVICE three demonstrator vehicles are built, ranging from mild-hybrid to full plug-in hybrid and operating either on gasoline or diesel.

Besides fulfilling the energy efficiency and emission requirements of the call and limiting premium costs to 5% with respect to the best in-class non-hybrid diesel (and 15% premium for a P-HEV), particular attention is devoted to optimum drivability and drive performance.

Hybrid energy storage systems (a combination of differently sized electrochemical systems or mixed electrochemical and mechanical systems), waste heat recovery and high temperature electronics will be the enablers to demonstrate both, energy efficiency and cost reduction.

DiePeR

Diesel efficiency improvement with Particulates and emission Reduction

723976

Programme:

H2020 Transport

Topic:
GV-02-2016

Call for proposals:
H2020-GV-2016-INEA

Duration:
01/10/2016 to 30/09/2019

Funding scheme:
RIA

Total cost:
€8,645,405

EU contribution:
€7,211,030

Coordinator:
AVL LIST GMBH

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/207006_en.html

Growing road traffic in Europe results in detrimental effects on the environment and public health to a level that is becoming unsustainable, this in spite of increasingly stringent emission standards. In particular, CO2 and noxious emissions are not sufficiently reduced in real driving, while higher injection pressures have led to a shift towards the emission of smaller nanoparticles that are undetected by current certification procedures.

The challenge of the DiePeR project is to apply advanced technologies for combustion and exhaust aftertreatment to existing non-hybrid diesel engines and to optimise the improved characteristics of a new generation of engines with regard to emissions, fuel consumption and driveability. Specific technologies will be advanced to technology readiness level (TRL) 6 or 7 and integrated in two demonstration vehicles: one passenger car of the mid/ premium segment and one light commercial vehicle.

A full calibration and assessment of the vehicles and underlying technologies will take place to proof: real driving emissions substantially below €6/ NEDC limits, less than half of emitted particles (number) including particles < 23nm and a more than 5% improved fuel efficiency based on best-in-class MY2015 vehicles.

The project also addresses design features, control and basic research such as modelling of particles formation and the deterioration of engine components (fuel injection system, exhaust aftertreatment system) and its effect on emissions, in order to assess the robustness of the vehicles over useful lifetime.

DownToTen

Measuring automotive exhaust particles down to 10 nanometres

724085

Programme:

H2020 Transport

Topic:
GV-02-2016

Call for proposals:
H2020-GV-2016-INEA

Duration:
01/10/2016 to 30/09/2019

Funding scheme:
RIA

Total cost:
€4,135,134

EU contribution:
€4,135,134

Coordinator:
ARISTOTELIO PANEPISTIMIO THESSALONIKIS

Project website:
http://www.downtoten.com

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/205600_en.html

DownToTen is developing a reliable and robust methodology to enhance the regulatory approach in the assessment of particle number emissions in the sub 23nm region (down to at least 10nm). The project focusses on state-of-the art automotive powertrains with direct injection gasoline and diesel engines in real-world operation conditions.

In particular, DownToTen is investigating the nature and the characteristics of nanoparticles <23 nm (formation, origin, physical and chemical character). The project is setting up a synthetic aerosol bench for fundamental studies at instrument level for the facilitation of metrology and evaluation purposes. Existing, proposed and under development instruments will be evaluated against rigorous criteria for the measurement of sub 23 nm particles, with emphasis on their applicability as portable emissions systems (PEMS). The best candidate systems will then be thoroughly tested in a well-defined set of criteria and under varying conditions of challenging aerosol from a variety of sources, to select the most promising combinations for further usage.

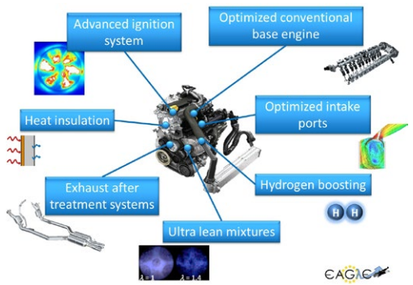
As a next step, a PN-PEMS demonstrator will be selected to materialise the relevant findings and suggestions, and its efficiency to determine PN emissions of current and future engine and vehicle technologies will be explored in the laboratory and in real world conditions (RDE).

The project will propose an appropriate sampling and measurement methodology for <23m particles based on literature survey and the laboratory and on-road testing results. The methodology will help to determine future PN emission limits and conformity factors for vehicle and engine type approval, primarily for RDE.

EAGLE

Efficient Additivated Gasoline Lean Engine

724084



Programme:

H2020 Transport

Topic:
GV-02-2016

Call for proposals:
H2020-GV-2016-INEA

Duration:
01/10/2016 to 31/03/2020

Funding scheme:
RIA

Total cost:
€5,993,063

EU contribution:
€5,993,063

Coordinator:
IFP Energies nouvelles

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/205447_en.html

The decrease of CO2 & particulates emissions is a main challenge of the automotive sector. European OEMs and automotive manufacturers need new long term technologies, still to be implemented by 2030. Currently, hybrid powertrains are considered as the main trend to achieve clean and efficient vehicles. The EAGLE project is to improve energy efficiency of road transport vehicles by developing an ultra-lean Spark Ignition gasoline engine, adapted to future electrified powertrains. This new concept using conventional engine architecture will demonstrate more than 50% peak brake thermal efficiency while reducing particulate and NOx emissions. It will also reach real driving Euro 6 values with no conformity factor. This innovative approach will consequently support the achievement of long term fleet targets of 50 g/km CO2 by providing affordable hybrid solution.

The EAGLE project will tackle several challenges focusing on:
• Reducing engine thermal losses through a smart coating approach to lower volumetric specific heat capacity under 1.5 MJ/m3K
• Reaching ultra-lean combustion (lambda > 2) with very low particulate (down to 10 nm) emission by innovative hydrogen boosting
• Developing breakthrough ignition system for ultra-lean combustion
• Investigating a close loop combustion control for extreme lean limit stabilization
• Addressing and investigating NOx emissions reduction technologies based on a tailor made NOx storage catalyst and using H2 as a reducing agent for SCR.

A strong engine modelling approach will allow to predict thermal and combustion performances to support development and assess engine performances prior to single and multi-cylinder test bench application. An

eCAIMAN

Electrolyte, Cathode and Anode Improvements for Market-near Next-generation Lithium Ion Batteries

653331

Programme:

H2020 Transport

Topic:
GV-1-2014

Call for proposals:
H2020-GV-2014

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
RIA

Total cost:
€6,126,699

EU contribution:
€5,807,245

Coordinator:
AIT AUSTRIAN INSTITUTE OF TECHNOLOGY GMBH

Project website:
http://www.ecaiman.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194849_en.html

The eCAIMAN project will develop a more powerful battery by modifying and improving individual components and technologies to result in a significant overall improvement of the cell. Key innovations include a 5V high-voltage spinel, a high-capacity composite anode, and a stable high-voltage electrolyte. Their cumulative effect should improve total cell capacity by at least 20%. The project will also investigate the integration in light, passenger, and heavy duty vehicles.

eCAIMAN scale-up is designed with existing European production technologies and inexpensive materials mined in Europe, thereby reducing the final battery price. The battery will be developed in collaboration with large European light, medium and heavy duty vehicle manufacturers, allowing eCAIMAN to address a broad scope of real end-user demands.

The project aims to develop a truly European high-performance battery ready for implementation in the global market.

The consortium consists of several highly experienced industrial partners and research organizations from Austria, France, Greece, Italy, Spain, Sweden, and Switzerland, and aims to bring European battery production to the level of global innovation leaders.

The project will also provide inputs to update current regulations and standards for high voltage batteries, with a view to international standardization.

ECOCHAMPS

European COmpetitiveness in Commercial Hybrid and AutoMotive PowertrainS

653468

Programme:

H2020 Transport

Topic:
GV-4-2014

Call for proposals:
H2020-GV-2014

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
IA

Total cost:
€28,419,785

EU contribution:
€21,009,065

Coordinator:
DAF Trucks NV

Project website:
http://www.ecochamps.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194871_en.html

The ECOCHAMPS project is developing technologies for hybrid electric passenger and commercial vehicles that provide improved performance and comfort, lead to less CO2 emissions and reduce the price of hybrid vehicles. It will deliver five demonstrator hybrid vehicles in total to prove and assess the success of the ECOCHAMPS innovations.

Even though hybrid vehicles are already available on the market, their sales are still relatively low and limited to certain classes, such as passenger cars and buses. To increase both consumer and operator interest in hybrid vehicles, the ECOCHAMPS project will extend their functionality and improve fuel economy while reducing their cost.

The project aims to: –
• Improve fuel efficiency by up to 20% –
• Reduce powertrain weight and volume by up to 20% –
• Reduce hybrid vehicles costs, targeting a 10% maximum cost premium
By achieving these innovations, ECOCHAMPS will enable a leading European position in hybrid technology that will create jobs and business opportunities.

Standardisation of components is one way to bring vehicle cost down. However, for commercial hybrid vehicles (buses, medium duty and heavy duty trucks) no such standards yet exist. Through a broad cooperation of manufacturers of commercial vehicles, ECOCHAMPS will propose a Modular system and Standardisation Framework (MSF). It is the first time, worldwide, that standards are to be recommended for hybrid electric powertrain components for commercial vehicles.

A second way to reduce cost is modularisation which enables the use of the same hybrid electric components over different vehicle types ranging from light duty (passenger cars and light commercial vehicles) to heavy duty vehicles (vans, city buses and trucks).

Another way to increase market uptake is to offer more vehicle functionality through the use of the hybrid technologies. For example in the passenger car demonstrators, electric four wheel drive and extended electric only/zero emissions vehicle range at lower hybrid system voltages are being applied.

ELECTRIFIC

Enabling seamless electromobility through smart vehicle-grid integration

713864

Programme:

H2020 Transport

Topic:
GV-8-2015

Call for proposals:
H2020-GV-2015

Duration:
01/09/2016 to 31/08/2019

Funding scheme:
RIA

Total cost:
€6,152,119

EU contribution:
€6,152,118

Coordinator:
GFI

Project website:
http://electrific.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/204977_en.html

ELECTRIFIC will revolutionise the integration of electric vehicles into power grid and users' life.

The project's starting point is the possibility to unlock the potential of electromoblity by increasing coordination of all the actors in its ecosystem. To this end, the project is developing novel techniques and ICT tools for enabling such coordination at all levels of the ecosystem.

At the grid level, the project is developing new smart charging stations capable of dynamically controlling charging rate, maximizing the use of renewables and making as grid-friendly as possible.

At the level of electric vehicles drivers, the project is developing advanced driver assistance services that suggest the most convenient travel and charging options taking into account the charging capacity constraints.

At the EV fleet level, the project is developing management tools that help to optimise fleet operations, maximising battery lifetime and minimising charging costs.

ELECTRIFIC's consortium involves experienced research partners, energy providers and innovative electromobility SMEs. The project results will be shared with the scientific community and prepared for commercial use on different vehicles ranging from e-bikes to e-buses. Both private owners and public services will be considered, with a particular attention on cross-border mobility.

ESPRIT

Easily diStributed Personal RapId Transit

653395

Programme:

H2020 Transport

Topic:
GV-5-2014

Call for proposals:
H2020-GV-2014

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
RIA

Total cost:
€7,996,591

EU contribution:
€7,996,591

Coordinator:
COMMISSARIAT A L ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES

Project website:
http://www.esprit-transport-system.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194859_en.html

The ESPRIT project aims to develop a purpose-built, light weight L category electric vehicle that can be stacked together to gain space. Thanks to pioneering coupling systems, up to eight ESPRIT vehicles can be nested together in a road train, seven being towed, for an efficient redistribution of fleets and a smartly-balanced and cost efficient transport system.

To prove the ESPRIT concept, the project includes also a suite of modelling and simulation tools to predict, once ESPRIT vehicles are deployed, the economic, social and environmental benefits as well as key operating strategies. It is anticipated that this concept will encourage citizens to use conventional public transport and carsharing solutions rather than their private vehicles leading to seamless intermodal transport, reduced congestion and significant reduction of noise and air pollution.

As the key to the ESPRIT transport system is the ability to redistribute eight vehicles at a time by a single operator, the project expects to demonstrate through simulation that it is possible to achieve a continuous 90% availability rate of vehicles across all stations (in last kilometre and one-way carsharing mode) using less manpower compared to current systems which have 50% of stations empty several times a day.

The project consortium involves eight partners from six European countries.

EU-LIVE

Efficient Urban LIght VEhicles

653203

Programme:

H2020 Transport

Topic:
GV-5-2014

Call for proposals:
H2020-GV-2014

Duration:
01/06/2015 to 31/05/2018

Funding scheme:
RIA

Total cost:
€6,713,339

EU contribution:
€6,713,339

Coordinator:
Kompetenzzentrum - Das Virtuelle Fahrzeug, Forschungsgesellschaft mbH

Project website:
http://www.eu-live.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194835_en.html

EU-LIVE will provide a comprehensive European solution for the next generation of electrified, cost- and energy-efficient light urban vehicles to cope with the challenges of future personal urban mobility, based on both user needs and acceptance.

EU-LIVE will establish the "EU-LIVE modular platform", a systematic approach for efficiently designing, developing and building a wide range of L-category vehicles from more close-to-the-market to radically new ones. This comprises a set of modular electrified powertrain components and subsystems for PHEVs and BEVs, modular bodies (within the same L-vehicle class), and an integrated modular co-simulation platform to guarantee re-usability, flexibility and sharing of components as well as subsystems for L-category vehicles.

EU-LIVE will provide innovative solutions regarding cost-efficient, energy-efficient, low-emission and low-noise powertrains (in-wheel motors, novel highly efficient transmission for PHEV, 48V batteries + electric board net ...) and future-proof, flexible and scalable vehicle architectures. To leverage expertise beyond the consortium, an open innovation contest for a radically new light vehicle based on the EU-LIVE modular platform will be carried out. Eventually, both real and virtual full-vehicle demonstrators (L5e PHEV 3-wheeler beyond EURO 5, L3e BEV 2-wheeler, L6 BEV 4-wheeler) will be shown.

By its modular approach and the efficient transfer of expertise from high-volume automotive to low-to-medium-volume light vehicle industry, EU-LIVE will enable economies of scale, therefore overcoming a major barrier to affordable light urban vehicles. Through its excellent partner consortium - including 2 OEMs and several key suppliers - EU-LIVE is able to credibly provide a clear route to market for a range of different L-category vehicles which feature series producibility, attractive cost-of-ownership, full comfort, safety and connectivity, for both European and non-European markets.

The project consortium involves 12 partners from 6 European countries.

EVERLASTING

Electric Vehicle Enhanced Range, Lifetime And Safety Through INGenious battery management

713771

Programme:

H2020 Transport

Topic:
GV-8-2015

Call for proposals:
H2020-GV-2015

Duration:
01/09/2016 to 31/08/2020

Funding scheme:
RIA

Total cost:
€8,201,424

EU contribution:
€8,201,424

Coordinator:
VLAAMSE INSTELLING VOOR TECHNOLOGISCH ONDERZOEK N.V.

Project website:
http://www.everlasting-project.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/204971_en.html

Batteries of electric vehicles (EV) are not yet the ideal energy container they were promised to be. They are expensive, fragile and potentially dangerous. Moreover the current EV cannot compete yet with traditional vehicles when it comes to driving range and flexibility.

The EVERLASTING project intends to improve Li-ion batteries by focusing on the following technology areas:

• Predicting the behaviour of battery systems in all circumstances and over their full lifetime. This enables accurate dimensioning and choice of the correct battery type, leading to lower cost. It also facilitates the development of a powerful battery management system during all stages of its evolution from idea to fully tested product.

• Sensing signals beyond the standard parameters of current, voltage and temperature. This multi-sensing approach provides more varied and in-depth data on the status of the battery facilitating a pro-active and effective management of the batteries, preventing issues rather than mitigating them.

• Monitoring the status of the battery by interpreting the rich sensor data. By intelligently combining this information with road, vehicle and driver data the project will offer accurate higher-level driver feedback. This induces a bigger trust and a lower range anxiety.

• Managing the battery in a proactive way, based on a correct assessment of its status. Efficient thermal management and load management results in increased reliability and safety and leads to lower overall cost through an increased lifetime.

• Defining a standard BMS architecture and interfaces and gathering the necessary support in the market. This allows an industry of standard BMS components to flourish which will result in lower cost.

FIVEVB

Five Volt Lithium Ion Batteries with Silicon Anodes produced for Next Generation Electric Vehicles

653531

Programme:

H2020 Transport

Topic:
GV-1-2014

Call for proposals:
H2020-GV-2014

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
RIA

Total cost:
€5,927,429

EU contribution:
€5,673,273

Coordinator:
AVL LIST GMBH

Project website:
http://www.fivevb.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194886_en.html

The FiveVB project is developing a new cell technology based on innovative materials such as high capacity anodes, high voltage cathodes, and stable, safe and environmentally friendly electrolytes. The project's vision is to push the European lithium-ion battery industry and academia to take over a leading role in the development and manufacturing of materials and cells.

FiveVB will address several technologic parameters with the aim of providing competitive lithium-ion cells and batteries for the automotive industry. In particular:

• Increase energy density by using a new combination of materials
• Reduce costs through material choice
• Increase durability by optimising the materials
• Increase safety (new cells should fulfil the standards)
• Investigate the environmental impact for a better recyclability
• Scale-up for manufacturing of plug-in hybrid-electric-vehicle (PHEV) cell of format PHEV1
•

FiveVB plans to improve the cell technology of a PHEV1 format cell, which is defined as the state-of-the-art and reference for the FiveVB project. The project will also assess the industrialisation Europe requirements of the advanced cell technology using a research prototype line with the capability of fast scale-up to automotive series demands (TRL 5). It will also develop a standardized test procedure focusing on life cycle, safety, and calendar life testing for this high energy battery type.

The project aims to prove the durability up to 80% of capacity retention from initial capacity with a new combination of chemistries in an early development phase.

GasOn

Gas-Only internal combustion engines

652816

Programme:

H2020 Transport

Topic:
GV-3-2014

Call for proposals:
H2020-GV-2014

Duration:
01/05/2015 to 31/10/2018

Funding scheme:
IA

Total cost:
€23,391,978

EU contribution:
€16,704,977

Coordinator:
CENTRO RICERCHE FIAT SCPA

Project website:
http://www.gason.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194816_en.html

Future road vehicles will have to be significantly more efficient by 2020 in order to achieve sustainable mobility in Europe, Energy efficiency improvement of the powertrain will considerably contribute to this target. On the other hand, a strong de-carbonisation process is driving the European transport sector to the 2050 target. The use of low carbon alternative fuels like natural gas will play a fundamental role to accelerate this process.
The GasOn project aims to develop advanced mono-fuel engine powered by compressed natural gas (CNG) that is able to comply with the 2020+ CO2 emission targets. The engine is expected to reduce CO2 emission by 20% compared to 2014 best-in-class CNG vehicle segment by segment, to fulfil the new homologation cycle and to guarantee low fuel consumption in real driving conditions.
The project is based on three parallel technology pillars that lead to a full development of demonstrator engines, all based on the integration of the gaseous direct injection technology with other advanced technologies like variable valve actuation, advanced boosting, variable compression ratio, lean burn combustion and related improved after treatment. The synergic integration of technologies with CNG direct injection enhances boosting efficiency at low engine speed with benefit both in terms of performance and CO2 emission reduction. To complete the investigation of all potential exploitable technologies for CNG engines, the project's team will examine an ignition chamber concept with extended lean burn combustion and diesel-like compression ratio, as well as a gas quality sensor to determine the fuel characteristics and to enable a predictive engine control parameters optimisation.
The final project's outcomes are three demonstrator vehicles (one for each technology) equipped with advanced storage systems and with a driving range equivalent to conventional fuel (without any drawback in terms of trunk capacity) to overcome weakness of refuelling infrastructures.
The project consortium involves 19 partners from ten European countries.

HDGAS

Heavy Duty Gas Engines integrated into Vehicles

653391

Programme:

H2020 Transport

Topic:
GV-7-2014

Call for proposals:
H2020-GV-2014

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
IA

Total cost:
€27,791,129

EU contribution:
€19,890,588

Coordinator:
AVL LIST GMBH

Project website:
http://www.hdgas.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194858_en.html

HDGAS is developing, demonstrating and optimizing advanced powertrain concepts for dual-fuel and pure natural gas (NG) operation engines. The project's ambition is to integrate these engines into heavy duty vehicles and confirm achievement of Euro VI emissions standards, in-use compliance under real-world driving conditions and CO2 or greenhouse gas targets currently under definition.

The project is working on the following technical objectives:
• Specify the requirements and international / European standards for LNG fuelling interfaces and fuelling process for heavy duty vehicles (trucks and buses)
• Develop an advanced LNG fuel tank system
• Develop and demonstrate new generations of exhaust after-treatment systems and low emission technologies for dual fuel and gas engines allowing real driving emissions below Euro VI limits for heavy duty vehicles
• Develop and demonstrate advanced ? 10% more fuel-efficient direct Positive Ignition natural gas engines and powertrains suited for heavy duty vehicles, as well as integrate the engine and a new fuel system on a vehicle

HDGAS is developing all key technologies: LNG fuel system including high pressure tank design, compact and insulation in tank, cryogenic pump, after-treatment systems. The project will integrate three engines, as well as new fuel systems into three demonstration vehicles. HDGAS will also prepare a plan for bringing the innovations to the market.

The project is expected to achieve:
• Advanced LNG vehicle fuel systems and after-treatment systems/emission control
• NG engines, dual fuel engines and controls
• System integration into demonstration vehicles
• Evaluation and independent testing
• Market introduction at selected fleet owners and markets
• Further optimisation of components and systems
• Ramp up production of vehicles

IMPERIUM

IMplementation of Powertrain Control for Economic and Clean Real driving emIssion and fuel ConsUMption

713783

Programme:

H2020 Transport

Topic:
GV-6-2015

Call for proposals:
H2020-GV-2015

Duration:
01/09/2016 to 31/08/2019

Funding scheme:
IA

Total cost:
€9,945,611

EU contribution:
€6,625,977

Coordinator:
AVL LIST GMBH

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/204189_en.html

The IMPERIUM project is working on fuel consumption reduction by 20% (diesel and urea) whilst keeping the vehicle within the legal limits for pollutant emissions. The approach relies on three stages targeting the improvement of the control strategy:

• Optimisation of the main component control (engine, exhaust after-treatment, transmission, waste heat recovery, e-drive) to improve their performance

• Optimisation of the energy source control in various driving situations

• Creating a more comprehensive understanding of the mission (eHorizon, mission-based learning) for a better long-term planning and optimisation of the different energy sources

The IMPERIUM consortium consists of major European actors and is able to provide a 100% European value chain for the development of future powertrain control strategies for trucks.

JOSPEL

Low energy passenger comfort systems based on the joule and peltier effects.

653851

Programme:

H2020 Transport

Topic:
GV-2-2014

Call for proposals:
H2020-GV-2014

Duration:
01/05/2015 to 31/10/2018

Funding scheme:
RIA

Total cost:
€6,668,288

EU contribution:
€6,668,288

Coordinator:
AIMPLAS - ASOCIACION DE INVESTIGACION DE MATERIALES PLASTICOS Y CONEXAS

Project website:
http://jospel-project.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194902_en.html

The JOSPEL project is developing a novel energy efficient climate system that improves the operating range of electric vehicles by optimizing the energy consumption and battery efficiency of the vehicles.

Research shows that many people will not consider buying an electric vehicle unless the operating range increases dramatically compared to the majority of the available car models on the market. By optimising interior temperature control management in electric vehicles the JOSPEL project will reduce more than 50% of energy used for passenger comfort and at least 30% for component cooling, resulting in much more energy efficient vehicles.

The Joule and Peltier effects (which comprises the JOS-PEL name) are two of the pillars of the technologies that will be developed in the project. The advantages of the Peltier and Joule effect will be complemented by a significant number of other innovative solutions to reduce the energy consumption in the car. By taking on an integrated approach, the project combines the application of the thermoelectric Joule and Peltier effect with the development of an efficient insulation of the vehicle interior, energy recovery from heat zones, battery life increase duration enhancement, battery consumption reduction, innovative automated and eco-driving strategies and electronic control of power flows.

The JOSPEL project consists of 14 project partners from nine EU countries.

NeMo

NeMo : Hyper-Network for electroMobility

713794

Programme:

H2020 Transport

Topic:
GV-8-2015

Call for proposals:
H2020-GV-2015

Duration:
01/10/2016 to 30/09/2019

Funding scheme:
RIA

Total cost:
€7,836,827

EU contribution:
€7,836,827

Coordinator:
INSTITUTE OF COMMUNICATION AND COMPUTER SYSTEMS

Project website:
http://www.nemo-emobility.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/204973_en.html

Electromobility is a major factor of transport decarbonisation but it requires overcoming a number of challenges, such as limited charging options, lack of interoperability, absence of a unified identification/payment process, energy grid overload and expensive charging tariffs.

Most of these challenges stem from lack of standardisation in electromobility data and services. The NeMo project is developing a pan-European eRoaming hyper-network that allows seamless and interoperable use of electromobility services throughout Europe. In addition it provides an open cloud marketplace, where third parties can provide services (B2B2C) aiming to increase the attractiveness of electric vehicles.

The NeMo hyper-network is a distributed environment with open architecture based on standardised interfaces, in which all physical or digital electromobility actors can connect and interact seamlessly, exchange data and provide more elaborate electromobility ICT services in a fully integrated and interoperable way both B2B and B2C. The connection will be based on dynamic translation of data and services interfaces according to needs of the specific scenarios and involved stakeholders.

NeMo is not just another proprietary platform for electromobility but a full open eco-system allowing continuous and uninterrupted provision of data and services. It will raise awareness, liaise with standardisation bodies and contribute to the evolution of protocols and standards by developing public common information models which incorporate all existing electromobility-related standards. NeMo will also propose sustainable business models for all electromobility actors opening new opportunities for SMEs and EU Industry.

OPTEMUS

Optimised Energy Management and Use

653288

Programme:

H2020 Transport

Topic:
GV-2-2014

Call for proposals:
H2020-GV-2014

Duration:
01/06/2015 to 28/02/2019

Funding scheme:
RIA

Total cost:
€6,390,634

EU contribution:
€6,390,634

Coordinator:
Kompetenzzentrum - Das Virtuelle Fahrzeug, Forschungsgesellschaft mbH

Project website:
http://www.optemus.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194845_en.html

OPTEMUS represents an opportunity for overcoming one of the biggest barriers towards large scale adoption of electric and plug-in hybrid cars: range limitation due to limited storage capacity of electric batteries. The project proposes to tackle this bottleneck by leveraging low energy consumption and energy harvesting through a holistic vehicle-occupant-centred approach, considering space, cost and complexity requirements.

The project is developing a Battery electric vehicle (BEV) with an innovative thermal and electric management system which will allow demonstrating a minimum of 32% of energy consumption reduction for component cooling and 60% for passenger comfort, as well as an additional 15% being available for traction.

Specifically, OPTEMUS intends to develop a number of innovative core technologies: iIntegrated thermal management system including the compact refrigeration unit and the compact heating, ventilation, and air conditioning HVAC unit, battery housing and insulation as thermal and electric energy storage, thermal energy management control unit and regenerative shock absorbers. It will also develop complementary technologies: localised conditioning, including the smart seat with implemented Thermoelectric Device (TED) and the smart cover panels, Photovoltaic (PV) panels combined with intelligent controls (eco-driving and eco-routing strategies, predictive cabin preconditioning strategy with minimal energy consumption, as well as electric management strategy).

optiTruck

optimal fuel consumption with Predictive PowerTrain control and calibration for intelligent Truck

713788

Programme:

H2020 Transport

Topic:
GV-6-2015

Call for proposals:
H2020-GV-2015

Duration:
01/09/2016 to 31/08/2019

Funding scheme:
IA

Total cost:
€5,385,959

EU contribution:
€4,540,989

Coordinator:
EUROPEAN ROAD TRANSPORT TELEMATICSIMPLEMENTATION COORDINATION ORGANISATION - INTELLIGENT TRANSPORT SYSTEMS & SERVICES EUROPE

Project website:
http://optitruck.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/204974_en.html

The overall objective of the optiTruck project is to further improve energy efficiency by at least 20% on Euro VI HDVs (40t). To achieve this, optiTruck is developing a global optimiser which brings together the most advanced technologies from powertrain control and intelligent transport systems with a number of innovative and complementary elements to maximise the potential utilisation of individual innovations. Through real driving trials, optiTruck will demonstrate this objective, taking account road topography, traffic and weather condition, vehicle configuration and transport mission.

The project is developing a comprehensive impact assessment methodology to extend this local and small-scale demonstration to a wider evaluation to explore potential benefits of using the rich cloud data sources and powerful computing facilities for fast-than-real-time modelling and simulation. It will also take account of social equity, economic, and environmental factors in the assessment to address the main societal challenges for the sector.

optiTruck will facilitate the creation of a global platform not only for exchanging existing knowledge between automotive industries, but also for promoting horizontal collaboration in new ways essential for wider uptake of energy saving solutions across the sector, Europe and the world.

ORCA

Optimised Real-world Cost-Competitive Modular Hybrid Architecture for Heavy Duty Vehicles

724087

Programme:

H2020 Transport

Topic:
GV-03-2016

Call for proposals:
H2020-GV-2016-INEA

Duration:
01/10/2016 to 30/09/2020

Funding scheme:
IA

Total cost:
€10,107,959

EU contribution:
€8,310,755

Coordinator:
NEDERLANDSE ORGANISATIE VOOR TOEGEPAST NATUURWETENSCHAPPELIJK ONDERZOEK TNO

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/205652_en.html

ORCA aims to improve the efficiency and cut the costs of hybrid trucks and busses through enhanced power-trains, reduced fuel consumption and smaller internal combustion engines, as well as longer electric autonomy. The project will also look into replacing diesel engine by an advanced compressed natural gas engine, leading to further cuts in fuel consumption and higher efficiency levels. ORCA's ambition is to reduce the fuel consumption of busses and trucks by up to 40%, downsize the internal combustion engines by at least 50% and improve the electric range from 10km to 30km.

In particular, the project plans to:
• Reduce the TCO to the same as diesel vehicle TCO level, targeting over 10% system cost premium reduction compared to actual IVECO hybrid bus and VOLVO conventional truck with the same performances, same functionalities and operative cost, as well as up to 10% rechargeable energy storage (RES) lifetime/energy throughput improvement
• Improve the hybrid powertrain efficiency up to 5% compared to actual IVECO hybrid bus and conventional truck through optimized RES selection & sizing and improving the energy and ICE management
• Reduce the fuel consumption by 40% compared to an equivalent conventional HD vehicle (bus & truck)
• Downsize the ICE by at least 50% compared to actual IVECO hybrid bus and VOLVO conventional truck
• Improve the electric range from 10km to 30km by adding the PHEV capabilities and optimising the RES capacity
• Assess the replacement of diesel engines by CNG engines for future heavy-duty vehicles

OSEM-EV

Optimised and Systematic Energy Management in Electric Vehicles

653514

Programme:

H2020 Transport

Topic:
GV-2-2014

Call for proposals:
H2020-GV-2014

Duration:
01/06/2015 to 31/05/2018

Funding scheme:
RIA

Total cost:
€8,002,536

EU contribution:
€8,002,536

Coordinator:
INFINEON TECHNOLOGIES AG

Project website:
http://www.osem-ev.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194883_en.html

The OSEM-EV project develops and demonstrates innovative thermal management solutions to achieve improved autonomy, predictable mileage, powertrain and battery endurance for electric vehicles (EVs).

In contrast to conventional cars, EVs have no surplus of thermal energy from the combustion process, thus electric energy from the battery is required for preconditioning or for climate control of the car, leading to deviations of up to 50% from the nominal driving range. Car buyers are well aware of these negative correlations and are therefore still reluctant to purchase EV. This underlines the need for improved autonomy and predictable mileage, powertrain and battery thermal endurance, and comfort despite changing climatic conditions.

OSEM-EV follows a radically new approach that does not only rely on improving the efficiency of individual components, but also focuses on the entire system. By creating an integrated electro-thermal network, OSEM-EV strives to reuse most of the energy regardless of whether it is mechanic, electric or thermal.

In particular OSEM-EV investigates and develops a variety of comprehensive thermal management solutions for EV and will integrate these solutions in demonstration vehicles.

The outcome of OSEM-EV will drastically reduce the negative impacts of high and low ambient temperatures and will make driving range better controlled and predictive. Car autonomy will be increased thanks to a reduction of at least 50% of energy used for passenger comfort and at least 30% for component cooling in extreme conditions with reference to EV on the market in 2014.

The project's multidisciplinary consortium will focus on thermal and coupled electro-thermal energy management, storage, substitution and harvesting, battery models, as well as multi-core microcontrollers for the integration of cost-efficient innovative vehicle subsystems.

PaREGEn

Particle Reduced, Efficient Gasoline Engines

723954

Programme:

H2020 Transport

Topic:
GV-02-2016

Call for proposals:
H2020-GV-2016-INEA

Duration:
01/10/2016 to 30/09/2019

Funding scheme:
RIA

Total cost:
€12,060,599

EU contribution:
€9,952,013

Coordinator:
RICARDO UK LIMITED

Project website:
http://www.paregen.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/205466_en.html

The PaREGEn project will take the lead in demonstrating a new generation of gasoline direct injection engined vehicles (up to TRL7) achieving a 15% reduction in CO2 emissions through the optimal combination of advanced engine and robust aftertreatment technologies.

Modelling and simulation software will be verified and used to improve the design and the capability of the engines. The vehicles will comply with upcoming Euro 6 RDE limits with particle number emissions measured to a 10 nm dia. size threshold.

The project approach comprises three major elements: research for improved understanding; innovation and demonstration of new technology combinations, where the developed know-how, software and control strategies are implemented in two novel optimised gasoline engined vehicles; and independent assessment of their impact to track the progress towards reaching the targets.

Market entry and technology roll out of the methods for development of optimal GDI engines are foreseen for 2020 and onwards.

PEMs4Nano

Portable Nano-Particle Emission Measurement System

724145

Societal concerns for the environment include both fuel consumption and noxious emissions, as well as the awareness that meeting CO2-goals with newest technologies may also lead to the emission of smaller nanoparticles that are undetected by current certification procedures.

The PEMs4Nano project (P4N) addresses the development (based on current direct injection gasoline engines) of measurement procedures down to 10nm, providing a contribution to future regulation on particle emissions, in particular in real driving conditions. The activities planned in the project will also support the understanding, measurement and regulation of particle emissions below 23 nm (with the threshold of at least 10 nm).

Programme:

H2020 Transport

Topic:
GV-02-2016

Call for proposals:
H2020-GV-2016-INEA

Duration:
01/10/2016 to 30/09/2019

Funding scheme:
RIA

Total cost:
€3,752,475

EU contribution:
€3,571,925

Coordinator:
HORIBA EUROPE GMBH

Project website:
http://www.pems4nano.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/205453_en.html

RESOLVE

Range of Electric SOlutions for L-category VEhicles

653511

The RESOLVE project's ambition is to make L-category electric vehicles (ELVs) a practical alternative to cars, encouraging commuters to switch to narrow-track ELVs. RESOLVE tackles the shortcomings of current ELVs by reducing powertrain costs, increasing vehicle energy efficiency and improving rider experience.

The project is developing a range of modular and scalable electric powertrains and battery architectures specifically designed for ELVs, significantly reducing their cost. It is also working on a number of technological advances that aim to maximise the energy efficiency of ELVs, such as regenerative braking and lightweight design.

Another important priority of the project is to improve the overall ELV driver experience by developing an active vehicle stability system, improving human-machine interface, and enhancing vehicle comfort and weather protection. At the end of the project two tilting four-wheeler demonstrators will show the advances to the state-of-the-art and form a basis for attractive commercial ELV models.

The RESOLVE consortium's partners PIAGGIO and KTM are the two largest L-category vehicle manufacturers in the EU. The complete ELV value chain is represented in the project, complemented by top component suppliers and universities.

Programme:

H2020 Transport

Topic:
GV-5-2014

Call for proposals:
H2020-GV-2014

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
RIA

Total cost:
€6,920,277

EU contribution:
€6,844,027

Coordinator:
PIAGGIO & C S.P.A.

Project website:
http://www.resolve-project.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194881_en.html

Silver Stream

Social innovation and light electric vehicle revolution on streets and ambient

653861

Programme:

H2020 Transport

Topic:
GV-5-2014

Call for proposals:
H2020-GV-2014

Duration:
01/06/2015 to 31/05/2018

Funding scheme:
RIA

Total cost:
€4,573,568

EU contribution:
€3,990,111

Coordinator:
INFINEON TECHNOLOGIES AG

Project website:
http://www.silverstream-ev.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194903_en.html

Silver Stream addresses the challenges of new technologies for future urban mobility. The project is developing and demonstrating a radically new light and affordable vehicle concept (L-category) for the ageing population in congested European cities with scarce parking space.

Silver Stream combines both ergonomic concepts conceived for elderly people and advanced automotive technologies for improved driveability and energy efficiency. It is developing a comprehensive set of technologies for the whole vehicle, which will be integrated into a demonstrator running in a realistic test environment. The project's team involves experts in the field of medical and cognitive sciences.

The project is strongly oriented towards the engineering of the proposed L6e vehicle, which could be manufactured and launched on the European market in reasonable time. An vehicle manufacturer is involved in the consortium with the ambition to become a relevant player in the field of urban personal mobility. The market conditions forecast for the next years allows to expect an industrial exploitation of the results through a vehicle based on Silver Stream's solutions, in the range of 20 months after the end of the project.

The project brings together ten European partners from SMEs, large industry, academia and research.

SPICY

Silicon and polyanionic chemistries and architectures of Li-ion cell for high energy battery

653373

Programme:

H2020 Transport

Topic:
GV-1-2014

Call for proposals:
H2020-GV-2014

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
RIA

Total cost:
€7,250,429

EU contribution:
€6,896,054

Coordinator:
COMMISSARIAT A L ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES

Project website:
http://www.spicy-project.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194856_en.html

The SPICY project is developing a new generation of Li-ion batteries that meet the expectations of electric vehicle end-users in terms of performance, safety, cost, recyclability and lifetime.

Batteries can fulfil the need for a constant, efficient, clean, safe and renewable power supply for vehicles. Battery storage systems have been recognised as a key enabling technology to optimise the energy recuperation and the energy management of the whole vehicle with an appropriate level of safety while respecting the environment.

The most significant technological challenge of electric vehicles is the cost and performance of their components, particularly the battery. The development of new chemistries and cell architectures for the Li-ion battery is the only way to increase the cell capacity and the possible energy density which could lead to greater autonomy.

SPICY is developing new chemistry materials, cell architectures and packaging with the support of modelling activities. The project is addressing the whole value chain up to manufacturing. The proposed solution for assessing the cost optimisation and integrating eco-design is of high interest to industry and could lead to the launch of mass production.

Four industrials partners (three large groups and one SME) and eight academic and research centres from Spain, France, Belgium, Luxembourg, Germany and Switzerland collaborate in the project.

SUREAL-23

Understanding and measuring SUb-23 nm particle emissions from direct injection engines including REAL driving conditions

724136

Programme:

H2020 Transport

Topic:
GV-02-2016

Call for proposals:
H2020-GV-2016-INEA

Duration:
01/10/2016 to 30/09/2019

Funding scheme:
RIA

Total cost:
€3,706,213

EU contribution:
€3,428,713

Coordinator:
ETHNIKO KENTRO EREVNAS KAI TECHNOLOGIKIS ANAPTYXIS

Project website:
http://sureal-23.cperi.certh.gr

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/206280_en.html

A large proportion of the total number of particles emitted from direct injection engines are below 23 nm and although the EU aims to regulate those emissions and impose limits for new light duty vehicles, this is not yet possible due to the absence of accurate quantification methods, especially under real driving conditions. The main reason for this is the absence of adequate knowledge regarding the nature of sub-23 nm particles from different engine/fuel combinations under different operating conditions. The SUREAL-23 project aims to overcome such barriers by introducing novel measurement technology for concentration/size/composition measurements.

The recently established supercontinuum laser technology will be coupled to photoacoustic analysis and will also be employed for photoelectric ionization aerosol charging to achieve real-time, composition size-specific analysis of the particles. In parallel, state of the art aerosol measurement techniques will be advanced for better compatibility with sub-23 nm exhaust particles as well as on-board use. The developed instrumentation will assess sub-23 nm particle emissions from both Diesel and GDI vehicles accounting for effects of the fuel, lubricants, aftertreatment and driving conditions for existing and near-future vehicle configurations. The most suitable concepts will be developed for PN-PEMS applications and evaluated accordingly.

The project will provide measurement technologies that will complement and extend established particle measurement protocols, sustaining the extensive investments that have already been made by industry and regulation authorities. The project will deliver systematic characterization of sub 23-nm particles to facilitate future particle emission regulations as well as to assess any potential trade-off between advances in ICE technology towards increased efficiency and emissions. The consortium consists of European and US organisations, which are leaders in the field of aerosol and particle technology.

THOMSON

Mild Hybrid cOst effective solutions for a fast Market penetratiON

724037

Programme:

H2020 Transport

Topic:
GV-03-2016

Call for proposals:
H2020-GV-2016-INEA

Duration:
01/10/2016 to 30/09/2019

Funding scheme:
IA

Total cost:
€11,694,311

EU contribution:
€9,123,958

Coordinator:
CENTRO RICERCHE FIAT SCPA

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/205673_en.html

The THOMSON project (Mild Hybrid cOst effective solutions for a fast Market penetration) project aims to the development of cost effective solutions, based on 48V architectures, answering the need in reducing the environmental impact of the transportation sector through a clever combination of advanced engines technologies, electrification and wider use of alternative/renewable fuels.

The project addresses very precise and consistent objectives to support a quick transition towards high efficient, cleaner and affordable electrified powertrains focusing on the 48V architectures, intended as key element to increase fuel economy and reduce environmental impact and to support a quick penetration on the market of the hybrid powertrains.

Approaches developed in the THOMSON project will demonstrate how the right combination of advanced engine downsizing/turbocharging technologies, coupled with a 48V motor-generator system, can provide the most cost effective solution for a rapid electrification through conventional vehicles.

The project will provide an exhaustive evaluation of this concept through the development of two different 48V architectures (one integrating the e-machine on the front engine belt drive, the other between the engine and the transmission) on two different engine families: on one side a mid-size 1.6 litre Diesel engine and, on the other one, a small downsized Spark Ignited CNG engine equipped with a Direct Injection system. This twin approach will allow to demonstrate how 48V architecture interacts with Diesel technologies (especially with regard to noxious pollutant reduction) and, on the other side, with Spark Ignited CNG ones, emphasizing the CO2 reduction already achieved through the use of a low carbon fuel such as CNG. Moreover, for both engine families, 48V architecture represent an important enabler to introduce electrically driven auxiliaries and sub-systems leading to a global better man

UPGRADE

High efficient Particulate free Gasoline Engines

724036

Programme:

H2020 Transport

Topic:
GV-02-2016

Call for proposals:
H2020-GV-2016-INEA

Duration:
01/10/2016 to 30/09/2019

Funding scheme:
RIA

Total cost:
€9,563,223

EU contribution:
€9,563,222

Coordinator:
CENTRO RICERCHE FIAT SCPA

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/205607_en.html

The UPGRADE project aims to support the transition to a high efficient, cleaner and affordable powertrain technology systems, based on Spark Ignited GDI (Gasoline Direct Injection) approach, suitable for future Light Duty applications. The project also includes a deep analysis of the phenomenon of the formation of the nanoparticles in relationship to the engine design and its operating conditions and, with regard to the after-treatment solutions, the study and development of new Gasoline Particulate Filter (GPF) technologies.

To increase the engine efficiency under Real Driving conditions, the following steps will be carried out:
• address stoichiometric combustion approach on the “small” size engine and lean-burn combustion approach on the “medium” size one
• study and develop the best combinations of technologies, including advanced VVA/VVT capabilities, advanced boosting system (including electrically assisted booster operations), EGR (Exhaust Gas Recirculation) and thermal management systems
• explore and implement advanced fuel injection (direct) and ignition system supported by new dedicated control strategies that will be integrated in the ECU (Engine Control Unit) software.

In order to demonstrate the call overall targets (15% improvement on CO2 emissions based on the WLTP cycle and compliancy with post Euro 6 RDE standards) the project will see the realization of two full demonstrator vehicles: one B-segment vehicle, equipped with the small downsized stoichiometric engine, and one D/E vehicle equipped with the medium size lean-burn engine. The vehicle will be fully calibrated and assessed by independent testing, according to on road test procedures, using the available best representative PEMS (Portable Emission Measurement System) technology and considering also PN measurement below 23 nm diameter.

WEEVIL

Ultralight and ultrasafe adaptable 3-wheeler

653926

Programme:

H2020 Transport

Topic:
GV-5-2014

Call for proposals:
H2020-GV-2014

Duration:
01/06/2015 to 31/05/2019

Funding scheme:
RIA

Total cost:
€6,293,944

EU contribution:
€6,293,944

Coordinator:
FUNDACION TEKNIKER

Project website:
http://weevil.pensativa.it

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194909_en.html

The project is developing a new light electric vehicle with enhanced safety and parking capabilities for urban mobility. The new L-category 3-wheeler will be safe, quiet, clean and energy-efficient, as well as attractive to the public in terms of functionalities and cost. A car-like comfort and driving experience in a reduced space is the project's goal.

WEEVIL will provide a new electric vehicle concept with three important innovative attributes. Its first planned achievement is to radically increase the safety of light compact vehicles by incorporating a composite structure that can absorb three times more energy than typical metallic crash structures. The composite structure will be manufactured with a new process for an affordable introduction of these materials into L-category vehicles.

WEEVIL has a wheel width varying mechanism in order to allow adaptation to different speeds: wider at high speeds for stability, narrower at low speeds for space optimisation and parking. The vehicle needs less than one third of the space required for a conventional car, so this feature will drastically reduce the time required to park the vehicle and the space reserved for parking in cities. Lastly, a new drive-train with improved energy efficiency will be incorporated, as well as new solutions on system integration such as modular battery packs.

The consortium includes engineering centres and companies, as well as an electric L-vehicle manufacturer from Spain, Italy, Turkey and Poland to successfully develop the concept and exploit the results at the end of the project.

XERIC

Innovative Climate-Control System to Extend Range of Electric Vehicles and Improve Comfort

653605

Programme:

H2020 Transport

Topic:
GV-2-2014

Call for proposals:
H2020-GV-2014

Duration:
01/06/2015 to 31/05/2018

Funding scheme:
RIA

Total cost:
€4,621,280

EU contribution:
€4,621,280

Coordinator:
GVS S.P.A.

Project website:
http://www.xeric.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194876_en.html

XERIC is developing an energy-saving climate-control system that will extend the range of electric vehicles and improve passenger comfort in all weather conditions.

Current climate control systems are very energy-consuming - they can go up to 40-60% of the energy available on electric vehicles in summer conditions. Such a substantial amount of energy needed to run auxiliary equipment combined with the limited capacity of electric batteries dramatically affects the range of electric vehicles.

XERIC's new climate control system will reduce by more than 50% the energy used for passenger comfort and thus extend the range of electric vehicles. It will also be easily customised for electric vehicles and easily produced at an industrial scale.

The main technology currently used in automotive industry for air conditioning systems (i.e., Vapour Compression Cycle - VCC) does not allow separating the air cooling and dehumidifying processes: air has to be cooled below dew point temperature to decrease the water vapour content. This often means an unnecessary air cooling and subsequent air heating in order to both dehumidify air in the cabin and maintain comfort conditions.

In winter conditions, the cabin of conventional internal-combustion-engine cars is heated by taking advantage of exhaust heat drawn from the engine cooling system. However, there is not enough waste heat in electric vehicles in winter conditions: little energy is left over since their engines have a high energy-conversion efficiency. The electric energy stored in the batteries is thus used to heat the cabin.

Other systems exist that can dehumidify air without cooling it: this is what desiccants do, and energy-efficiently too. But their systems architectures can hardly be used in small electric vehicles. This is why XERIC offers a new possibility: a hybrid system, combining a liquid desiccant cycle (operating on humidity) with a traditional VCC (dealing with temperature). In such a system, the VCC operates at higher refrigerant evaporation temperature and at lower condensation temperature. The result is energy saving. This hybrid combination is possible thanks to an innovative and highly compact three-fluid membrane contactor that works simultaneously with air, desiccant solution and refrigerant.

AM4INFRA

Common Framework for a European Life Cycle based Asset Management Approach for transport infrastructure networks

713793

Programme:

H2020 Transport

Topic:
MG-8.4b-2015

Call for proposals:
H2020-MG-2015-Singlestage-B

Duration:
01/09/2016 to 31/08/2018

Funding scheme:
CSA

Total cost:
€1,499,860

EU contribution:
€1,499,860

Coordinator:
MINISTERIE VAN INFRASTRUCTUUR EN MILIEU

Project website:
http://www.am4infra.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/204966_en.html

Achieving a well-integrated, optimal performing transport infrastructure network in Europe is a key element of the White paper on Transport, the EU's roadmap to a single European transport area and a competitive and resource-efficient transport system.

The AM4INFRA project supports the White paper's goals by creating the first ever common European framework to manage transport infrastructure networks. The framework will offer transport stakeholders – owners, managers and service providers - three essential elements for a better decision making:

- Common language: a set of principles, definitions and key performance indicators to optimize transport networks
- Common data and data management: standards for cross-European transport information management to improve interoperability across modes and borders
- Common approach: a set of common methodologies and criteria to quantify performance, risk and life cycle cost building to manage complex network systems under changing demands and requirements

The project is building on ongoing bottom-up actions and best practices of four national infrastructure agencies that are frontrunners in the development and application of transport asset management in Europe: Rijkswaterstaat, the executive branch of the Dutch Ministry of Infrastructure and Environment, Transport Infrastructure Ireland, the Italian National Road and Highway Authority and Highways England.

FOX

Forever Open infrastructure across (X) all transport modes

653631

Programme:

H2020 Transport

Topic:
MG-8.1b-2014

Call for proposals:
H2020-MG-2014_SingleStage_B

Duration:
01/05/2015 to 31/10/2017

Funding scheme:
CSA

Total cost:
€929,754

EU contribution:
€929,754

Coordinator:
FORUM DES LABORATOIRES NATIONAUX EUROPEENS DE RECHERCHE ROUTIERE

Project website:
http://www.foxproject.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194879_en.html

An efficient and high-quality transport infrastructure is a fundamental requirement for the connectivity of people and goods in Europe and basis for economic growth, competitiveness and territorial cohesion. In general, the transport network in Europe is of a high standard but fragmented regarding the geographical distribution and the transport modes. In recent years, first networking activities and exchange of strategic programmes among the stakeholders of the four transport modes - road, rail, water and air - started but still a mono-modal, monodisciplinary culture prevails. In the light of the future challenges, e.g. increasing transport demand, ageing infrastructure, scarcity of natural resources, changing climatic conditions, it is inevitable to strengthen the collaboration among single transport modes in order to create an improved future integrated and functioning transport system for Europe, despite limited financial resources of the transport network owners.

The FOX project aims to develop a highly efficient and effective cross-modal R&D environment and culture which meets the demanding transport and connectivity requirements. Based on already existing programmes and agendas related to the aspects of comodal transport research, the FOX project will identify common needs and innovative techniques in the areas of construction, maintenance, inspection, as well as recycling and reuse of transport infrastructure.

This will be reached by involving all stakeholders (owners, researchers, and industry) of the four transport modes in a phased approach:
• Definition of the state-of-the-art research and practice
• Identification of the most promising practices and ideas
• Mapping the common needs

The final aim is to establish a cross-modal working group to develop a roadmap for the whole transport sector and set the agenda for further improvement of cross-modal research development innovation.

INFRALERT

LINEAR INFRASTRUCTURE EFFICIENCY IMPROVEMENT BY AUTOMATED LEARNING AND OPTIMISED PREDICTIVE MAINTENANCE TECHNIQUES

636496

Programme:

H2020 Transport

Topic:
MG-8.1a-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
RIA

Total cost:
€3,183,244

EU contribution:
€3,183,244

Coordinator:
FRAUNHOFER GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V.

Project website:
http://infralert.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193404_en.html

INFRALERT is developing an expert-based information system to support and automate transport infrastructure management from measurement to maintenance. This includes the collection, storage and analysis of inspection data, the determination of maintenance tasks necessary to keep the performance of the infrastructure system in optimal condition, and the optimal planning of interventions.

The condition of the land transport infrastructure has a big societal and economic relevance, since constraints result in disruption of service. The demand for surface transport will significantly increase in the next years. While the road and rail network is not expected to expand significantly in the next decades, the aging infrastructure will require more maintenance which disrupts normal traffic operation. The only way to increase infrastructure capacity is to optimise the performance of the existing infrastructure.

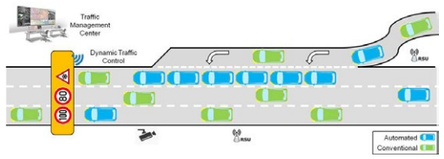
INFRALERT is developing methods and tools that can be directly applied by rail and road infrastructure managers in the field of intelligent maintenance and long-term strategic planning. The project is using machine learning, artificial intelligence and optimisation to achieve its objectives. It combines scientific (i.e. methodological), engineering (i.e. procedures) and practical (i.e. maintenance standards) advances.

INFRALERT will run two pilots chosen for their potential for replication: a railway network in Sweden and a road network in Portugal.

INFRAMIX

Road Infrastructure ready for mixed vehicle traffic flows

723016



Programme:

H2020 Transport

Topic:
ART-05-2016

Call for proposals:
H2020-ART-2016-Two-Stages

Duration:
01/06/2017 to 31/05/2020

Funding scheme:
RIA

Total cost:
€4,899,404

EU contribution:
€4,899,404

Coordinator:
AUSTRIATECH - GESELLSCHAFT DES BUNDES FUR TECHNOLOGIEPOLITISCHE MASSNAHMEN GMBH

Project website:
http://www.inframix.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/210131_en.html

The INFRAMIX project will help prepare road infrastructure to support the coexistence of conventional and automated vehicles. Its main objective is to design, upgrade, adapt and test both physical and digital elements of road infrastructure. The key outcome will be a “hybrid” road infrastructure that will be able to handle the transition period and become the basis for future automated transport systems.

The project developments will be assessed via simulations and on real stretches of advanced highways. This will help to ensure that the proposed adaptations will not jeopardize safety, quality of service or efficiency.

INFRAMIX analyses three traffic scenarios: dynamic lane assignment, roadwork zones and bottlenecks. The project addresses mainly highways, as they are expected to be the initial hosts of mixed traffic, but the key results will also be transferable to urban roads.

The project gathers 11 European companies and institutions, leaders in innovation for the automotive and the road sector, from five Member States, and will have a bottom-up approach.

INTERMODEL EU

Simulation using Building Information Modeling Methodology of Multimodal, Multipurpose and Multiproduct Freight Railway Terminals Infrastructures.

690658

Programme:

H2020 Transport

Topic:
MG-8.4a-2015

Call for proposals:
H2020-MG-2015_TwoStages

Duration:
01/09/2016 to 31/08/2019

Funding scheme:
RIA

Total cost:
€2,999,548

EU contribution:
€2,999,548

Coordinator:
IDP INGENIERIA Y ARQUITECTURA IBERIA SL

Project website:
http://www.intermodeleu.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/204149_en.html

The main objective of the INTERMODEL EU projet is the development of a methodology and ICT tools which will allow an advanced simulation of intermodal railway logistics platforms models in order to support tasks related to both design and planning phases. Using the combination of demand/economic/capacity models as main inputs, an evaluation of scenarios will be possible by means of the comparison of an underlying Building Information Modeling output composed of different data sets such as CAPEX, OPEX or energy efficiency.

Moreover, using these new design tool an improvement of the QOS and boost transhipment operations between rail and road transport will be achieved. Above BIM2Operate translate and demonstrate the benefits of BIM during the operational phase, the tools can be extended with a specific simulator to get other indicators about the performance of the operations.

The scope of this proposal addresses two of a maximum of five aspects expected by the European Commission:
• Development of whole system planning environments (based e.g. on virtual design concepts such as BIM - Building Information Modeling) to support the streamlined delivery of infrastructure projects from concept to deployment. In this respect, the rail sector deserves particular attention.
• Solutions for advanced infrastructure capacity planning and modeling for all transport modes.

RAGTIME

Risk based approaches for Asset inteGrity multimodal Transport Infrastructure ManagEment

690660

Programme:

H2020 Transport

Topic:
MG-8.4a-2015

Call for proposals:
H2020-MG-2015_TwoStages

Duration:
01/09/2016 to 31/08/2019

Funding scheme:
RIA

Total cost:
€3,325,913

EU contribution:
€2,998,413

Coordinator:
FUNDACION TECNALIA RESEARCH & INNOVATION

Project website:
http://ragtime-asset.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/204766_en.html

Cost-effective planning, delivery, operation and maintenance of large transport infrastructures or their networks call for an efficient asset management process. The process usually focuses on the later stages of a facility's life cycle, specifically maintenance, rehabilitation, and replacement. It would however benefit from new methods and tools for asset tracking and management of maintenance activity, as well as planned life cycle and replacement costs of the assets, assistance in determining funding strategies, optimized capital investments in operation and maintenance, and help with the replacement of assets.

The RAGTIME project is establishing a common framework for governance, management and finance of transport infrastructure in order to ensure the best possible return from limited investment. The project aims to develop, demonstrate and validate an innovative management approach and to lay out a whole system planning software platform, based on standard multiscale data models, able to facilitate a holistic infrastructure management throughout its entire lifecycle, providing an integrated view of risk-based approach, implementing risk-based models, resilient concepts and mitigation actions, with specific reference to climate change related threats perspective, and monitored with smart systems, in order to optimize ROI, management, guarantee LOS and improve resilience through maintaining the service.

REFINET

REthinking Future Infrastructure NETworks

653789

Programme:

H2020 Transport

Topic:
MG-8.1b-2014

Call for proposals:
H2020-MG-2014_SingleStage_B

Duration:
01/05/2015 to 30/04/2017

Funding scheme:
CSA

Total cost:
€998,236

EU contribution:
€998,236

Coordinator:
CENTRE SCIENTIFIQUE ET TECHNIQUE DU BATIMENT

Project website:
http://www.refinet.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194899_en.html

The REFINET project is launching a European long-term initiative to increase the overall performance of multimodal transport infrastructures.

The project is:
• Creating a sustainable network of European and international stakeholders' representatives of all transport modes and transport infrastructure sectors
• Delivering a shared European vision of how to specify, design, build or renovate, and maintain the multimodal European transport infrastructure network of the future along with innovative processes to enhance the effectiveness of the sector
• Drafting a strategic implementation plan with a comprehensive set of prioritised actions to make the REFINET vision a reality
• Providing private and public decision makers with a set of up-to-date recommendations and guidelines (including good practices and lessons learnt) for strategic actions and required levels of cooperation between all stakeholders
• REFINET is considering two complementary scenarios, namely maintenance and upgrading of existing transport infrastructures, and development of new transport infrastructures. The project will contribute to creating a European-wide consensus on where to focus in terms of research and innovation to:
• Improve the productivity of the assets (reducing maintenance costs, extending the life span)
• Drastically reduce traffic disruptions of transport flows from inspection, construction and maintenance activities
• Accommodate increasing and changing traffic demand

Thus, REFINET will pave the way to enhanced technology integration and transfer, as well as to mass-market developments for innovative materials, components, systems and processes.

The REFINET consortium is made of eight partners from five European countries (Spain, France, Italy, Belgium, United Kingdom).

SENSKIN

SENsing SKIN' for Monitoring-Based Maintenance of the Transport Infrastructure (SENSKIN)

635844

Programme:

H2020 Transport

Topic:
MG-8.1a-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/06/2015 to 30/11/2018

Funding scheme:
RIA

Total cost:
€3,883,042

EU contribution:
€3,883,042

Coordinator:
INSTITUTE OF COMMUNICATION AND COMPUTER SYSTEMS

Project website:
http://www.senskin.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193352_en.html

The SENSKIN project is developing a micro-electronic skin-like sensor for structural monitoring of the transport network. This is an innovative technology applied for the first time to transport bridges. The sensor system allows easy signal processing, yet requires low power supply, can be applied even on irregular surfaces, and is much cheaper than the existing solutions.

The sensors are able to monitor stress and strain (i.e. extension and compression). This innovative technology is able to capture strains/stresses between 0.012% (very small change) and 10% (very large).

The sensor system is supported by a delay-tolerant networking (DTN), a computer network architecture that addresses the technical issues in heterogeneous networks lacking continuous network connectivity. The main characteristic of these networks is their ability to operate in large distances and overcome issues of long latencies usually found in the transport bridge environment.

A Decision Support System (DSS) is a computer-based information system that supports business or organisational decision-making. The SENSKIN DSS will be determining interventions for normal operating conditions and following a major accident. Decisions will be made following structural assessment of the bridge, a life-cycle economic and environmental assessment and the resilience of the particular structure to traffic, demand and climate changes.

USE-IT

Users, Safety, security and Energy In Transport Infrastructure

653670

Programme:

H2020 Transport

Topic:
MG-8.2b-2014

Call for proposals:
H2020-MG-2014_SingleStage_B

Duration:
01/05/2015 to 30/04/2017

Funding scheme:
CSA

Total cost:
€955,625

EU contribution:
€955,625

Coordinator:
FORUM DES LABORATOIRES NATIONAUX EUROPEENS DE RECHERCHE ROUTIERE

Project website:
http://www.useitproject.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194890_en.html

The European transport system needs to achieve new levels of resource-efficiency, environmental-friendliness, as well as safe and seamless transport for the benefit of citizens, the economy and society. In order to tackle these challenges, infrastructure owners and transport operators will be required to work together, along with other crucial stakeholders, to share knowledge and cooperate in a way that will be beneficial to all parties.

The objective of the USE-IT project is to better understand the common challenges experienced across transport modes, bring representatives of transport modes together to share experience and skills and to develop a set of common research objectives. The project will draw upon the experience gained from the Joint European Transport platform with the focus on infrastructure operations, and will also focus on research objectives presented in the Forever Open Road programme and the work of the FORx4 – "Forever Open Road, Railway, Runway and River – A Cross-modal transport initiative for research".

ADASANDME

Adaptive ADAS to support incapacitated drivers Mitigate Effectively risks through tailor made HMI under automation

688900

Programme:

H2020 Transport

Topic:
MG-3.6a-2015

Call for proposals:
H2020-MG-2015_TwoStages

Duration:
01/09/2016 to 29/02/2020

Funding scheme:
RIA

Total cost:
€9,609,700

EU contribution:
€8,998,950

Coordinator:
STATENS VAG- OCH TRANSPORTFORSKNINGSINSTITUT

Project website:
http://www.adasandme.com

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/204764_en.html

The ADASANDME project develops adapted advanced driver assistance systems that take into account the driver's state and the situational and environmental context to automatically transfer control between the vehicle and the driver for safer and more efficient road usage.

Seven provisionally identified use cases for cars, trucks, buses and motorcycles covering a large proportion of driving on European roads will be carried out along with experimental research on algorithms for driver state monitoring as well as HMI and automation transitions. The project will develop robust detection and prediction algorithms that monitor different driver states, such as fatigue, sleepiness, stress, inattention and impairing emotions, employing existing and novel sensing technologies. It will also take into account traffic and weather conditions via V2X and personalise them to individual driver's physiology and driving behaviour. In addition, the core development includes multimodal and adaptive warning and intervention strategies based on current driver state and severity of scenarios.

The project targets successful fusion of the developed elements into an integrated driver state monitoring system that is supported by vehicle automation of levels 1 to 4. The system will be validated by a wide pool of drivers/riders in simulated and real road conditions and with different driver states. The pilot vehicles will be two cars (conventional and electric), a truck, two PTWs and a bus. This challenging task has been undertaken by a multidisciplinary consortium of 30 partners, including an OEM per vehicle type and seven Tier 1 suppliers.

AutoMate

Automation as accepted and trustful teamMate to enhance traffic safety and efficiency

690705

Programme:

H2020 Transport

Topic:
MG-3.6a-2015

Call for proposals:
H2020-MG-2015_TwoStages

Duration:
01/09/2016 to 31/08/2019

Funding scheme:
RIA

Total cost:
€4,921,301

EU contribution:
€4,921,301

Coordinator:
OFFIS EV

Project website:
http://www.automate-project.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/204767_en.html

The design of the human-machine interaction in highly automated passenger cars is crucial to fully exploit the automation's potential, improve traffic safety and bring these cars to the market.

The AutoMate project is working a novel driver-automation interaction and cooperation concept based on viewing and designing the automation as the driver's transparent and comprehensible cooperative companion or teammate. Driver and automation are seen as members of one team that understand and support each other in pursuing cooperatively the goal of driving safely, efficiently and comfortably from one point to another. Only such kind of systems can enhance safety by using the strength of both the automation and human driver in a dynamic way, and thus gain consumers' trust and acceptance.

The top-level objective of AutoMate is to develop, demonstrate and evaluate the TeamMate Car concept as a major enabler of highly automated vehicles. The project's team will develop seven technical enablers:
- Sensor and communication platform
- Probabilistic driver modelling and learning
- Probabilistic vehicle and situation modelling
- Adaptive driving manoeuvre planning, execution and learning
- Online risk assessment
- TeamMate HMI
- TeamMate System Architecture

These innovations will be implemented on several car simulators and real vehicles to evaluate and demonstrate the project progress and results in real-life traffic conditions.

BONVOYAGE

From Bilbao to Oslo, intermodal mobility solutions and interfaces for people and goods, supported by an innovative communication network

635867

The aim of BONVOYAGE is to find the best way to go from a place to another, door to door, by using any combination of any transport means. BONVOYAGE optimizes multi-modal trips by taking into account also real time conditions including traffic reports, weather forecasts, data from smartphones and wearable sensors, data from vehicles and other road sensors and user preferences, and offering at the same time geo-located services.

All gathered data are processed by a distributed journey planner that identifies the best route and service providers in real time. Our distributed approach enables the necessary scalability to handle continent-wide travel networks, combined with personalized travel preferences and fast response to real-time events. Hence, the resulting solutions are truly intermodal, handling combinations of any private and public modality in the same journey.

A mobile application provides the user with real-time route information and collects relevant user feedback, by using participatory sensing while traveling. During the trip, the application guides the user with required information and reacts on dynamic, real-time conditions that interrupt and affect the ongoing trip.

Programme:

H2020 Transport

Topic:
MG-7.2a-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
RIA

Total cost:
€4,000,000

EU contribution:
€4,000,000

Coordinator:
CONSORZIO NAZIONALE INTERUNIVERSITARIO PER LE TELECOMUNICAZIONI

Project website:
http://www.bonvoyage2020.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193353_en.html

BRAVE

BRidging gaps for the adoption of Automated VEhicles

723021

Programme:

H2020 Transport

Topic:
ART-04-2016

Call for proposals:
H2020-ART-2016-Two-Stages

Duration:
01/06/2017 to 31/05/2020

Funding scheme:
RIA

Total cost:
€2,990,539

EU contribution:
€2,990,539

Coordinator:
TREELOGIC TELEMATICA Y LOGICA RACIONAL PARA LA EMPRESA EUROPEA SL

Project website:
http://www.brave-project.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/210132_en.html

The BRAVE project aims to promote an increased confidence in automated vehicles by the society.

The uniqueness of BRAVE is that it is the first project that simulates and proposes pre-validation protocols to ensure safe adoption of automated vehicles at level 3 (this according to the Society of Automotive Engineers' (SAE) corresponds to 'conditional automated driving vehicles of all aspects of the dynamic driving task with the expectation that the human driver will respond appropriately to a request to retake control').

Based on existing prototypes of automated vehicles, BRAVE is performing multidisciplinary research to ensure the needs of the users (drivers), other road users (other drivers and vulnerable road users), and the perspectives of stakeholders (driving instructors, insurance companies, authorities, certifiers, policy makers and regulators), as a key for obtaining viable and market-ready products. The project is investigating and evolving testing and pre-validation protocols, proposing advancements on the regulation and consumer assessment.

C-MobILE

Accelerating C-ITS Mobility Innovation and depLoyment in Europe

723311

Programme:

H2020 Transport

Topic:
MG-6.2-2016

Call for proposals:
H2020-MG-2016-Two-Stages

Duration:
01/06/2017 to 30/11/2020

Funding scheme:
IA

Total cost:
€15,059,453

EU contribution:
€12,575,000

Coordinator:
IDIADA AUTOMOTIVE TECHNOLOGY SA

Project website:
http://c-mobile-project.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/210916_en.html

The C-MobILE project enables large-scale, real-life C-ITS (Connected Intelligent Transport System) interoperable deployments across Europe.

The project defines operational procedures leading to decentralized and dynamic coupling of systems, services and stakeholders across national and organizational borders in an open, but secure C-ITS ecosystem, based on different access technologies, the usage of which is transparent for service providers and seamless and continuous for the end-users across different transport modes, environments and countries.

C-Mobile consolidates architecture profiles implemented in related projects such as CONVERGE, MOBiNET and DITCM. Experience gathered from past projects and collaboration with ongoing projects on global harmonisation for specifications, testing, installation, operations, monitoring, validation and assessment strategy leads C-MobILE to a common strategy for large-scale deployment and ensures interoperability among the different pilot sites. C-Mobile assesses the sustainability improvement and reduces fuel consumption and CO2 emissions between 5 and 25%.

CODECS

COoperative ITS DEployment Coordination Support

653339

Programme:

H2020 Transport

Topic:
MG-7.2b-2014

Call for proposals:
H2020-MG-2014_SingleStage_B

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
CSA

Total cost:
€1,584,967

EU contribution:
€1,584,967

Coordinator:
ITS AUTOMOTIVE NORD GMBH

Project website:
http://www.codecs-project.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194851_en.html

As coordination and support action, CODECS networks stakeholders engaged in the deployment of cooperative Intelligent Transport Systems and Services (C-ITS), with the objective of consolidating stakeholder interests, preferences and requirements for a concerted C-ITS roll-out across Europe.

The C-ITS project provides a wide array of information and warning services for a safe, sustainable and comfortable future mobility. Deployment of vehicles wirelessly communicating among each other and with road infrastructure lies ahead and is initially progressed in corridor projects and pilots all over Europe. Coordination between these front runners and aligning roll-out plans is inevitable to let traffic participants experience the benefits of C-ITS seamlessly.

With this goal setting, CODECS (COoperative ITS DEployment Coordination Support) acts as a nodal point pooling stakeholders in C-ITS deployment. Through workshops, webinars and meetings, CODECS takes inventory and consolidates the status of early deployment activities, stakeholder roles and responsibilities, preferred use cases as well as issues for strategic decision making. For ensuring the interoperability of systems and service, CODECS develops a V2I/I2V standards profile, white papers closing gaps in standardisation, and a blueprint for deployment. To give guidance to research, testing and standardisation also for later innovation phases, CODECS transforms the fused stakeholder preferences in an aligned use case road map and recommendations for strategic decision making.

The CODECS team consists of 10 project partners from six European countries, representing key stakeholder groups in C-ITS deployment. With its goal setting, CODECS supports the Amsterdam Group, the C-ITS Deployment Platform of the European Commission, Standards Setting Organisations and other key deployment players in coming to an attuned C-ITS roll-out in Europe.

CoEXist

AV-Ready' transport models and road infrastructure for the coexistence of automated and conventional vehicles

723201

Programme:

H2020 Transport

Topic:
ART-05-2016

Call for proposals:
H2020-ART-2016-Two-Stages

Duration:
01/05/2017 to 30/04/2020

Funding scheme:
RIA

Total cost:
€3,474,068

EU contribution:
€3,474,068

Coordinator:
RUPPRECHT CONSULT-FORSCHUNG & BERATUNG GMBH

Project website:
http://www.rupprecht-consult.eu/nc/projects/projects-details/project/coexist.html

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/210134_en.html

The CoEXist project aim is to strengthen the capabilities of urban road authorities for the planning and integration of connected and automated vehicles (CAVs) on their networks. It is the first European project focusing on the technological development of microscopic and macroscopic transport modelling tools, CAV-simulators and CAV control logics. The expected outputs of CoEXist are a CAV-ready transport modelling tool, an impact assessment tool, and an action plan and framework as guidance for road authorities.

Furthermore, CoEXist will systematically increase the capacity of road authorities in Gothenburg, Stuttgart, Milton Keynes and Helmond by training them to use the developed tools to get ready for the transition towards a shared road network with increasing levels of CAVs, both in terms of vehicle penetration rates and levels of automation.

To tackle the challenges of CAV deployment on urban road networks, the project is taking a holistic and trans-disciplinary approach by bringing together leading organisations and relevant stakeholders in the field.

ETC

The European Travellers Club: Account-Based Travelling across the European Union

636126

Programme:

H2020 Transport

Topic:
MG-7.2a-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
RIA

Total cost:
€4,500,000

EU contribution:
€4,500,000

Coordinator:
STICHTING OPEN TICKETING

Project website:
http://www.europeantravellersclub.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193375_en.html

The European Travellers Club project will create seamless account-based traveling across the EU with the help of European transport ticketing schemes or operators, travellers and technology providers. The concept is built around the traveller, meaning that the travellers will be in control of their preferences and privacy.

Whilst the project includes innovative technological concepts, it is expressly designed to work with existing e-ticketing infrastructures in Member States (e.g. Calypso, VDV, ITSO etc.) as well as new systems (such as EMV-contactless, smart tokens, etc.).

The "eco-system" will be open for all potential suppliers through an open architecture with clear interfaces and standardised protocols. The architecture allows for a smooth integration with travel planning and booking tools, journey information and integration with other uses of e-identity, e-payment and e-ticketing.

EuTravel

Optimodal European Travel Ecosystem

636148

Programme:

H2020 Transport

Topic:
MG-7.2a-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/05/2015 to 31/10/2017

Funding scheme:
RIA

Total cost:
€3,873,993

EU contribution:
€3,873,993

Coordinator:
INLECOM SYSTEMS LTD

Project website:
http://www.eutravelproject.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193378_en.html

The EuTravel project sets the foundations (Optimodality Framework) for developing a collaborative ecosystem, where all transport and travel providers' systems communicate and seamlessly interoperate, enabling travellers to organise composite door-to-door intermodal trips according to their own set of criteria.

EuTravel contributes towards the realisation of a sustainable and open single European market for multimodal travel services by:
• Giving travel and transport service providers an easy and cost effective way to deliver multimodal customised services for travellers and develop value added services for their operations
• Facilitating optimodal itinerary planning and improving travel and transport services visibility
• Enabling the development of optimised services (e.g. multimodal travel planners) that allow travel users to easily organise a door-to-door pan-European multimodal trip in accordance with their own set of criteria, including environmental performance
• Addressing key interoperability challenges and the integration of different data sources across air, rail, ferry, coach and public transportation modes

The project demonstrates an ecosystem populated with tools that tap into existing mainstream IT reservation systems and sources of travel data. Seamless and secure services and data exchange is realised through a single point of communication for transport and travel stakeholders' application program interface (API).

HIGHTS

High precision positioning for cooperative ITS applications

636537

Programme:

H2020 Transport

Topic:
MG-3.5a-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
RIA

Total cost:
€5,999,616

EU contribution:
€5,999,616

Coordinator:
JACOBS UNIVERSITY BREMEN GGMBH

Project website:
http://www.hights.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193407_en.html

The HIGHTS project is developing Cooperative Intelligent Transport System (C-ITS) to enable the localisation of any vehicle on the road with a positioning precision of 0.25 metres. This will improve the safety levels considerably for drivers and vulnerable road users (VRUs), as well as open the way to highly automated driving (HAD) applications.

C-ITS applications rely on knowledge of the geographical positions of vehicles. Unfortunately, satellite-based positioning systems (e.g., GPS and Galileo) are unable to provide sufficiently accurate position information for many important applications and in certain challenging but common environments (e.g., urban canyons and tunnels).

The HIGHTS platform aims to increase the safety level of vulnerable road users (motorcycles, scooters, pedestrians) through bi-directional danger detection and by detecting slight deviations from driving courses, thus detecting danger before it occurs. Safety is a huge challenge for today's road scenario and it will be even more challenging in the future, with the progressive introduction of HAD applications such as C-ACC (Automatic Cruise Control that interacts with infrastructure). HIGHTS platform is going to be a key enabler to C-ACC and Platooning.

In particular C-ACC and Platooning will provide smoother driving conditions, optimization of traffic flows and high precision lane detection for more efficient guidance in urban and highway environments.

HIGHTS results are integrated into the facilities layer of European Telecommunications Standards Institute (ETSI) C-ITS architecture and are thereby available for all C-ITS applications.

IMOVE

Unlocking Large-Scale Access to Combined Mobility through a European MaaS Network

723314

Programme:

H2020 Transport

Topic:
MG-6.1-2016

Call for proposals:
H2020-MG-2016-Two-Stages

Duration:
01/06/2017 to 30/11/2019

Funding scheme:
RIA

Total cost:
€3,693,428

EU contribution:
€3,393,566

Coordinator:
SOFTECO SISMAT SRL

Project website:
http://www.imvove-project.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/210789_en.html

Mobility as a Service (MaaS) is conceived as the way people can move through customised mobility packages combining public and private services and offering a viable alternative to fragmented mobility and car ownership. The IMOVE project aims to accelerate the deployment and unlock the scalability of MaaS schemes in Europe, ultimately paving the way for a roaming service for MaaS users across different countries.

Although a few MaaS initiatives have been piloted in Europe, most of them didn't reach a significant scale and stable business operation. Overall, there is still a lack of a solid MaaS experience replicable at the EU level.

IMOVE addresses the main challenges of MaaS development by investigating together innovative business and technology enablers and validating the designed solutions in four European Living Labs in Berlin, Gothenburg, Greater Manchester and Turin. A fifth European site, involved during project development through an open call launched at the European level, will help further assessing the transferability of developed IMOVE MaaS enablers and solutions.

interACT

Designing cooperative interaction of automated vehicles with other road users in mixed traffic environments

723395

Programme:

H2020 Transport

Topic:
ART-04-2016

Call for proposals:
H2020-ART-2016-Two-Stages

Duration:
01/05/2017 to 30/04/2020

Funding scheme:
RIA

Total cost:
€5,527,581

EU contribution:
€5,527,581

Coordinator:
DEUTSCHES ZENTRUM FUER LUFT - UND RAUMFAHRT EV

Project website:
http://www.interact-roadautomation.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/209718_en.html

The interACT project develops novel, holistic interaction concepts for automated vehicles, that enable their integration in mixed traffic environments, in a safe and intuitive way.

The project investigates solutions to improve the communication and cooperation strategy between automated vehicles and other traffic participants. interACT will provide an overview of current human interactions in traffic, and will support the safe deployment of automated vehicles by developing novel software and Human-Machine Interface hardware components for reliable and user-centric communication between automated vehicles and other traffic participants.

interACT will:
• use social-psychological models to compile a catalogue of interactions, identifying the main communication needs of road users in current and future traffic scenarios
• improve software algorithms and sensor capabilities for assessing intention recognition and behaviour prediction of surrounding road users
• develop a Cooperation and Communication Planning Unit to integrate planning algorithms, providing synchronized and integrated communication protocols
• ensure safety of road users by developing easy-to-verify software for a safety layer, and novel methods for fail-safe trajectory planning

interACT is expected to have strong impact on road safety, on usability and acceptance of automated vehicles, on their validation procedures and on the European competitiveness of vehicle manufacturers.

ITS OBSERVATORY

ITS Observatory

653828

Programme:

H2020 Transport

Topic:
MG-7.2b-2014

Call for proposals:
H2020-MG-2014_SingleStage_B

Duration:
01/05/2015 to 31/10/2017

Funding scheme:
CSA

Total cost:
€1,337,260

EU contribution:
€1,337,260

Coordinator:
EUROPEAN ROAD TRANSPORT TELEMATICSIMPLEMENTATION COORDINATION ORGANISATION - INTELLIGENT TRANSPORT SYSTEMS & SERVICES EUROPE

Project website:
http://www.its-observatory.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194900_en.html

The ITS Observatory project is developing a one-stop shop for information and insight about ITS deployment in Europe. This easy-to-use online platform will collect and offer comprehensive information and insight on deployment of Intelligent Transport Systems and Services.

ITS Observatory is an open online data-base for the ITS Community. Content providers (e.g. ITS owners, managers & suppliers) will enter information through a simple input interface about their ITS implementations, describing the location and type of ITS, whom to contact for more information and summarising any evaluation results. Users will be able to search the knowledgebase using popular keywords.

The ITS Observatory will offer decision makers, businesses and stakeholders access to timely and reliable facts on existing and ongoing ITS implementation in Europe, as well as the best available information on deployment outcomes (e.g. impacts & benefits) to help them develop and apply ITS policy objectives and strategies.

L3Pilot

Piloting Automated Driving on European Roads

723051

Programme:

H2020 Transport

Topic:
ART-02-2016

Call for proposals:
H2020-ART-2016-Two-Stages

Duration:
01/09/2017 to 31/08/2021

Funding scheme:
IA

Total cost:
€46,684,871

EU contribution:
€35,960,979

Coordinator:
VOLKSWAGEN AG

Project website:
http://www.l3pilot.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/210915_en.html

The overall objective of the L3Pilot project is to test the viability of automated driving as a safe and efficient means of transportation, exploring and promoting new service concepts to provide inclusive mobility.

The project focuses on large-scale piloting with functions enabling Conditional Automation, which according to the Society of Automotive Engineers' (SAE) it corresponds to Level 3 (i.e. 'the driving mode-specific performance by an automated driving system of all aspects of the dynamic driving task with the expectation that the human driver will respond appropriately to a request to intervene'). The project will include additional assessment of some functions enabling High Automation, which corresponds to Level 4 (i.e. 'the driving mode-specific performance by an automated driving system of all aspects of the dynamic driving task, even if a human driver does not respond appropriately to a request to intervene ').

The functionality of the systems used is exposed to variable conditions in 11 European countries, 100 vehicles and 1000 test drivers. The tested functions cover a wide range from parking to urban and highway driving, which will provide valuable data for evaluation of technical aspects, user acceptance, driving and travel behaviour as well as on the impact on traffic and society.

Due to its large coverage of driving situations, L3Pilot is unique, and the first project worldwide which will demonstrate and test such a comprehensive menu of automated driving functions.

MaaS4EU

End-to-End Approach for Mobility-as-a-Service tools, business models, enabling framework and evidence for European seamless mobility

723176

Programme:

H2020 Transport

Topic:
MG-6.1-2016

Call for proposals:
H2020-MG-2016-Two-Stages

Duration:
01/06/2017 to 31/05/2020

Funding scheme:
RIA

Total cost:
€3,660,256

EU contribution:
€3,660,256

Coordinator:
INTRASOFT INTERNATIONAL SA

Project website:
http://www.maas4eu.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/210133_en.html

The main goal of the MaaS4EU (Mobility as a Service for Europe) project is to provide quantifiable evidence, frameworks and tools, to remove the barriers and enable a cooperative and interconnected EU single transport market for the mobility as a service (Maas) concept, by addressing challenges at four levels: business, end-users, technology and policy.

This will be achieved by defining sustainable business models that support the cooperation across transport stakeholders, understanding user needs and choices, implementing the required technological infrastructure and identifying the enabling policy and regulatory frameworks.

MaaS4EU will provide quantifiable evidence about MaaS costs and benefits in three real-life, complementary pilot cases, demonstrating the concept in urban, intercity and cross-border trips at three EU areas. The case study areas are the Greater Manchester (UK), Luxembourg-Germany border area and Budapest (Hungary).

The project will scale up the MaaS Framework and the findings in order to contribute to the EU single market vision and the H2020 agenda of achieving smart, green and integrated mobility and designing commercialization strategies focusing on SMEs.

MASAI

MOBILITY BASED ON AGGREGATION OF SERVICES AND APPLICATIONS INTEGRATION

636281

Programme:

H2020 Transport

Topic:
MG-7.2a-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/06/2015 to 31/05/2018

Funding scheme:
RIA

Total cost:
€3,309,969

EU contribution:
€3,309,969

Coordinator:
MTA-MOBILITY, TICKETING & APPLICATIONS SPRL

Project website:
http://www.masai.teleticketing.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193390_en.html

MASAI is developing intelligent and aggregated mobility services based on the traveller preferences and profiles. The project defines, standardises and validates architecture, user attributes and APIs from discovery to fulfilment of services respecting the guidelines on privacy.

The project enables seamless door-to-door experience through direct discovery and contracting between users and service providers.

The project's solutions address long distance as well as local services (e.g. transportation, accommodation, business, tourism) avoiding any lock-in of pre-bundled services and facilitating all steps from discovery to active travel management of the journey by the mobile citizen according to their expressed requirements or constraints.

MASAI provides additional visibility and functionalities to the service providers who can control such facilities.

MAVEN

Managing Automated Vehicles Enhances Network

690727

Programme:

H2020 Transport

Topic:
MG-3.6a-2015

Call for proposals:
H2020-MG-2015_TwoStages

Duration:
01/09/2016 to 31/08/2019

Funding scheme:
RIA

Total cost:
€3,149,661

EU contribution:
€3,149,661

Coordinator:
DEUTSCHES ZENTRUM FUER LUFT - UND RAUMFAHRT EV

Project website:
http://www.maven-its.eu

The MAVEN project is developing infrastructure-assisted platoon organisation and negotiation algorithms for such vehicle management at signalised intersections and corridors. It will help to extend and connect vehicle systems for trajectory and manoeuvre planning, as well as optimise traffic lights by adapting their signal timing. This will facilitate the movement of organised platoons and make a better use of infrastructure capacity, thus reducing the vehicle delay and emissions.

The project will build a system prototype for both field tests and extensive modelling for impact assessment, contribute to the development of enabling technologies, such as communication standards and high-precision maps, as well as develop ADAS techniques for inclusion of vulnerable road users. Additionally, MAVEN will carry out a user assessment and develop a roadmap for the introduction of vehicle-road automation to support road authorities in understanding changes in their role and the tasks of traffic management systems.

Lastly, MAVEN will come up with a white paper on management of automated vehicles in a smart city environment to position the project results in the broader perspective of passenger transport in smart future cities, and to embed them with smart city principles and technologies, as well as service delivery.

MyCorridor

Mobility as a Service in a multimodal European cross-border corridor

723384

Programme:

H2020 Transport

Topic:
MG-6.1-2016

Call for proposals:
H2020-MG-2016-Two-Stages

Duration:
01/06/2017 to 31/05/2020

Funding scheme:
RIA

Total cost:
€3,491,331

EU contribution:
€3,491,331

Coordinator:
UNIVERSITY OF NEWCASTLE UPON TYNE

Project website:
http://www.mycorridor.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/210137_en.html

The MyCorridor project addresses the development of innovative concepts, systems and services towards MaaS (mobility as a service). Specifically, the aim is to develop a technological and business platform to make MaaS a sustainable reality, seamlessly integrating public and private transport systems as needed, into a cross-border travel chain, without owning any of them. Service rather than ownership is at the core of MaaS.

The MyCorridor approach is underpinned by four key aspects:
• Definition of the disruptive nature of MaaS
• Practical implementation of TM2.0 (www.tm20.org) and foundations towards TM2.1
• Definition, development and testing of an integrated architecture based on mobility tokens and one-stop shop suitable for roaming aspects using international pilot corridors
• Evidence-based recommendations on end-user acceptability, business models, integration of MaaS, potential incentives and policy

MyCorridor will prove a paradigm change through a number of European sites performing long distance and cross border Pilots in a corridor of 6 European countries Greece, Italy, Austria, Germany, the Netherlands and the Czech Republic. Those sites will develop Mobility Package tokens, purchased through one-stop-shop and will incorporate the following services:
• Traffic management services
• Services related to MaaS PT interface
• MaaS vehicle related services
• Horizontal (business related) services

OPTIMUM

Multi-source Big Data Fusion Driven Proactivity for Intelligent Mobility

636160

Programme:

H2020 Transport

Topic:
MG-7.1-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
RIA

Total cost:
€5,966,186

EU contribution:
€5,966,186

Coordinator:
INTRASOFT INTERNATIONAL SA

Project website:
http://www.optimumproject.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193380_en.html

The OPTIMUM project looks beyond state-of-the-art IT solutions to improve transit, freight transportation and traffic connectivity throughout Europe. The project brings proactive and problem-free mobility to modern Intelligent Transport Systems (ITS) by introducing and promoting interoperability, adaptability and dynamicity through its tailor-made applications, aiming to contribute to the mitigation of problems that emerge from complex mobility environments and their intensive use, such as CO2 emissions, high congestion levels and diminished quality of life, as well as to the prevention of relevant problems before they emerge.

Solutions to these problems require collected, processed and broadcasted data from various sensors, systems, service providers and crowdsourcing. OPTIMUM is building a largely scalable architecture which manages and processes those multi-source big data in an environment of ubiquitous connectivity.

OPTIMUM will apply its concept across four different countries, in three pilot cases: one for multi-modal travelling, one for smart motorhomes optimal routing and one for dynamic toll charging. The goal is to enable the continuous monitoring of transportation system needs while facilitating proactive decisions in a semi-automated way.

The project's team involves enthusiastic ITS experts representing 18 organisations from all over Europe.

ROADART

Research On Alternative Diversity Aspects foR Trucks

636565

Programme:

H2020 Transport

Topic:
MG-3.5a-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
RIA

Total cost:
€3,906,870

EU contribution:
€3,906,870

Coordinator:
IMST GMBH

Project website:
http://www.roadart.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193409_en.html

ROADART is optimising the integration of Intelligent Transport Systems (ITS) communication units into trucks to boost their safety on the road. Due to the size of a truck-trailer combination the architecture as applied to passenger cars is not possible. New architecture concepts have to be developed and evaluated in order to ensure a sufficient quality of service for trucks and heavy duty vehicles.

The project aims to demonstrate the road safety applications for truck-to-truck (T2T) and truck-to-infrastructure (T2I) systems under critical conditions in a real environment, such as tunnels and platooning of several trucks driving close behind each other. The demonstration use case will be a cooperative adaptive cruise control (C-ACC) allowing the trucks driving close behind each other. In order to reach this goal, the control units implementing the C-ACC will be developed and integrated into the trucks together with the communication units. All the proposed techniques will be extensively evaluated through simulation using the realistic, measurement-based ROADARD computer models.

ROADART focusses in particular on developing novel localization and detection techniques for conditions where satellite global navigation systems are not available (e.g. in tunnels). These techniques use cooperative and adaptive communication, as well as sensor measurements and information from infrastructure.

The project will contribute to improved safety, better traffic flow and reduced greenhouse gas emissions.

SocialCar

Open social transport network for urban approach to carpooling

636427

Programme:

H2020 Transport

Topic:
MG-7.1-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/06/2015 to 31/05/2018

Funding scheme:
RIA

Total cost:
€5,953,083

EU contribution:
€5,384,646

Coordinator:
FIT CONSULTING SRL

Project website:
http://socialcar-project.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193402_en.html

SocialCar develops a user-oriented platform for planning, booking and integrated payment that combines carpooling and other on-demand services with regular collective transport, in an effort to mainstream the concept of a public-private co-modal urban transport.

The project enhances the public transport network by a wider variety of services including carpooling/sharing, bike sharing, taxi and other on-demand services. Citizens can gain access to a unique service that optimises the use of all available mobility resources in the sharing economy. SocialCar reduces travel times and costs, increases comfort and convenience and contributes to a better environmental performance of urban transport networks. The project solutions will be subjected to a three-level trial in ten European test sites. The most advanced trial level will examine the potential for early adoption by end-users in in Canton Ticino (Switzerland), Edinburgh (United Kingdom) and Brussels (Belgium).

SocialCar develops an IT platform providing planning, booking and payment services for multimodal and multi-service trips, and deploys its features via web and a mobile app. By developing data processing flows and algorithms, the project responds to the challenge of matching travel requests with the integrated public-private transport supply.

TIMON

Enhanced real time services for an optimized multimodal mobility relying on cooperative networks and open data

636220

Programme:

H2020 Transport

Topic:
MG-3.5a-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/06/2015 to 30/11/2018

Funding scheme:
RIA

Total cost:
€5,605,213

EU contribution:
€5,605,213

Coordinator:
UNIVERSIDAD DE LA IGLESIA DE DEUSTO

Project website:
http://www.timon-project.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193386_en.html

The TIMON project is developing a cooperative open web-based platform and mobile application, which form a framework of services, in order to deliver real-time information and services to all users of the transport ecosystem – drivers, vulnerable road users, and businesses.

The project connects all the road agents, people, vehicles, infrastructure and businesses, into a single cooperative ecosystem. It is gathering data from all these agents and connecting them with cooperative networks and open data. TIMON will also implement different real-time services, leading to increased safety, sustainability, flexibility and efficiency of road transport systems.

Information from relevant open data sources, infrastructure sensors and TIMON users is stored and harmonised. Using innovative application of existing and emerging technologies in cooperative vehicular networks, artificial intelligence and cooperative positioning, all this data is processed and enhanced. Finally, new knowledge is generated to provide real time services through a mobile app or a website.

The project has also planned two practical testing pilots in real environment:
• Validating the system's technical performance in a testbed site in Helmond (the Netherlands)
• Testing the TIMON services with real end-users in Ljubljana (Slovenia)

TIMON plans to decrease the number of crashes by 15-20%, reduce congestion by 12-20%, and decrease GHG emissions by 6-10%.

VI-DAS

Vision Inspired Driver Assistance Systems

690772

Programme:
H2020 Transport

Topic:
MG-3.6a-2015

Call for proposals:
H2020-MG-2015_TwoStages

Duration:
01/09/2016 to 31/08/2019

Funding scheme:
RIA

Total cost:
€6,225,246

EU contribution:
€6,225,246

Coordinator:
FUNDACION CENTRO DE TECNOLOGIAS DE INTERACCION VISUAL Y COMUNICACIONES VICOMTECH

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/204771_en.html

Road accidents caused by human error continue to be a major public safety concern. Intelligent driver systems that can monitor the driver's state and behaviour show promise for our collective safety.

The VI-DAS project will progress the design of next generation 720° connected advanced driver assistance systems (ADAS) on scene analysis and driver status. The project will use advances in sensors, data fusion, machine learning and user feedback to better understand driver, vehicle and scene context, thus making a step towards truly semi-autonomous vehicles.

On this path there is a need to design vehicle automation that can gracefully hand-over and back to the driver. VI-DAS advances in computer vision and machine learning will introduce non-invasive, vision-based sensing capabilities to vehicles and enable contextual driver behaviour modelling. The technologies will be based on inexpensive and ubiquitous sensors, primarily cameras. Predictions on outcomes in a scene will be created to determine the best reaction to feed to a personalised HMI component that proposes optimal behaviour for safety, efficiency and comfort.

VI-DAS will use a cloud platform to improve ADAS sensor and algorithm design and to store and analyse data at a large scale, thus enabling the exploitation of vehicle connectivity and cooperative systems.

The project will address human error analysis in a real accidents study in order to understand patterns and consequences as an input to the technologies. VI-DAS will also address legal, liability and emerging ethical aspects because with such technology comes new risks, and justifiable public concern.

The insurance industry will be key in the adoption of next generation ADAS and autonomous vehicles.

VI-DAS stands in the automotive value chain where Europe is both dominant and in which value can be added. The project will contribute to reducing accidents, economic growth and continued innovation.

AEOLIX

Architecture for EurOpean Logistics Information eXchange

690797

Programme:
H2020 Transport

Topic:
MG-6.3-2015

Call for proposals:
H2020-MG-2015_TwoStages

Duration:
01/09/2016 to 31/08/2019

Funding scheme:
RIA

Total cost:
€16,220,106

EU contribution:
€16,220,106

Coordinator:
EUROPEAN ROAD TRANSPORT TELEMATICSIMPLEMENTATION COORDINATION ORGANISATION - INTELLIGENT TRANSPORT SYSTEMS & SERVICES EUROPE

Project website:
http://aeolix.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/204772_en.html

Many logistics-related data stores, information channels, information management systems and data mining facilities that currently exist are not connected and have different user requirements, data models, system specification and business models. This leads to fragmented information and severely hampers its optimal use.

The AEOLIX project establishes a cloud-based collaborative logistics ecosystem for managing information pipelines that support logistics decision making to address these issues. The ecosystem will create visibility across the supply chain, enabling more sustainable and efficient transport of goods cross Europe. An essential element of the approach is to ensure an easy use of the ecosystem for logistics actors.

By enabling low-complexity and low cost connectivity of local ICT platforms and systems and thereby scalable, trusted and secure exchange of information, AEOLIX will improve the overall competitiveness of goods transport in the supply chain, while simultaneously targeting sustainability from environmental, economic and social perspectives.

CLUSTERS 2.0

Open network of hyper connected logistics clusters towards Physical Internet

723265

Programme:

H2020 Transport

Topic:
MG-5.1-2016

Call for proposals:
H2020-MG-2016-Two-Stages

Duration:
01/05/2017 to 30/04/2020

Funding scheme:
RIA

Total cost:
€6,329,619

EU contribution:
€5,998,744

Coordinator:
PTV PLANUNG TRANSPORT VERKEHR AG.

Project website:
http://www.clusters20.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/209715_en.html

The Clusters 2.0. project vision is to leverage the full potential of European Logistics Clusters for an efficient and fully integrated transport system in Europe and demonstrate the scaling effects for the companies collaborating within logistics clusters. This project will provide solutions from four development streams:

• Establish CargoStream an open Pan-European community approach of shippers to scale supply chain efficiency through bundling their regular transportation demand with other shippers and to favour intermodal alternatives.
• Develop New Modular Loading Units and innovative handling and transhipment technology to accelerate handling processes within clusters for road and intermodal modes.
• Implementing a first of a kind prototype on a Cluster Community System for standard message and information exchange and asset management within logistics clusters.
• Develop governance models introducing the role of a neutral agent that will form the basis for new collaborative business models building up on the work of the FP7 project CO3.

CLUSTERS 2.0 will provide a toolbox for future logistics including large scale IT applications establishing and facilitating collaboration within and across logistics clusters. Compared to previous approaches CLUSTERS 2.0 will advance by adding elements of horizontal collaboration, modularization and standardization of loading units to the concept of logistics clusters. The project will increase engagement, performance and coordination of terminals and hubs at cluster and network level. An increase of 50% in the intermodal freight managed within clusters is targeted.

The consortium consists of 29 partners from 10 European countries and Switzerland.

LessThanWagonLoad

Development of 'Less than Wagon Load' transport solutions in the Antwerp Chemical cluster

723274

Programme:

H2020 Transport

Topic:
MG-5.1-2016

Call for proposals:
H2020-MG-2016-Two-Stages

Duration:
01/05/2017 to 30/04/2020

Funding scheme:
RIA

Total cost:
€3,994,319

EU contribution:
€3,994,319

Coordinator:
LINEAS GROUP

Project website:
http://lessthanwagonload.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/209714_en.html

The LessThanWagonLoad project has the objective to develop a smart and specialized logistics cluster for the chemical industry in the Port of Antwerp in order to shift transport volumes from road to rail freight.

This objective will be realised by developingrail transport solutions for single pallets and added value rail freight services for the industry within the Antwerp chemical cluster. These potential new services consist of parking, repair, picking and cleaning for chemical wagons, rail connected cross docking of pallets and improved rail connections by setting up mixed trains with conventional and maritime container volumes. Realising the LessThanWagonLoad project will contribute in a substantial way to the realization of the European Commission's ambition to shift 30% of road freight over 300km to low-emission modes by 2030. It will bring many potential benefits for the European society:
• Less greenhouse gas emissions
• Reduced costs of rail freight
• Increased inter-modality and higher resilience of the transport system
• Local economic growth and employment
• Less congestion and traffic casualties

The project primarily focuses on Antwerp and the chemical industry, but the new concepts can also be leveraged to other logistical hubs serving different industries. This will be demonstrated at a second logistical hub Nola, in the south of Italy. This broad implementation potential increases the impact on European society.

The consortium consists of 11 partners, from 5 member states. There is a balanced mix between research institutes, technology suppliers, freight operators and the chemical industry.

NEXTRUST

Building sustainable logistics through trusted collaborative networks across the entire supply chain

635874

Programme:

H2020 Transport

Topic:
MG-6.1-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/05/2015 to 31/10/2018

Funding scheme:
RIA

Total cost:
€18,106,751

EU contribution:
€18,000,000

Coordinator:
TX LOGISTIK AG

Project website:
http://nextrust-project.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193355_en.html

The NEXTRUST project objective is to increase efficiency and sustainability in logistics by developing interconnected trusted collaborative networks along the entire supply chain. These horizontally and vertically built trusted networks will integrate shippers, Logistic Service Providers (LSP) and intermodal operators as equal partners. To reach a high level of sustainability, the project will not only bundle freight volumes, but shift them off the road to intermodal rail and waterway.

NEXTRUST will build these trusted networks ideally bottom-up, with like-minded partners, adding multiple layers of transport flows that have been de-coupled and then re-connected more effectively along the supply chain. It will develop C-ITS cloud based smart visibility software to support the re-engineering of the networks, improving real-time utilization of transport assets.

NEXTRUST will focus on research activities that that enhance collaboration in the market, validated through pilot cases in live conditions. The project engages major shippers as partners (Beiersdorf, Borealis, Colruyt, Delhaize, KC, Mondelez, Panasonic, Philips, Unilever) owning freight volumes well over 1.000.000 annual truck movements across Europe, as well as SME shippers and LSPs with a track record in ICT innovation.

The pilot cases cover a broad cross-section of the entire supply chain (from raw material to end-consumers) for multiple industries. The creation and validation of trusted collaborative networks will be market-oriented and implemented at an accelerated rate for high impact. The project's pilot cases are expected to reduce deliveries by 20-40% and Green House Gases emissions by 40-70%. Load factors will increase by 50-60% following the emphasis on back-load/modal shift initiatives.

NEXTRUST will achieve a high impact with improved asset utilization and logistics cost efficiency, creating a sustainable, competitive arena for European logistics that will be an inspirational example for the market.

RCMS

Rethinking Container Management Systems

636158

Programme:

H2020 Transport

Topic:
MG-8.2a-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/05/2015 to 31/01/2017

Funding scheme:
RIA

Total cost:
€4,182,954

EU contribution:
€4,182,954

Coordinator:
CIRCLE SRL

Project website:
http://www.rcms-project.net

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193379_en.html

The RCMS project is addressing the growth and capacity problems of sea terminals by improving automated container management systems. Container terminals serve thousands of ships and store billions of TEUs (twenty-foot equivalent units) in a competitive environment. Introduction of larger ships will result in additional challenges in a close future. While advances have been made in terminal automation (automated ground vehicle (AGV), gate control, yard cranes, etc.), the current technologies do not allow maintaining growth and quality of service.

RCMS is studying and evaluating the implementation of a robotic container management system. The project's main objectives are to:
• Develop a detailed simulation model for RCMS to be evaluated in the Gdansk and Koper terminals, as well as a set of generic simulation tools to be used in all terminals
• Assess and compare RCMS performance with other state-of-the-art container handling technologies for the Gdansk and Koper terminals
• Assess and compare RCMS performance with other state-of-the-art container handling technologies for the Gdansk and Koper ports, with focus on comparison between RCMS solution and port surface extension
• Assess impact of RCMS in a simulated transport network in terms of efficiency, reliability, capacity, performance (travel times, average speed, etc.) and impacts (noise and air pollution) in the Port of La Spezia

The project's consortium has a wide range of partners: SMEs, research centres and universities, enterprises, consultancy companies) from six countries (Italy, Spain, Germany, Israel, Poland, Slovenia).

SELIS

Towards a Shared European Logistics Intelligent Information Space

690588

Programme:

H2020 Transport

Topic:
MG-6.3-2015

Call for proposals:
H2020-MG-2015_TwoStages

Duration:
01/09/2016 to 31/08/2019

Funding scheme:
RIA

Total cost:
€17,719,375

EU contribution:
€17,719,375

Coordinator:
INLECOM SYSTEMS LTD

Project website:
http://www.selisproject.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/204146_en.html

The SELIS project is aimed at delivering a 'platform for pan-European logistics applications' by:

• Establishing an exceptionally strong consortium of logistics stakeholders and ICT providers, that can leverage EU IP from over 40 projects so as to create proof of concept Common Communication and navigation platforms for pan-European logistics applications in month 18 deployed in 8 living labs (LLs) representing the principal logistics communities.

• Establishing a research and innovation environment using the LLs to provide data than can be used for discovery of new insights that will enable continuous value creation supporting the large scale adoption of SELIS.

The proposed Shared European Logistics Intelligent Information Space, SELIS, is a network of logistic communities' specific shared intelligent information spaces termed SELIS Community Nodes (SCN). SCNs are constructed by individual logistics communities to facilitate the next generation of collaborative, responsive and agile green transportation chains. SCNs link with their participants' existing systems through a secure infrastructure and provide shared information and tools for data acquisition and use, according to a 'cooperation agreement'. Connected nodes, provide a distributed common communication and navigation platform for Pan European logistics applications. Each Node decides what information wishes to publish and what information wants to subscribe to.

SYNCHRO-NET

Synchro-modal Supply Chain Eco-Net

636354

Programme:

H2020 Transport

Topic:
MG-6.2-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/05/2015 to 31/10/2018

Funding scheme:
RIA

Total cost:
€7,554,195

EU contribution:
€7,301,195

Coordinator:
DHL EXEL SUPPLY CHAIN SPAIN SL

Project website:
http://www.synchronet.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193399_en.html

The SYNCHRO-NET project will show how a powerful and innovative SYNCHRO-modal supply chain eco-NET can catalyse the uptake of the slow steaming concept and synchro-modality, guaranteeing cost-effective robust transport solutions that slow down and better organise the supply chain to reduce emissions and costs for logistics operations.

The core of the SYNCHRO-NET solution will be an integrated optimisation and simulation eco-net, incorporating:
• Real-time synchro-modal logistics optimisation (e-Freight-enabled)
• Slow steaming ship simulation & control systems
• Synchro-modal risk/benefit analysis statistical modelling
• Dynamic stakeholder impact assessment solution
• Synchro-operability communications and governance architecture

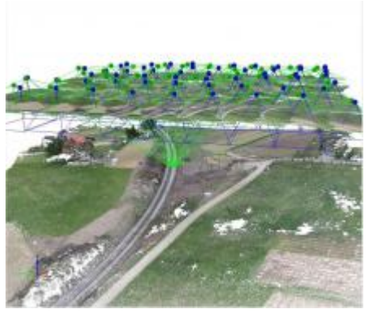
The most important output of SYNCHRO-NET will be the demonstration that slow steaming, coupled with better synchronisation of logistics transport can delivers benefits to all stakeholders in the supply chain and in particular:
• Massive reduction in emissions for all transport due to modal shift to greener modes
• Optimised planning processes leading to reduced empty kilometres for trucks
• Fewer wasted repositioning movements

This will lead to lower costs for all stakeholders – shipping companies and logistics operators will enjoy massive reduction in fuel usage, faster turnaround times in ports and terminals, as well as and more efficient use of resources. Customers and end-users will have greater control of their supply chain, leading to more reliable replenishment activity and thus reduced safety stocks and expensive warehousing. Authorities and governmental organisations will enjoy a smoother, more controlled flow of goods through busy terminals, as well as less congestion on major roads, thus maximising the utilisation of current infrastructure and making cheaper vital activities, such as import/export control, policing and border security.

DESTinationRAIL

Decision Support Tool for Rail Infrastructure Managers

636285



Programme:
H2020 Transport

Topic:
MG-2.1-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
RIA

Total cost:
€3,924,800

EU contribution:
€2,997,000

Coordinator:
GAVIN AND DOHERTY GEOSOLUTIONS LTD

Project website:
http://www.destinationrail.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193391_en.html

The DESTinationRAIL project's aim is to provide solutions for a number of common problems that affect EU rail infrastructure. Novel techniques for identifying, analysing and remediating critical elements of rail infrastructure will be developed. These solutions will be implemented using a decision support tool that allows infrastructure managers to make rational investments choices based on reliable data. The data driven, risk based approach will be a major step-forward in the state of the art for infrastructure management.

A number of pilot projects are being carried out where elements or processes can be developed, tested and validated at scales ranging from lab to field. These include the use of drones to monitor rock falls and landslides in Croatia and monitoring of vibration on rail tracks in Norway.

Two major demonstration projects are being undertaken. At the Boyne Viaduct in Ireland the project will demonstrate monitoring and collection of data for real-time risk assessments. Thus the fully implemented Decision Support Tool can be demonstrated to infrastructure managers and certification bodies.

The project consortium involves fifteen partners from nine countries. It includes four SME's, three railway owners, three research institutes and five universities.

HERMES

DEVELOPMENT OF SMART AND FLEXIBLE FREIGHT WAGONS AND FACILITIES FOR IMPROVED TRANSPORT OF GRANULAR MULTIMATERIALS. (HERMES)

636520

Programme:
H2020 Transport

Topic:
MG-2.2-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
RIA

Total cost:
€6,707,335

EU contribution:
€6,705,209

Coordinator:
IBERPOTASH SA

Project website:
http://www.hermes-h2020.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193406_en.html

The HERMES project is developing the future wagon for transport of granular multi-materials in Europe. The wagon will have the highest payload, flexibility and will enable the fastest and smartest logistic services.

The project addresses the most important key resources for further developing rail freight transport: the optimisation of the performance of the freight wagon and logistic services. It will allow to increase the productivity and competitiveness of the rail freight services for bulk materials, increasing its operability and reducing the logistic costs. A 25-30 % weight reduction is expected to be achieved in the new wagon, together with an increase of 50% per meter wagon of its capacity (30 % in case of light density bulk freights). Dwell times are expected to be reduced by 50% thanks to the smart integrated automation & information technology software developed in the project.

HERMES will also improve further the integration with other means of intermodal transport.

NeTIRail-INFRA

Needs Tailored Interoperable Railway

636237

Programme:

H2020 Transport

Topic:
MG-2.1-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/06/2015 to 31/05/2018

Funding scheme:
RIA

Total cost:
€5,467,305

EU contribution:
€5,453,555

Coordinator:
THE UNIVERSITY OF SHEFFIELD

Project website:
http://netirail.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193387_en.html

The NeTIRail-INFRA project supports economic, reliable and sustainable transport to wide regions, not just core cities, through development of railway track, overhead power, and smart monitoring technologies.

While parts of Europe's rail infrastructure are experiencing high capacity demand and aiming for higher speeds, other areas face equally demanding challenges of maintaining economic operation and applying modern solutions to aging infrastructure. High?speed lines make the news but millions of people depend on older routes that are used less often and that can be overlooked until services deteriorate or there's a threat of closure.

The NeTIRail-INFRA project will assess the rail lines' economic value, as well as technologies for a viable future of less used lines in order to meet society's transport needs.

Key aspects of the project include:
• Track infrastructure design and maintenance optimised for particular routes and track types
• Tailored overhead line power supply infrastructure providing solutions for low cost electrification
• Low-cost monitoring interfaced with railway technology to optimise operation, as well as maintain and renew the infrastructure
• Assessment of economic and societal impact of rail transportation to examine costs, benefits and viability of lines and their investment decisions
• Software for rail system operators outside the project to apply the methods developed to their own lines

The project aims to increase rail infrastructure reliability and availability by around 20%, capacity utilisation by 70-90%, as well as reduce recurrent costs by 25-45% compared to current levels.

NeTIRail-INFRA is bringing together companies and universities from eight EU countries.

WRIST

Innovative Welding Processes for New Rail Infrastructures

636164

Programme:

H2020 Transport

Topic:
MG-8.1a-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
RIA

Total cost:
€4,188,356

EU contribution:
€4,188,356

Coordinator:
BELGISCH INSTITUUT VOOR LASTECHNIEK VZW

Project website:
http://www.wrist-project.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193381_en.html

WRIST develops and demonstrates two innovative cost-effective joining processes for rails that address the key degradation mechanisms experienced by welds in current rail infrastructure. The project will offer a step change in the joint performance and reliability, providing an extended in-service life for a range of rail materials, which are facing growing demands due to the increasing speed and growth of railway's load. This will be delivered by the combined development of the joining process, computational modelling, material and joint characterisation and testing, both in small-scale laboratory tests and full scale trials on test or industrial tracks.

Both innovative methods (automatic forged aluminothermic welding and orbital friction welding) reduce the width of the heat affected zone and minimise the loss of mechanical properties in the weld zone. They also deliver increased reliability, a longer lifetime of the rails and welds, combined with a reduction of the maintenance cost. In addition, the project enables an increased use of more environmental friendly joining processes, such as friction welding. This process does not require fluxes or shielding gases, produces no harmful smoke, fumes or slag, which reduces the overall environmental impact of track construction and maintenance.

The WRIST consortium consists of specialists in complementary fields particularly well qualified for the development the joining technologies, testing and simulation, rail-wheel interaction, finite-element modelling and railway construction and maintenance.

LOWBRASYS

a LOW environmental impact BRAke SYStem

636592

Programme:

H2020 Transport

Topic:
MG-3.1-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/09/2015 to 31/08/2018

Funding scheme:
IA

Total cost:
€9,464,577

EU contribution:
€7,436,850

Coordinator:
FRENI BREMBO Spa

Project website:
http://www.lowbrasys.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193410_en.html

The LOWBRASYS challenge is to develop a new generation of transport technologies able to push innovation towards a cleaner and more efficient road transport, leading to improved air quality. At the same time LOWBRASYS matches the requirement to comply with possible future stricter legislations on vehicles emissions (both exhaust and non-exhaust) and EU air quality.

The project aims to demonstrate a novel and low environmental impact brake system that will reduce micro and nanoparticles emissions by at least 50%.

The measurement and understanding of micrometre-sized and ultrafine particles and their effects on health and the environment will be improved whilst providing recommendations to policy makers.

In particular, LOWBRASYS will work on the following targets:
• Novel materials for the brakes pad and disc in order to reduce the particle emissions
• Environmentally friendly braking strategies (control systems) that reduce the particle emissions
• Breakthrough technology for collection of particles near the PM source in order to drastically reduce PM emissions
• System integration of the novel pad, components and control systems in vehicles
• Improvement of the measurement techniques and understanding of the brake wear PM effects on health and the environment through state-of-the-art non-in-vivo techniques and related policy recommendations

LOWBRASYS is expected to push innovation towards a cleaner and more efficient road transport. It will also contribute to the transition to zero emission vehicles in urban agglomerations and the 'Super low emission vehicles' standards. The project aims to improve urban air quality in the mid-term, as well as advance the understanding of fundamental breaking processes in order to be environmentally more efficient.

REWARD

REal World Advanced Technologies foR Diesel Engines

636380

Programme:

H2020 Transport

Topic:
MG-3.1-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
IA

Total cost:
€12,581,334

EU contribution:
€9,973,901

Coordinator:
AVL LIST GMBH

Project website:
http://www.project-reward.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193400_en.html

The REWARD project is developing the knowhow, intellectual property rights and technical capabilities to produce highly efficient Diesel powertrains and aftertreatment technologies for future cleaner class B, C, D and E passenger cars that go beyond Euro 6 limits under real driving conditions (EU6 RDE).

The project improves the fuel efficiency of 2-stroke and 4-stroke Diesel engines with new combustion concepts and friction reduction in the entire engine. Advanced combustion, exhaust gas aftertreatment and control concepts are expected to reduce the emissions below Euro 6 limits under real driving conditions. Two 4-stroke demonstrator vehicles of the B/C and D/E classes will demonstrate both the emission targets and a fuel efficiency improvement of at least 5% compared to best in class MY 2013 Euro 6 vehicles.

The project consortium involves 16 partners from ten European countries.

TransAID

Transition Areas for Infrastructure-Assisted Driving

723390

Programme:

H2020 Transport

Topic:
ART-05-2016

Call for proposals:
H2020-ART-2016-Two-Stages

Duration:
01/09/2017 to 31/08/2020

Funding scheme:
RIA

Total cost:
€3,836,354

EU contribution:
€3,836,354

Coordinator:
DEUTSCHES ZENTRUM FUER LUFT - UND RAUMFAHRT EV

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/210918_en.html

The TransAID project is the first European project that is developing new hierarchical traffic management procedures to allow the smooth integration of automated vehicles in traffic systems. Special attention is dedicated to those areas of the road where automation systems reach their limits. TransAID is investigating how future vehicle automation systems are going to act on the road. Special focus is put on the behaviours of the systems when reaching system limits, i.e. when facing situations which cannot be handled automatically, e.g. by starting a take-over request and giving control back to the driver. The project is going to simulate this behaviour not only for single vehicles, but for a number of automated vehicles that is in line with the predicted market shares in the upcoming years. This allows the assessment of the impact on traffic safety and efficiency. Based on this analysis, hierarchical traffic management systems will be developed, enabling a controlled movement of the vehicles by taking into account their abilities. The developed systems will be prototypically implemented and the effects will be assessed in simulations as well as real world tests. The findings will be aggregated to create a roadmap and a set of for stakeholders.

TrustVehicle

Improved trustworthiness and weather-independence of conditional automated vehicles in mixed traffic scenarios

723324

Programme:

H2020 Transport

Topic:
ART-04-2016

Call for proposals:
H2020-ART-2016-Two-Stages

Duration:
01/06/2017 to 31/05/2020

Funding scheme:
RIA

Total cost:
€4,998,904

EU contribution:
€4,998,904

Coordinator:
Kompetenzzentrum - Das Virtuelle Fahrzeug, Forschungsgesellschaft mbH

Project website:
http://www.trustvehicle.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/210917_en.html

The TrustVehicle project aims at advancing technical solutions for automated driving to better assess critical situations in mixed traffic scenarios and even under harsh environmental conditions, hence increasing safety far beyond the current levels.

The uniqueness of the project is to follow a user-centric approach and provide solutions that will significantly increase reliability and trustworthiness of automated vehicles and contribute to end-user acceptance.

TrustVehicle has the opportunity to have a large impact on the market by providing key methods, components and tools for automated driving. Four road transport markets up to 1 Million vehicles produced by the TrustVehicle consortium (by 2030) will be impacted. Revenues of 100Mi€ per year for key components and of 10Mi€ per year for engineering services and tools will be generated.

The output of the TrustVehicle project is extensively assessed in real-world operating conditions on three demonstrators representing three vehicle classes. Special focus will be put on the demonstration of the fault-tolerant and fail-operational system behaviour as well as 24/7 availability. End-users of the technology will systematically and thoroughly involve expressing their requirements, expectations and concerns.

ECOROADS

Effective and COordinated ROAD infrastructure Safety operations
652821

Programme:

H2020 Transport

Topic:
MG-8.1b-2014

Call for proposals:
H2020-MG-2014_SingleStage_B

Duration:
01/06/2015 to 31/05/2017

Funding scheme:
CSA

Total cost:
€999,500

EU contribution:
€999,500

Coordinator:
FORUM DES LABORATOIRES NATIONAUX EUROPEENS DE RECHERCHE ROUTIERE

Project website:
http://www.ecoroadsproject.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/194817_en.html

ECOROADS aims to establish a common enhanced approach to road infrastructure and tunnel safety management by using concepts.

The general objective of the project is to examine the differences established by the two EC Directives 2008/96/EC on road infrastructure safety management and 2004/54/EC on minimum safety requirements for tunnels in the Trans-European Road Network that do not foresee harmonised Road Safety Audits/Inspections to be performed on open roads and in tunnels considering their specificities.

The ECOROADS project stems from the willingness of private and public stakeholders engaged in road safety issues of further investigating the approach and the impact of the two safety directives in order to support the ongoing assessment undertaken by the European Commission. Road safety experts involved in the project will assess the current limitations and hurdles stemming from two different approaches and will seek to put forward some common solutions on how to improve safety operations along the European road network.

The approach of the ECOROADS programme is divided into several phases. They include:
• Overview of the application of Directives 2008/96/EC on road infrastructure safety management and 2004/54/EC on minimum safety requirements for tunnels in the Member States and the extent of the differences between them
• Series of workshops with stakeholders (European tunnel and road managers)
• Exchange of best practices and experiences between European tunnel experts and road safety professionals
• Joint safety operations on some European road sections with both open roads and tunnels, conducted by an international team composed of road and tunnel safety experts. Five different locations for tests will be selected in Europe
• Recommendations and guidelines for the application of road safety audits and road safety inspections concepts within the tunnel safety operations

The ongoing revision of the two Directives undertaken by the European Commission represents an important step forward for improving safety standards in Europe and the ECOROADS project wants to directly contribute to this process.

InDeV

InDeV: In-Depth understanding of accident causation for Vulnerable road users
635895

Programme:

H2020 Transport

Topic:
MG-3.4-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
RIA

Total cost:
€4,960,000

EU contribution:
€4,900,000

Coordinator:
LUNDS UNIVERSITET

Project website:
http://www.Indev-project.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193358_en.html

The InDeV project works on a better understanding of what causes road accidents and what are their costs, with a focus on vulnerable road users, such as pedestrians and cyclists. For the first time the project is combining various methods of road safety analysis in one integrated methodology for road safety practitioners.

The main weakness of classical road safety analysis methods (e.g. based on accident data) is the lack of knowledge on how unsafe behaviour can lead to accidents. By combining methodologies of behaviour observation with accident or injury data and critical traffic events, InDeV is expected to reveal causational factors and overcome this weakness.

The project will identify accident-prone critical sites and situations for vulnerable road users. Video observations of traffic events at the selected sites in different partner countries will follow using tools for the automated data collection developed for the project. InDeV will also analyse the existing socio-economic cost calculation methods and incorporate correctional factors for vulnerable road users.

The project will integrate all available methodologies in the InDeV toolbox for road safety practitioners. The toolbox will allow assessing the behaviour – accident causational chain and lead to more effective road safety measures.

MeBeSafe

Measures for behaving safely in traffic

723430

Programme:

H2020 Transport

Topic:
MG-3.5-2016

Call for proposals:
H2020-MG-2016-Two-Stages

Duration:
01/05/2017 to 31/10/2020

Funding scheme:
RIA

Total cost:
€7,136,979

EU contribution:
€7,136,979

Coordinator:
RHEINISCH-WESTFAELISCHE TECHNISCHE HOCHSCHULE AACHEN

Project website:
http://www.mebesafe.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/210138_en.html

The MeBeSafe project focuses on human factors in transportation and tackles “human errors” as one of the main causes for accidents. Current measures to increase safety intend to get transport users to behave safer by appealing to the deliberate self (signs), act on the users’ behalf (autonomous braking), or seek to “assist” users by presenting feedback (collision warning). However, the categories mentioned are often ineffective as users do not act accordingly.

MeBeSafe follows the idea that human behaviour neither requires conscious decision-making, nor purely automatic/reflexive actions. The project aims at changing habitual traffic behaviour directly using nudging, a concept relating to subconsciously pushing humans in a desired direction without being prohibitive. As a major benefit, predisposing humans to making desired choices makes nudging applicable early in a given chain of events that might lead to critical traffic situations.

The project will implement nudging measures for road infrastructure (i.e. adaptive in-road displays), in-vehicle Advanced Driver Adaptive Systems and remotely applied measures, like coaching. The consortium is comprised of 15 partners including automotive Original Equipment Manufacturers (OEMs), fleet owners, SMEs and leading organizations in traffic safety research.

PROSPECT

PROactive Safety for PEdestrians and CyclisTs

634149

Programme:

H2020 Transport

Topic:
MG-3.4-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/05/2015 to 31/10/2018

Funding scheme:
RIA

Total cost:
€6,931,979

EU contribution:
€6,931,978

Coordinator:
IDIADA AUTOMOTIVE TECHNOLOGY SA

Project website:
http://www.prospect-project.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193275_en.html

The PROSPECT project is developing the next generation active safety systems for protecting vulnerable road users (VRU), in particular pedestrians and cyclists. Compared to first generation Autonomous Emergency Breaking (AEB)-pedestrian systems currently on the market, these new systems aim to significantly improve effectiveness, thus reducing VRU accidents.

Accidents involving pedestrians and cyclists still hinder road safety. Pedestrian and cyclist fatalities account for more than 25% of road fatalities in the EU. Most of these accidents are caused by the driver being inattentive or misinterpreting the situation.

First generation AEB systems that avoid and mitigate VRU accidents have just arrived on the market, but there is still a huge potential to reduce the number of accidents. PROSPECT expands the scope of scenarios for a better understanding of vehicle-VRU accidents and plans to improve the overall system performance.

For the timeframe 2020-2025, the introduction of the new generation safety systems in the broad market will enhance VRU road safety, contributing to the ‘Vision Zero’ objective of no fatalities or serious injuries in road traffic set out in the Transport White Paper. Furthermore, test methodologies and tools developed within PROSPECT will be considered for 2018 European New Car Assessment Programme tests, supporting the EU goal of halving the road toll in 2011-2020.

PROSPECT focuses on active safety solutions, where vehicle-based sensing (i.e. video, radar) is used to survey the vehicle surroundings and where the vehicle acts actively in case of a pending critical traffic situation with a VRU (i.e. driver warning, vehicle braking/steering).

SAFE STRIP

Safe and green Sensor Technologies for self-explaining and forgiving Road Interactive aPplications

723211

Programme:

H2020 Transport

Topic:
MG-3.4-2016

Call for proposals:
H2020-MG-2016-Two-Stages

Duration:
01/05/2017 to 30/04/2020

Funding scheme:
RIA

Total cost:
€4,595,814

EU contribution:
€4,595,814

Coordinator:
EUROPEAN ROAD TRANSPORT TELEMATICSIMPLEMENTATION COORDINATION ORGANISATION - INTELLIGENT TRANSPORT SYSTEMS & SERVICES EUROPE

Project website:
http://safestrip.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/209712_en.html

The SAFE STRIP project is introducing a disruptive technology that will embed Cooperative Intelligent Transportation Systems (C-ITS) applications in existing road infrastructure.

SAFE STRIP system will implement two complementary as well as alternative solutions: one to address equipped vehicles (namely, intelligent vehicles with on board sensors and C-ITS or automation applications) and one to address non-equipped vehicles (the great majority of current vehicle fleets, including also vehicles that are very difficult to equip with rich on-board sensorial platforms, like Powered Two Wheels).

The vast potential of SAFE STRIP will be demonstrated through applications for:
• Cooperative safety functions for enhanced Advanced Driver Assistance Systems /Advanced Rider Assistance System equipped and non-equipped vehicles,
• Road wear level and predictive road maintenance,
• Road work zones and railway crossings warnings,
• Merging/intersection support,
• Personalised Variable Message Signs'/Variable Direction Signs' and Traffic Centre Information,
• Dynamic trajectory estimation and interface to automated vehicles, whereas it will open a new channel to a vast array of
• Supportive added value services (such as Virtual Toll Collection and Parking booking and charging).

These are among the most challenging applications, ranging from C-ITS to autonomous vehicle ones. They do not cover all potential SAFE STRIP enabled applications but they prove that SAFE STRIP is flexible, cost-effective, C-ITS compatible and able to support most of the ITS present and future applications.

SAFE-10-T

Safety of Transport Infrastructure on the TEN-T Network

723254

Programme:

H2020 Transport

Topic:
MG-3.4-2016

Call for proposals:
H2020-MG-2016-Two-Stages

Duration:
01/05/2017 to 30/04/2020

Funding scheme:
RIA

Total cost:
€2,997,000

EU contribution:
€2,997,000

Coordinator:
GAVIN AND DOHERTY GEOSOLUTIONS LTD

Project website:
http://www.safe10tproject.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/209711_en.html

The SAFE-10-T project is developing a safety framework for road, rail and inland waterway infrastructures along the European TEN-T network.

The main project output will be an online Decision Support Tool that will enable infrastructure managers to make cost-effective and robust decisions that provide increased safety levels for critical infrastructure networks. The framework will use remotely monitored data for tunnels, bridges and earthworks in conjunction with machine learning algorithms and traffic modelling tools to evaluate network safety performance due to extreme events. The project will achieve significant impact by considering critical infrastructure objects as intelligent self-learning objects that communicate their safety condition during extreme events.

The SAFE-10-T project will host workshops for infrastructure managers and other stakeholders to gain important end-user feedback.

The project will have a number of demonstration projects. As an example the Port of Rijeka, Croatia will be used to demonstrate the project outputs at both an object (Tunnel Safety model) and network, a traffic flow analysis will be undertaken assuming some disruption to an object on the rail network. Upgrading of the infrastructure and the development of a multimodal platform at the Port of Rijeka forms two of the three Core Network (Rijeka-Zagreb-Budapest) projects proposed for Croatia under the CEF.

SAFER-LC

SAFER Level Crossing by integrating and optimizing road-rail infrastructure management and design

723205

The SAFER-LC project is developing a fully-integrated cross-modal set of innovative solutions and tools for the proactive management and design of Level-Crossing (LC) infrastructure.

SAFER-LC will design smarter and cost-effective LCs that will contribute to near eradication of infrastructure-generated accidents by providing proactive detection methods and innovative design of infrastructure which is forgiving and self-explaining to LC users, with special attention to vulnerable users (for example: people with reduced mobility, pedestrians or cyclists).

The challenge is to demonstrate that the proposed solutions are acceptable by both rail and road users and can be implemented cost-effectively. Therefore, a series of pilot tests across Europe will be rolled out to demonstrate how the developed solutions can be integrated, validate their feasibility and evaluate their performance.

Finally, the most relevant and practical information collected and produced during the project will be gathered in the SAFER-LC toolbox for relevant actors of the LC safety community.

Programme:

H2020 Transport

Topic:
MG-3.4-2016

Call for proposals:
H2020-MG-2016-Two-Stages

Duration:
01/05/2017 to 30/04/2020

Funding scheme:
RIA

Total cost:
€4,888,927

EU contribution:
€4,888,927

Coordinator:
UNION INTERNATIONALE DES CHEMINS DE FER

Project website:
http://safer-lc.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/209911_en.html

SafetyCube

Safety CaUsation, Benefits and Efficiency

633485

Programme:

H2020 Transport

Topic:
MG-3.4-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
RIA

Total cost:
€5,790,111

EU contribution:
€5,790,111

Coordinator:
LOUGHBOROUGH UNIVERSITY

Project website:
http://www.safetycube-project.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193237_en.html

The SafetyCube project is developing a European road safety decision support system (DSS) that will allow policy makers and stakeholders identify the most appropriate strategies to reduce casualties of all road user types and all severities.

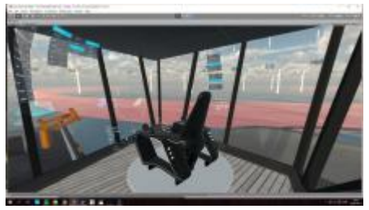
Road safety policymakers and other stakeholders wish to introduce new measures to prevent accidents. They frequently find they have insufficient information about the road safety problem and that, although there may be research knowledge about certain measures, it is not clear which may be the most appropriate or cost-effective for their situation. While there is often useful knowledge in the scientific literature, it is not always accessible and may be problematic for policy makers and their advisers to interpret. The best performing countries rely on robust information to develop policies and it has been estimated that if all EU Member States had the same levels of road safety there would be 10,000 fewer lives lost each year.

SafetyCube's web-based DSS will support policymakers and other road safety stakeholders to make the best decisions and to select the measures that will provide the greatest benefits. The DSS will combine a new systematic analysis of accident data with existing knowledge about risks to define the nature and characteristics of a comprehensive range of road safety problems. Each set of risks will be linked with information about the effectiveness of the most relevant measures and the costs of implementation. The final DSS will provide policymakers with dynamic, flexible access to reliable road safety information at a level of detail to suit their needs.

SEDNA

Safe maritime operations under extreme conditions: the Arctic case

723526



Programme:

H2020 Transport

Topic:
MG-3.3-2016

Call for proposals:
H2020-MG-2016-Two-Stages

Duration:
01/06/2017 to 31/05/2020

Funding scheme:
RIA

Total cost:
€6,726,565

EU contribution:
€6,498,753

Coordinator:
BMT GROUP LTD

Project website:
http://www.sedna-project.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/210139_en.html

As more of the Arctic waters become navigable due to global warming, ship traffic in the Arctic regions is increasing. As a result, recent years have seen a sharp rise in marine casualties.

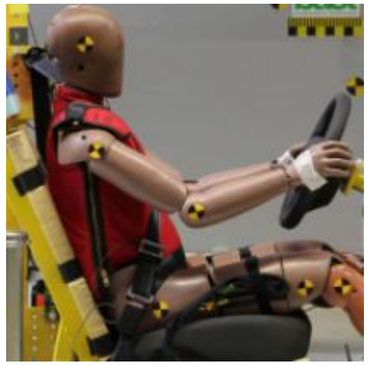
The SEDNA project is developing an integrated risk-based approach to safe Arctic navigation, ship design and operation.

More specifically, SEDNA creates and demonstrates the following:
• The Safe Arctic Bridge, a human-centered operational environment for ice-going ships using augmented reality technology to provide improved situational awareness.
• Integrated meteorological and oceanographic data with real-time ship monitoring and ice movement predictions to enhance decision making.
• Anti-icing engineering solutions to prevent ice formation on vessels, reducing ice as a ship stability and working-environment hazard.
• A risk-based design framework to ensure that vessel design is connected to all key hazards of Arctic ship operation.
• A CEN Workshop Agreement to address safety during bunkering of methanol as a marine fuel along with safety zone guidance for various bunkering concepts.
• To maximise impact, SEDNA will provide formal inputs to international regulatory regimes regarding its safety solutions.

SENIORS

Safety-ENhancing Innovations for Older Road userS

636136



Programme:

H2020 Transport

Topic:
MG-3.4-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/06/2015 to 31/05/2018

Funding scheme:
RIA

Total cost:
€2,885,587

EU contribution:
€2,885,587

Coordinator:
BUNDESANSTALT FUER STRASSENWESEN

Project website:
http://www.seniors-project.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193376_en.html

The SENIORS project is improving the safe mobility of elderly road users, including obese persons, as passenger car occupants and external road users (pedestrians, cyclists, e-bike riders). The project is working on injury reduction by increasing passive vehicle safety through developments of targeted test procedures, as well as innovative tools and safety systems.

Europe is experiencing demographic change leading to increased participation of elderly people in the road transport. The crash occurrence and the injury patterns are therefore expected to change in the upcoming years. The proportion of elderly in the road fatalities in Europe is steadily increasing. In addition, the specific requirements of the elderly (frailty, fragility) challenge the performance of existing safety systems that are not proven to be as effective for older as they are for younger road users. These challenges need to be addressed by increasing the protection level of this sub-group of the vulnerable road users.

SENIORS aims to improve the safe mobility of the elderly and obese people through innovative and suitable tools and safety systems. The project is investigating the injury causation and mechanisms (biomechanics) of older road users based on post-mortem human surrogates (PMHS) studies, volunteer testing, accidents and hospital data.

The project aims to have a short term impact on the safety of elderly road user. In order to achieve this goal, knowledge and results are transferred through cooperation with regulatory, consumer and insurance entities.

SENIORS involves European partners from car industry and academia that will collaborate with industry, academic and governmental bodies from the US, Japan and South Korea.

SimuSafe

SIMULATOR OF BEHAVIOURAL ASPECTS FOR SAFER TRANSPORT

723386

Programme:

H2020 Transport

Topic:
MG-3.5-2016

Call for proposals:
H2020-MG-2016-Two-Stages

Duration:
01/06/2017 to 30/11/2020

Funding scheme:
RIA

Total cost:
€8,739,480

EU contribution:
€7,991,600

Coordinator:
INSTITUTO TECNOLÓGICO DE CASTILLA Y LEON

Project website:
http://www.simusafe.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/210791_en.html

Road transport is known to be the most dangerous of all transport modes and deaths and serious injuries from road traffic crashes represent a major societal challenge for EU.

The goal of the SIMUSAFE project is to identify and to quantify factors in human behaviour that lead to unsafe situations in a transit setting. The behaviour of traffic participants is studied with driving simulators of several vehicles (cars, motorcycles, bicycles, etc) and virtual reality tools (pedestrians). This enables the collection of data on extreme scenarios that would not be accessible in a non-simulated setting. The obtained knowledge will be the base for the development of more effective and pro-active measures for the prevention and mitigation of unsafe behaviour, with subsequent impact in the safety devices market, regulations and driver education.

SIMUSAFE will create traffic simulations which are more realistic that current state-of-the-art by incorporating demographic, biometric and environmental data and allowing multiple users to interact in a common simulated environment. Data will be collected through the integration of measurement systems that are also used in naturalistic driving allowing for a direct comparison of behaviour in real and simulated worlds. Furthermore, new monitoring (biometric and telemetric) technology will be developed that can be integrated in real vehicles in an unobtrusive way.

XCYCLE

Advanced measures to reduce cyclists' fatalities and increase comfort in the interaction with motorised vehicles

635975

Programme:

H2020 Transport

Topic:
MG-3.4-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/06/2015 to 30/11/2018

Funding scheme:
RIA

Total cost:
€5,009,333

EU contribution:
€5,009,330

Coordinator:
ALMA MATER STUDIORUM - UNIVERSITA DI BOLOGNA

Project website:
https://ec.europa.eu/inea/en/%C2%A0http%3A//www.xcycle-h2020.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193364_en.html

Cyclists count for an increasingly large share of serious injuries and fatalities in road accidents, partly because they are not treated equally by traffic systems (e.g. traffic signals frequently fail to register their approach or presence). The XCYCLE project aims to level the treatment of cyclists in road traffic, thus encouraging cycling and increasing its safety margin.

The project is developing:
- Technologies that improve active and passive detection of cyclists
- Systems informing both drivers and cyclists of a hazard at junctions
- Effective methods of presenting information in vehicles and on-site
- Cooperation systems aimed at reducing collisions with cyclists

Two relevant use cases will be bicycle interaction with large vehicles and cars at intersections and immediate or extended green traffic light for cyclists approaching traffic signals. An in-vehicle detection system and a system of threat mitigation and risk avoidance by traffic signals will be developed.

The components developed and built up will be systematically integrated, implemented and verified. A new large-scale research infrastructure in the city of Braunschweig (Germany) and a second test mobile platform will be used as test site. A demo bicycle with a cooperative technology will be developed and tested as well. A user-centred approach will be adopted. Behavioural evaluation will part of the whole process: attentional responses using eye tracking data; evaluation of human-machine interface; acceptance and willingness to pay. In the cost-benefit analysis, behavioural changes will be translated into estimated crashes and casualties avoided.

CIPTEC

Collective Innovation for Public Transport in European Cities

636412

Programme:

H2020 Transport

Topic:
MG-5.3-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
RIA

Total cost:
€3,498,350

EU contribution:
€3,498,350

Coordinator:
ARISTOTELIO PANEPISTIMIO THESSALONIKIS

Project website:
http://ciptec.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193401_en.html

The CIPTEC project aims to bring new thinking and innovative solutions for public transport planning and delivery, creating a favourable environment for the growth in use of services.

The project will address the need for a cultural change to recognise customer needs in the design and delivery of services in the public transport sector. It studies public transport demands and how they are affected. At the same time the project also takes a close look at the public transport supply chain in an attempt to understand its needs and challenges.

To achieve this, CIPTEC introduces an integrated approach which draws on the best ideas deriving from marketing, consumer behaviour, social and industrial innovation, evaluation and co-exploitation within a wider than usual stakeholder platform. It addresses the challenges that hinder the public transport environment transition towards increasing public transport market shares, thus substantially contributing to urban road congestion reduction in a sustainable way.

It has been claimed that doubling the market share of public transport would help to stabilise urban transport emissions, preventing the emission of 500 million tonnes of CO_2 equivalent in the year 2025. As strong modal shift to sustainable transport modes is needed, if the goal is to be met in the time scale required, and CIPTEC heavily contributes towards this direction.

CIPTEC will provide an overview and analysis of existing innovative approaches currently adopted in various sectors giving emphasis, among others, on customer orientation, operational service concepts and synergies with other modes. New, innovative solutions will be suggested and evaluated through collective intelligence methods (crowdsourcing and co-creation).

A toolbox for introducing and integrating innovative transport approaches and services will be developed to support public transport operators and authorities. Moreover, policy and regulatory recommendations will be validated and presented. An online platform and special workshops with stakeholders from different socio-economic contexts will support the work and model innovation strategic plans of sustainable and transferrable value.

Cities-4-People

New approaches for community-driven sustainable mobility innovations at neighbourhood and urban district level

723194

Programme:

H2020 Transport

Topic:
MG-4.5-2016

Call for proposals:
H2020-MG-2016-Two-Stages

Duration:
01/06/2017 to 31/05/2020

Funding scheme:
RIA

Total cost:
€3,999,938

EU contribution:
€3,999,938

Coordinator:
COPENHAGEN BUSINESS SCHOOL

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/210786_en.html

The Cities-4-People project is a pioneer action aiming to introduce a community-driven People Oriented Transport (POTM) framework based on participatory, inclusive and transparent innovation processes. The project will do this by trying to understand the real needs of EU citizens and by co-creating with them concrete mobility solutions based on new growing trends such as shared mobility and connected mobility. Moreover, the project aims to introduce a common Core Outcome Set (COS) of definitions, metrics, indicators and methods to guide POTM impact assessment while making the citizens part of the solutions/measures' evaluation.

Cities-4-People will put the POTM approach it proposes to the test and enable its communities to co-create, pilot as well as scale up demand driven and sustainable mobility innovations in real life so as to address common urban mobility challenges that citizens actually face in the streets.

The fact that citizens are taking part in the design of the COS will enrich the direct outcomes usually measured (e.g. usage, behavioural change) with dimensions that citizens find important to assess. Synergies with world-class research and innovation initiatives will provide Cities-4-People with access to leading-edge expertise in the field as well as to a wider network of innovation actors, investors and other stakeholders.

CITYLAB

City Logistics in Living Laboratories

635898

Programme:

H2020 Transport

Topic:
MG-5.2-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
RIA

Total cost:
€3,979,998

EU contribution:
€3,979,998

Coordinator:
TRANSPORTOKONOMISK INSTITUTT

Project website:
http://www.citylab-project.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193359_en.html

CITYLAB is the first project to use the Living Laboratory approach for testing and implementing sustainable city logistics solutions in European cities. It will help to increase load factors and reduce vehicle movements of freight and service trips in urban areas.

Goods, waste and service trips in urban areas cause negative traffic and environmental impacts that need cost-effective and sustainable solutions. The CITYLAB objective is to develop knowledge and solutions that will help in the up-scale and roll-out of strategies, measures and tools for emission-free city logistics in urban centres.

The project focuses on four main types of freight vehicle movements in cities:
- Highly fragmented last-mile deliveries in city centres
- Large freight attractors and public administrations
- Urban waste, return trips and recycling
- Logistics facilities and warehouses

The core of CITYLAB is a set of living laboratories on innovation and implementation processes for sustainable urban logistics. Different living labs will exchange experience and develop methodologies for implementation transfer between cities and between companies.

The project will deliver best practice guidance on innovative approaches and how to replicate them.

CIVITAS ECCENTRIC

Innovative solutions for sustainable mobility of people in suburban city districts and emission free freight logistics in urban centres.

690699

Programme:

H2020 Transport

Topic:
MG-5.5a-2015

Call for proposals:
H2020-MG-2015_TwoStages

Duration:
01/09/2016 to 31/08/2020

Funding scheme:
IA

Total cost:
€19,307,742

EU contribution:
€17,422,376

Coordinator:
AYUNTAMIENTO DE MADRID

Project website:
http://www.civitas.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/204474_en.html

European cities have created liveable and attractive city centres, but a remaining conflict exists between providing high quality public space and meeting the accessibility requirements for freight deliveries. Also, higher car usage in suburban areas has previously been largely unaddressed.

CIVITAS ECCENTRIC will demonstrate the potential and replicability of integrated and inclusive urban planning approaches, innovative policies and emerging technologies in five European cities: Madrid, Stockholm, Munich, Turku and Ruse. The project will test clean vehicles and fuels, develop consolidation solutions and draft new regulations and services in close partnership with the private sector.

The project's ambition is to contribute to the targets set in EU's White paper on transport in terms of air quality, energy use and road casualties aiming to reach CO2 free city logistics by 2030.

CIVITAS SATELLITE

Support Action Towards Evaluation, Learning, Local Innovation, Transfer and Excellence

713813

Programme:

H2020 Transport

Topic:
MG-5.5b-2015

Call for proposals:
H2020-MG-2015-Singlestage-B

Duration:
01/07/2016 to 31/12/2020

Funding scheme:
CSA

Total cost:
€2,996,859

EU contribution:
€2,996,859

Coordinator:
POLIS - PROMOTION OF OPERATIONAL LINKS WITH INTEGRATED SERVICES, ASSOCIATION INTERNATIONALE

Project website:
http://www.civitas.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/204560_en.html

CIVITAS is one of the most successful EU programmes in promoting innovative solutions for sustainable urban development. The CIVITAS SATELLITE project coordinates and supports the efforts of the current and upcoming CIVITAS activities.

The project helps cities gain better access to innovative solutions to address their transport challenges. It brings the latest innovations from European urban mobility research to cities through cross-project coordination and exchange mechanisms.

In practice, the project further elaborates the CIVITAS Impact and Process Evaluation Framework, provides city practitioners with the necessary skills to apply innovations in their own context, and helps to prepare for the actual take-up of these solutions through peer-to-peer learning. In addition, SATELLITE enhances cooperation between the public and private sector, offering a dedicated online marketplace for urban transport innovations.

The project promotes CIVITAS successes and improves access to available solutions, while enhancing networking among all CIVITAS Forum members.

CREATE

Congestion Reduction in Europe : Advancing Transport Efficiency (CREATE)

636573

Programme:

H2020 Transport

Topic:
MG-5.3-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/06/2015 to 31/05/2018

Funding scheme:
RIA

Total cost:
€3,981,461

EU contribution:
€3,870,146

Coordinator:
UNIVERSITY COLLEGE LONDON

Project website:
http://www.create-mobility.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/196707_en.html

The CREATE project is developing new congestion and network performance indicators and qualitative and quantitative insights on how cities can reduce car use and make the business case for investing in sustainable mobility and Place Making infrastructure and measures.

Urban congestion has major economic and social costs, and car-based cities often provide poor environments for urban living. The CREATE project will develop a set of guidelines which will support European countries in reducing congestion, and moving from car-based to liveability-based lifestyles. Based on an in depth analysis of data and policies/measures implemented over the past 40 years in the five CREATE capital cities (Berlin, Copenhagen, London, Paris and Vienna), CREATE is developing a transferability methodology using a unique combination of research results and peer-learning activities (workshadowing and mentoring visits) to support CREATE East and Mediterranean partner cities (Bucharest, Skopje, Tallinn, Adana, and Amman) in fighting against congestion and car-based cities, and creating more liveable cities.

CREATE is examining both quantitative changes in policy measures and car use patterns and examining the changes in governance, administration, legislation and funding regimes that have enabled Western European capital cities to evolve from being car-based to providing liveable cities for their citizens. Eight partners with expertise in travel behaviour, data analysis, transport policy and congestion management are supporting the ten CREATE cities. Under the overall direction of the scientific project coordinator (UCL), the non-city partners are: EUROCITIES (the network of major European cities); BOKU, Dresden University, and Sciences Po (internationally leading university departments); COWI, EIP, and Vectos (consultants); and INRIX (SME).

DESTINATIONS

CIVITAS DESTINATIONS

689031

DESTINATIONS

Programme:

H2020 Transport

Topic:
MG-5.5a-2015

Call for proposals:
H2020-MG-2015_TwoStages

Duration:
01/09/2016 to 31/08/2020

Funding scheme:
IA

Total cost:
€19,975,902

EU contribution:
€17,874,948

Coordinator:
HORARIOS DO FUNCHAL-TRANSPORTES PUBLICOS SA

Project website:
http://www.civitas.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/204144_en.html

The DESTINATIONS project is developing innovative holistic sustainable urban mobility systems for both residents and tourists in popular European tourism destinations. The project will demonstrate how improved transport services can boost the city's growth and competitiveness throughout the year.

The project's team will demonstrate and evaluate the effectiveness of innovative sustainable mobility solutions in six tourist cities with different characteristics but sharing common challenges.

The solutions will address:
• Sustainable urban mobility planning for residents and visitors
• Safe, attractive and accessible public spaces for all generations
• Shared mobility and e-infrastructures towards zero emissions transport
• Smart and clean urban freight logistics at tourist destinations
• Mobility management and awareness for sustainable mobility
• Attractive, clean, accessible and efficient public transport

EBSF_2

European Bus System of the Future 2

636300

Programme:

H2020 Transport

Topic:
MG-3.2-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
IA

Total cost:
€12,416,710

EU contribution:
€9,995,952

Coordinator:
UNION INTERNATIONALE DES TRANSPORTS PUBLICS

Project website:
http://ebsf2.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193395_en.html

The EBSF_2 project is combining innovative technologies with operational best practices and testing them in real-life scenarios within several European public bus networks.

The project's goal is to improve the efficiency of operations in terms of costs and energy consumption and to increase the modal share of bus services by improving the bus image for the users. The modal switch from passenger cars to buses is challenging as passengers have high expectations regarding speed, comfort and connectivity of vehicles and terminals. At the same time, the economic situation of bus service providers calls for further research development to make bus systems more efficient and cheaper to operate.

Demonstrations in real service involve more than 500 buses in the 11 cities: Barcelona, Dresden, Gothenburg, Helsinki, London, Lyon, Madrid, Paris, Ravenna, San Sebastian, and Stuttgart. Internal combustion engine, hybrid and electric buses, as well as a wide range of bus services will be tested. The outcome of the demonstrations will lead to new vehicle and infrastructure developments, for instance solutions to reduce energy and fuel consumption by 5 to 8%. Up to 15% operation costs reduction can be achieved by using a modular bus. Guidelines and tools to facilitate the introduction of these successful innovations beyond the project tests will be prepared.

ELIPTIC

Electrification of public transport in cities

636012

Programme:

H2020 Transport

Topic:
MG-5.1-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/06/2015 to 31/05/2018

Funding scheme:
RIA

Total cost:
€5,988,745

EU contribution:
€5,988,745

Coordinator:
FREIE HANSESTADT BREMEN

Project website:
http://www.eliptic-project.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193366_en.html

The ELIPTIC project is exploring ways to electrify urban public transport systems by optimising the use of existing infrastructure in European cities - making public transport the backbone of electric mobility, thus leading to reduced fossil fuel consumption and improved air quality.

Sustainable urban mobility planning requires looking beyond propulsion technologies, while tackling congestion and consumption of space. ELIPTIC's main goal is to strengthen public transport through electrification and to take the lead in the development and coordination of a combined mobility in smart cities.

ELIPTIC develops advanced concepts and business cases for the use of existing electric infrastructure - including light rail, metro, tram and trolleybus – as charging facility for the electrification of full-electric battery buses, trolley-battery-hybrid buses, as well as for electric cars, taxis, delivery and utility vehicles. The project's focus is on multimodal mobility approach in both urban as sub-urban areas.

EMPOWER

EMPOWERING a reduction in use of conventionally fueled vehicles using Positive Policy Measures.

636249

Programme:

H2020 Transport

Topic:
MG-5.1-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
RIA

Total cost:
€4,898,621

EU contribution:
€4,898,621

Coordinator:
UNIVERSITY OF LEEDS

Project website:
http://empowerproject.eu

Project description on CORDIS:
http://cordis.europa.eu/project/reference/636249

Reducing the use of conventionally fuelled vehicles is important as CO2 emissions in many of the world's cities continue to rise. EMPOWER is a pioneering research project exploring ways to encourage people to reduce their car dependence and enjoy alternative travel options.

EMPOWER will influence drivers of conventionally fuelled vehicles to change their travel choices by rewarding change. This includes changing to public transport, using more active modes such as walking and cycling, sharing cars, travelling in off-peak hours and schemes to help people avoid travelling altogether. To achieve this, the project is using a range of positive incentives including points, discounts, rewards, community support, prizes, cashback and games on smart devices.

To achieve the project's goals, EMPOWER is working closely with eleven cities across Europe, four of which are experimenting to find the best designs of positive incentives schemes ('Living Labs') whilst the remaining seven are implementing large scale roll-out of the concept. In total, more than 40 cities are linked to the project as followers, contributors and interested parties. A number of commercial incentive providers and transport service partners are involved in the project.

One of the project's key outputs will be a toolkit allowing more cities and organisations to take up the EMPOWER concept. It will include an evidence database, business model templates, software tools and advice on evaluation methodology. The toolkit will help industry, policy makers, city authorities and employers to understand and successfully implement positive incentives schemes using smart technologies in the context of existing infrastructure, policy and measures.

EMPOWER is expected to bring benefits including a 15-50% reduction in the use of conventionally fuelled vehicles by EMPOWER participants, a 30% increase in participants' positive evaluation of urban accessibility and 75% participant satisfaction with the EMPOWER mobility services. The project's team is ensuring a minimum 10% response rate from vulnerable groups and are concerned with impacts on a range of vulnerable users.

FLOW

Furthering Less Congestion by creating Opportunities for more Walking and cycling

635998

Programme:

H2020 Transport

Topic:
MG-5.3-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
RIA

Total cost:
€3,781,697

EU contribution:
€3,781,696

Coordinator:
RUPPRECHT CONSULT-FORSCHUNG & BERATUNG GMBH

Project website:
http://h2020-flow.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193365_en.html

The FLOW project aims to put walking and cycling on an equal footing with motorised modes from a transport planning perspective by developing a user-friendly methodology, involving traffic modelling, to assess the effectiveness of walking and cycling measures in addressing urban road congestion.

FLOW brings together transport modelling experts and walking and cycling experts to develop innovative, user-friendly tools to help cities to holistically evaluate the effects of walking and cycling measures on congestion. Currently there is a poor theoretical link between non-motorised transport measures and their effect on congestion. The goal is for the methodology and congestion assessment tools developed in FLOW to be integrated into the current standard transport impact analysis process.

Current modelling software will be calibrated, customised and tested in five FLOW cities (Budapest, Dublin, Gdynia, Lisbon, Munich). The sixth FLOW city, Sofia, will implement cycle-to-work campaigns at five major companies and test the impact analysis methodology. These analyses and models are expected to become lighthouse examples for other cities. A portfolio of measures will be developed to support the take-up of walking and cycling measures that reduce congestion and improve urban mobility.

Metamorphosis

Transformation of neighbourhoods in a child-friendly way to increase the quality of life for all citizens.

723375

Programme:

H2020 Transport

Topic:
MG-4.5-2016

Call for proposals:
H2020-MG-2016-Two-Stages

Duration:
01/06/2017 to 31/05/2020

Funding scheme:
RIA

Total cost:
€3,413,923

EU contribution:
€2,950,005

Coordinator:
FORSCHUNGSGESELLSCHAFT MOBILITAET - Austrian Mobility Research FGM - AMOR Gemeinnutzige GMBH

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/210790_en.html

Metamorphosis is a Research and Innovation Action aiming to transform the neighbourhoods staring from the children's perspective. The project aims to achieve creative break through innovations in the development, design, governance and planning procedures of urban districts and neighbourhoods, the central focus being put on the transformation of the car-oriented neighbourhoods into children-friendly neighbourhoods.

Metamorphosis starts from the premise that when a neighbourhood has many children in its public spaces (e.g. streets and squares), this is a major indicator that it is well designed as a sustainable neighbourhood. The word sustainability itself is already inseparably combined with children as it implicates “designed for the next generations”. Therefore, Metamorphosis aims to transform neighbourhoods staring from the children's perspective. Transforming the car-oriented neighbourhoods into children-friendly neighbourhoods will be achieved by:

• empowering the children to monitor and evaluate neighbourhood level activities – children are given a prominent role as investigators, facilitators, motivators and disseminators.
• building at the neighbourhood level and amongst the relevant stakeholders the vision needed for such a transformation, and
• testing and engaging creative breakthrough innovations for public spaces. Some of innovative/crate uses of the public space to be implemented are:
o workplace on the street: e.g. hairstyling, bike repair, product exhibition
o design innovation for resting, moving, lingering, playing, etc.
o gamification e.g. through geocaching; usage of public space for training purposes
o connecting urban gardening with community supported agriculture and new logistics solutions.

The project includes eight trial implementation cities (Graz, Meran, Tilburg, Southampton, Zurich, Munich and Alba-Iulia), each city involving four different neighbourhoods varying in size, structure, density and diversity.

MUV

Mobility Urban Values

723521

Programme:

H2020 Transport

Topic:
MG-4.5-2016

Call for proposals:
H2020-MG-2016-Two-Stages

Duration:
01/06/2017 to 31/05/2020

Funding scheme:
RIA

Total cost:
€3,992,625

EU contribution:
€3,992,625

Coordinator:
PALERMO URBAN SOLUTIONS HUB

Project website:
http://www.muv2020.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/210792_en.html

The MUV project levers behaviour change in local communities using an innovative approach to improve urban mobility: changing commuting habits through a game that mixes digital and physical experiences.

Mobility Urban Values leverages behavioural change in local communities to enable the reduction of urban traffic. Rather than focus on infrastructure, it raises citizen awareness on the quality of the urban environment to promote a shift towards more sustainable and healthy mobility choices. The solution includes a mobile app tracking users' routes and assigning points for sustainable behaviours and a network of sensing stations. Urban commuters from six different urban neighbourhoods spread across EU will co-create and then test different game dynamics. Mobility and environmental data gathered will allow policymakers to enhance planning processes to improve cities' quality of life.

MUV solutions will be open, co-created with a strong learning community of users and stakeholders, and piloted in a set of diverse urban neighbourhoods spread across Europe: Amsterdam (NL), Barcelona (ES), Fundao (PT), Ghent (BE), Helsinki (FI), Palermo (IT). In order to ensure the effectiveness of the mobility solutions and really match the communities and stakeholders' needs, all the project's main activities (co-creation sessions, software development and impacts' analysis) will iterate three times during the piloting phase. Real impact is measured with an evidence-based approach to maximize economic viability and Social Return On Investment (SROI) and drive replicability and the scaling up and out of MUV solutions.

MUV builds on the experience of trafficO2, research-action project carried out in Palermo by PUSH, MUV's Coordinator, showing a reduction of the carbon emissions associated to the active users of more than 40%.

NOVELOG

New cooperative business models and guidance for sustainable city logistics

636626

Programme:

H2020 Transport

Topic:
MG-5.2-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/06/2015 to 31/05/2018

Funding scheme:
RIA

Total cost:
€4,413,842

EU contribution:
€4,413,842

Coordinator:
ETHNIKO KENTRO EREVNAS KAI TECHNOLOGIKIS ANAPTYXIS

Project website:
http://www.novelog.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193411_en.html

NOVELOG will advance understanding of freight distribution and service trips by providing guidance for implementing effective and sustainable policies and measures. This guidance will support the choice of the most optimal and applicable solutions for urban freight and service transport, as well as facilitate stakeholder collaboration and the development, field testing and transfer of best governance and business models.

The project is developing four tools to be exploited in order to help cities understand urban freight transport (UFT), facilitate stakeholder collaboration, as well as transfer best governance (measures and policies) and business cooperation models. The project will also demonstrate quantifiable impacts on the environment (CO2 emissions, noise pollution and energy use), the economy (service level increase) and the society (reduction of congestion, reduction of accidents) through the pilot and case studies implementation.

The project involves experts from all UFT stakeholder categories (city authorities, academia and industry) and establishes multi-stakeholder platforms in each project city for a higher impact.

PORTIS

PORT-Cities: Integrating Sustainability

690713

PORTIS

Programme:

H2020 Transport

Topic:
MG-5.5a-2015

Call for proposals:
H2020-MG-2015_TwoStages

Duration:
01/09/2016 to 31/08/2020

Funding scheme:
IA

Total cost:
€17,678,400

EU contribution:
€16,376,775

Coordinator:
STAD ANTWERPEN

Project website:
http://www.civitas.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/204150_en.html

The CIVITAS PORTIS project designs, demonstrates and evaluates integrated sets of sustainable mobility measures in five major port cities on the North Sea (Aberdeen and Antwerp), the Mediterranean Sea (Trieste), the Black Sea (Constanta), and Baltic Sea (Klaipeda). A follower port city on the East China Sea (Ningbo) is also involved.

Local measures are organised in four clusters:
• Governance - to increase port-city collaborative planning
• People - to foster less car-dependent mobility styles
• Transport system - to strengthen the efficiency of road traffic management
• Goods- to enhance logistics and freight transport

The project's ambition is to develop and implement a vision of sustainable mobility that can increase functional and social cohesion between city centres and ports, whilst driving economic growth and improving the attractiveness of urban environments.

Prosperity

Prosperity through innovation and promotion of Sustainable Urban Mobility Plans

690636

Programme:

H2020 Transport

Topic:
MG-5.4-2015

Call for proposals:
H2020-MG-2015_TwoStages

Duration:
01/09/2016 to 31/08/2019

Funding scheme:
RIA

Total cost:
€3,188,049

EU contribution:
€3,188,049

Coordinator:
FORSCHUNGSGESELLSCHAFT MOBILITAET - Austrian Mobility Research FGM - AMOR Gemeinnutzige GMBH

Project website:
http://www.sump-network.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/204145_en.html

The PROSPERITY project aims to bridge the gap between the local needs and demands of the cities that should develop and implement Sustainable Urban Mobility Plans (SUMP), and higher administrative institutions like ministries in charge of developing national SUMP programmes.

The project is bringing all involved actors together for:
• A regular peer-to-peer exchange between the national level authorities from different countries
• A regular exchange between the national level and the cities in the participating countries

PROSPERITY is building and implementing ten country-specific training programmes in 200 partner or champion cities that are expected to reach at least 350 people.

SKILLFUL

Skills and competences development of future transportation professionals at all levels

723989

Programme:

H2020 Transport

Topic:
MG-8.3-2016

Call for proposals:
H2020-MG-2016-SingleStage-INEA

Duration:
01/10/2016 to 30/09/2019

Funding scheme:
RIA

Total cost:
€2,991,672

EU contribution:
€2,991,672

Coordinator:
FORUM DES LABORATOIRES NATIONAUX EUROPEENS DE RECHERCHE ROUTIERE

Project website:
http://www.skillfulproject.eu

Project description on CORDIS:
http://cordis.europa.eu/project/reference/723989

The SKILLFUL project vision is to identify the skills and competences needed by the Transport workforce of the future (2020, 2030 and 2050 respectively) and define the training methods and tools to meet them.

The focus of the project:
• To review the existing, emerging and future knowledge and skills requirements of workers at all levels in the transportation sector, with emphasis on competences required by important game changers and paradigm shifters
• To structure the key specifications and components of the curricula and training courses that will be needed to meet these competence requirements optimally, with emphasis on multidisciplinary education and training programmes;
• To identify and propose new business roles in the education and training chain, for example those of “knowledge aggregator”, “training certifier” and “training promoter”, in order to achieve European wide competence development and take-up in a sustainable way.
• Expected results and impacts:
• Enhancement and development of employability of the Transport sector by developing and providing new training/educational schemes, programs and tools taking under full consideration the existing and future needs (i.e. emerging technologies, emerging novel service concepts, etc.) and by creating new actor roles in training/education areas of the Transportation sector. Moreover, exportability of these training schemes beyond Europe by consolidating relevant International links.
• Promotion of transport electrification, greening and automation by strongly connecting these trends to future transport job requirements for all transportation modes and for multimodal chains and for all levels/types of workers (blue collar, white collar, managers, operators, researchers, etc.).
• Enhancement of safety (through C-ICT and automation), security, mobility enhancement and congestion reduction through the development and implementation of training schemes and courses for all Transport modes.

SUCCESS

Sustainable Urban Consolidation CentrES for conStruction

633338

Programme:

H2020 Transport

Topic:
MG-5.2-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
RIA

Total cost:
€3,238,118

EU contribution:
€3,238,118

Coordinator:
LUXEMBOURG INSTITUTE OF SCIENCE AND TECHNOLOGY

Project website:
http://success-urbanlogistics.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193217_en.html

The SUCCESS project is tackling the challenges of urban freight logistics in the construction sector by providing replicable solutions for a better construction supply chain.

Europe's urban population is growing, increasing the need to develop and reconstruct urban centres. Construction material logistics already have high impact on urban areas and will even intensify in the future in terms of costs and negative effects. The SUCCESS project is exploring and testing new tools and methods to face these challenges and to improve the construction supply chain.

The project's objective is to find replicable solutions that decrease costs and the negative impact of urban freight transportation, such as congestion, pollution, noise and accidents. Furthermore, the project is working on the improvement of the managerial level to increase the cooperation and coordination among all the stakeholders of the supply chain. The SUCCESS project involves four construction sites in Luxembourg, France, Italy and Spain.

The project is collecting data on these pilot sites allowing to understand the current situation and to identify the relevant factors for a viable business model. Based on this first analysis, partners are defining methods and tools to optimise the construction supply chains. To guarantee efficient results, they will subsequently be tested with simulation tools using the collected data. This three-step-approach allows the partners to provide high quality solutions that can be adapted and reused by other construction sites or cities.

The SUCCESS consortium is built of 11 partners representing complementary types of institutions, such as public administrations, construction companies, research centres and professional associations.

SUITS

Supporting Urban Integrated Transport Systems: Transferable tools for authorities

690650

Programme:

H2020 Transport

Topic:
MG-5.4-2015

Call for proposals:
H2020-MG-2015_TwoStages

Duration:
01/12/2016 to 30/11/2020

Funding scheme:
RIA

Total cost:
€4,111,361

EU contribution:
€4,111,361

Coordinator:
COVENTRY UNIVERSITY

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/206442_en.html

The SUITS project takes a socio-technical approach to capacity building in local authorities and transport stakeholder organisations with special emphasis on the knowledge transfer to smaller sized cities, making them more effective and resilient to change in the implementation of sustainable transport measures. The project aims to help cities cut congestion and pollution while improving their growth capacity and quality of life for urban dwellers and commuters.

The project is developing a capacity building programme for transport departments and resource-light learning assets (modules, e-learning material, webinars and workshops), decision support tools to assist in procurement, innovative financing, engagement of new business partners, as well as handling of open, real time and legacy data. Without capacity building and the transformation of transport departments into learning organisations, training materials will not provide the step change towards innovative transport measures.

SUITS is working with nine cities to model gaps in their understanding, motivation, communication and work practices. The project will provide each city with a map of its own strengths and weaknesses with respect to sustainable transport planning. The project will develop strategies to enhance their capacity based on each authority's needs together with the necessary techniques to increase their own capacity. Local champions will be trained to continue capacity building after the project.

SUMPs-Up

European Programme for Accelerating the Take up of Sustainable Urban Mobility Plans

690669

Programme:

H2020 Transport

Topic:
MG-5.4-2015

Call for proposals:
H2020-MG-2015_TwoStages

Duration:
01/09/2016 to 29/02/2020

Funding scheme:
RIA

Total cost:
€3,999,921

EU contribution:
€3,999,921

Coordinator:
ICLEI EUROPEAN SECRETARIAT GMBH (ICLEI EUROPASEKRETARIAT GMBH)*

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/204148_en.html

The SUMPs-Up project is developing an innovative acceleration mechanism for the widespread up-take of Sustainable Urban Mobility Plans (SUMPs) throughout Europe. The project uses a four-step approach (validate, systemise, accelerate and secure) to ensure that the SUMP becomes Europe's leading mobility planning approach.

Improving the efficiency of urban transport while mitigating its negative effects and enhancing the attractiveness of Europe's urban centres requires a strategic planning approach. Research has shown that SUMPs can greatly improve urban liveability, with better public spaces, less pollution, and stronger local economies.

Through its acceleration mechanism, SUMPs-UP is supporting the development of 100 new SUMPs and is providing support and resources to almost 80% of European cities with more than 50,000 inhabitants, making it one of the EU's most wide-reaching and influential SUMP projects.

SUNRISE

Sustainable Urban Neighbourhoods - Research and Implementation Support in Europe

723365

Programme:

H2020 Transport

Topic:
MG-4.5-2016

Call for proposals:
H2020-MG-2016-Two-Stages

Duration:
01/05/2017 to 30/04/2021

Funding scheme:
RIA

Total cost:
€4,081,481

EU contribution:
€3,998,979

Coordinator:
RUPPRECHT CONSULT-FORSCHUNG & BERATUNG GMBH

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/210136_en.html

The SUNRISE project is developing new collaborative tools to facilitate collaborative ways to address mobility challenges at the neighbourhood level.

SUNRISE's innovative approach lies in its concrete involvement of citizens, stakeholders and users throughout all phases of the innovation process, from the early identification of problems to the implementation of solutions and their evaluation.

These solutions will be tested in the six SUNRISE neighbourhood cities of Bremen, Budapest, Jerusalem, Malmo, Southend-on-Sea and Thessaloniki through the so-called "neighbourhood mobility labs". The neighbourhood mobility labs of the SUNRISE cities set down the foundation of Sustainable Neighbourhood Mobility Planning (SNMP) which in turn builds on the Sustainable Urban Mobility Planning (SUMP) concept. The SNMP applies the transport measures and participatory approaches to neighbourhood scale by working closely with local partner organisations and citizens.

TRACE

Opening the cycling and walking tracking potential

635266

Programme:

H2020 Transport

Topic:
MG-5.3-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/06/2015 to 31/05/2018

Funding scheme:
RIA

Total cost:
€2,896,985

EU contribution:
€2,896,985

Coordinator:
INESC ID - INSTITUTO DE ENGENHARIADE SISTEMAS E COMPUTADORES, INVESTIGACAO E DESENVOLVIMENTO EM LISBOA

Project website:
http://www.h2020-trace.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193324_en.html

European public authorities are looking for effective ways to deliver sustainable urban mobility. In order to fully exploit the huge potential of walking and cycling as congestion busting measures, the TRACE project aims to unlock the possibilities offered by quickly developing ICT tracking technologies.

The project is assessing the potential of movement tracking services to better plan and promote walking and cycling in cities, and developing innovative tracking tools that will encourage the take-up of walking and cycling measures. The new tools are expected to promote behaviour change and support mobility planning. By expanding the knowledge and leveraging the potential of tracking for cycling and walking, TRACE will trigger innovative cycling and walking promotion initiatives and planning practices.

The project's applications will be tested by end-users in eight test sites: Breda (NL), Agueda (PT), Southend-on-Sea Borough (UK), Bologna (IT), Esch (LU), Belgrade (RS), Plovdiv (BG) and Leuven (BE). They will be evaluated in terms of impacts, success factors and benefits, while preparing for their full commercial exploitation.

TRACE will also encourage other cities and regions to start using the applications that will eventually trigger creation of new applications. The project will also provide valuable insights on potential business models for entities (e.g. SMEs) willing to exploit the market potential of this type of applications.

U-TURN

Rethinking Urban Transportation through advanced tools and supply chain collaboration

635773

Programme:

H2020 Transport

Topic:
MG-5.2-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/06/2015 to 31/05/2018

Funding scheme:
RIA

Total cost:
€2,735,543

EU contribution:
€2,735,543

Coordinator:
INTRASOFT INTERNATIONAL SA

Project website:
http://www.u-turn-project.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193351_en.html

The U-TURN project is addressing urban freight distribution with a focus on food logistics, suggesting unique innovative collaboration practices and tools towards achieving more efficient operations from both an environmental and cost perspective.

Urban environmental sustainability is highly associated with the impact generated by food transport, especially following current consumer trends such as shopping packaged goods in smaller convenient retail shops or online shopping with special home-delivery requirements.

These trends create a new distribution landscape that calls for collaboration and consolidation of flows in order to control cost, traffic and environmental burden in urban areas.

U-TURN is addressing these challenges by:
• Analysing existing transportation flows of food products in urban areas, of cities like London, Milan and Athens
• Involving market stakeholders in a collaborative discussion through focus groups, in-depth interviews, surveys and workshops
• Designing and implementing a collaboration platform for supporting information sharing and the creation of appropriate logistics sharing partnerships
• Conducting pilots applying representative collaborative proposals in practice (real-life scenarios) in order to demonstrate the applicability of the proposed initiatives

E-ferry

E-ferry – prototype and full-scale demonstration of next generation 100% electrically powered ferry for passengers and vehicles

636027

Programme:

H2020 Transport

Topic:
MG-4.1-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/06/2015 to 31/05/2019

Funding scheme:
IA

Total cost:
€21,303,821

EU contribution:
€15,141,036

Coordinator:
AERO KOMMUNE

Project website:
http://www.e-ferryproject.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193367_en.html

The E-ferry is building a new 100% electric ferry and test it in the Danish waters. This new electric ferry has the worlds largest battery which allows it to travel longer distances than existing electric ferries (up to 21.4 nautical miles (nearly 38 km) before it needs to be recharged, making it suitable for journeys between small island groups, and along coasts and inland waterways.

The introduction of alternative fuel solutions is already a fact in the ferry industry. Over the past years, shipowners are looking for solutions to reduce the environmental footprint of their vessels and also to cope with the increased oil prices. E-ferry relies on electricity. It is a game-changing approach to medium range ferry connections that goes beyond current limitation of existing electric ferryies such as the vessel's speed, autonomy and coverage (range).

The increased battery capacity (charging only at one end of the route), the improved operational characteristics (speed, largest sailing range, operation on ice conditions) and its green profile are the main reasons for E-ferry market penetration. The fully electric ferry is expected to cut emissions of up to 20 000 tonnes of CO_2, 41 500 kg of NOx, 1 350 kg of SO_2 and 2 500 kg of particulates, which are generated by a similar conventional ferry every year. The electric propulsion also allows considerable noise and wave reductions bringing important environmental benefits to the for wildlife and people along routes.

The success of the project towards its goal on delivering innovation to the EU market relies on the good cooperation of a fully balanced multidimensional consortium from five EU countries (Denmark - coordinator, Greece, Switzerland, Germany, Finland) comprising innovative industrial partners, ferry services providers, maritime research organisations, standardisation organisations, maritime authorities and policy multipliers (Aero Kommune, Visedo Finland, Danish Maritime Authority, Hellenic Institute of Transport, DBI, Naval, Soby, Tuco and Leclanche), as well as a large European stakeholders' network.

EfficienSea 2

EfficienSea 2 - Efficient, Safe and Sustainable Traffic at Sea

636329

Programme:

H2020 Transport

Topic:
MG-4.2-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
IA

Total cost:
€11,455,001

EU contribution:
€9,795,318

Coordinator:
SØFARTSSTYRELSEN

Project website:
http://efficiensea2.org

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193397_en.html

From 2001 to 2010, 6.264 lives were lost in navigation accidents worldwide. EU policies on safer and more efficient waterborne operations, in particular the e-maritime initiative in collaboration with International Maritime Organisation (IMO), gives the opportunity to increase safety in the maritime sector.

The EfficienSea 2 project will exploit this opportunity with the following objectives:
• Improve navigational safety and efficiency
• Improve Arctic navigation and emergency response
• Decrease administrative burdens
• Improve environmental monitoring & enforcement
• Lasting impact will be ensured by five enabling actions:
• Development of the Maritime Cloud – a communication framework for both e-maritime and e-navigation - enabling efficient sharing of information between all maritime stakeholders
• Maturing emerging communication technologies, improving ships connectivity
• Proactive facilitation of standardisation to maximize adoption and impact
• Showcasing solutions in two very different geographic areas: web-based initial implementation of the services will be done in the Arctic and the Baltic
• Ensure an ambitious upgrade of international maritime safety regimes through a strong participation in regulatory bodies including EU and IMO

EfficienSea 2 has gathered a unique level of competence in a consortium of 32 partners from ten countries representing authorities, academia, international organisations as well as equipment manufacturers combining all the right capacities for effectively achieving these ambitious objectives.

FIBRESHIP

Engineering, production and life?cycle management for the complete construction of large?length FIBRE?based SHIPs

723360

Programme:

H2020 Transport

Topic:
MG-2.2-2016

Call for proposals:
H2020-MG-2016-Two-Stages

Duration:
01/06/2017 to 31/05/2020

Funding scheme:
IA

Total cost:
€11,041,213

EU contribution:
€8,866,323

Coordinator:
TECNICAS Y SERVICIOS DE INGENIERÍA, S.L.

Project website:
http://www.fibreship.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/210787_en.html

The main objective of the FIBRESHIP project is to develop a new EU-based market for complete large-length ships in Fibre-Reinforced Polymers (FRP). The comprehensive adoption and use of FRP materials are expected to result in:
• significant reduction of structural weight (30%)
• corresponding impact on fuel savings (15%)
• increased ship stability
• positive environmental impact through reduced greenhouse gas emissions and underwater noise as well as increased capacity and recycling rate (75%)

FIBRESHIP will develop a catalogue of applicable materials and joining techniques recommended by classification societies. These will particularly benefit long-term structural strength and fire resistance. To facilitate the far-reaching adoption of FRP innovative design procedures and guidelines, supported by validated software analysis tools, will be developed during the course of the project.

FIBRESHIP will focus on three representative vessel categories: container vessel, ferry and fishing research vessel, where it will implement standardised efficient production methodologies and deliver a proof of concept through a large-scale demonstrator. The FIBRESHIP project advances a revolutionary FRP-based concept in shipbuilding that promises enormous benefits for industry, owners, and the environment.

GASVESSEL

Compressed Natural Gas Transport System

723030

Programme:

H2020 Transport

Topic:
MG-2.3-2016

Call for proposals:
H2020-MG-2016-Two-Stages

Duration:
01/06/2017 to 31/05/2021

Funding scheme:
RIA

Total cost:
€11,997,163

EU contribution:
€11,997,163

Coordinator:
NAVALPROGETTI SRL

Project website:
https://www.gasvessel.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/210914_en.html

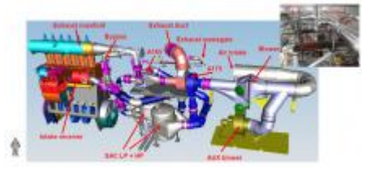
The GASVESSEL project develops waterborne transport and distribution technologies for natural gas. In particular, the project develops advanced large-containers that are able to store natural gas at pressures of up to 300 bar. Thanks to this novel solution there is no longer the need for liquefaction and regasification plants, hence allowing the transported gas to be directly injected into the existing onshore gas distribution networks. The containers will be reinforced with fiberglass and carbon fibers to ensure the required stability. They will be arranged on board of specially designed new or converted ships. The ships will be fitted with appropriate loading and unloading facilities for offshore operations in order not to impair the safety of coastal population, ports activities or nearby shore infrastructures.

The research results are expected to contribute to the energy security of the European Union. They will be particularly useful for small consumers such as Mediterranean and Aegean Sea Islands, where other means of natural gas supply are economically unfeasible. The project is expected remove barriers for cost-effective transport of stranded, associated and flared gas thereby unlocking five times the amount of gas currently used in Europe from Europeans sources.

HERCULES-2

FUEL FLEXIBLE, NEAR -ZERO EMISSIONS, ADAPTIVE PERFORMANCE MARINE ENGINE

634135



Programme:

H2020 Transport

Topic:
MG-4.1-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
IA

Total cost:
€25,108,685

EU contribution:
€16,813,400

Coordinator:
NATIONAL TECHNICAL UNIVERSITY OF ATHENS - NTUA

Project website:
http://www.hercules-2.com

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/196603_en.html

The HERCULES-2 project is building on the success of the HERCULES project that developed new technologies for marine engines to:
• Increase engine efficiency and reduce fuel consumption and CO2 emissions
• Reduce gaseous & particulate emissions
• Increase engine reliability

HERCULES-2 is following up on these achievements by building several full-scale prototypes and shipyard demonstrators of a marine engine that are expected to quickly mature into commercially available products.

HERCULES-2 brings together 32 partners from the industry (30%) and research (70%). Two of the world's largest shipping companies will provide ships as full-scale testing and demonstration platforms.

The objectives of the HERCULES-2 project cover four areas of engine integrated R&D:
• Improving fuel flexibility for seamless switching between different fuel types, including non-conventional fuels
• Formulating new materials to support high temperature component applications
• Developing adaptive control methodologies to retain performance over the power plant lifetime
• Achieving near-zero emissions, via combined integrated after-treatment of exhaust gases

HOLISHIP

HOLIstic optimisation of SHIP design and operation for life cycle

689074

Programme:

H2020 Transport

Topic:
MG-4.3-2015

Call for proposals:
H2020-MG-2015_TwoStages

Duration:
01/09/2016 to 31/08/2020

Funding scheme:
RIA

Total cost:
€11,431,746

EU contribution:
€11,431,746

Coordinator:
HAMBURGISCHE SCHIFFBAU-VERSUCHSANSTALT GMBH

Project website:
http://www.holiship.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/204765_en.html

Most maritime vessels are typically associated with large investments and are seldom built in large series. While other transport modes enjoy the economy of series production, maritime products are designed based on customer requirements and have to show high efficiency, flexibility and low environmental impact at a competitive price. Product design is thus subject to global trade-offs among traditional constraints (customer needs, technical requirements, cost) and new requirements (life-cycle, environmental impact, rules).

Advanced product design needs to adapt to sometimes contradicting requirements and ensure the best, yet flexible operational conditions over the entire life-cycle. This calls for greatly improved design tools including multi-objective optimisation and finally virtual testing of the overall design and its components.

The HOLISHIP project addresses these urgent industry needs by developing innovative design methodologies and integrating diverse requirements (technical constraints, performance indicators, life-cycle cost, and environmental impact) at an early design stage. The project will develop integrated design platforms and demonstrate the concepts in digital mock-ups.

LeanShips

Low Energy And Near to zero emissions Ships

636146

Programme:

H2020 Transport

Topic:
MG-4.1-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/05/2015 to 30/04/2019

Funding scheme:
IA

Total cost:
€22,992,004

EU contribution:
€16,726,364

Coordinator:
SCHEEPSWERF DAMEN GORINCHEM BV

Project website:
http://www.leanships-project.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193377_en.html

LeanShips is combining technologies for efficient and less polluting vessels with end-user requirements to demonstrate the effectiveness and reliability of energy saving and emission reduction technologies at full scale. The project targets CO2 reduction of at least 25%, estimated fuel saving of up to 25% and expected decrease of Sulphur Oxides (SOx), Nitrogen Oxides (NOx) and particle matter air pollutants by up to 100%.

Teams of equipment manufacturers (technology providers), shipyards (technology integrators), and ship owners (technology users) will make sure that the innovations developed in the project are matured to market uptake capability.

The project's target markets are the small to midsized vessels for cargo and maritime operations and the leisure and cruise ships. The LeanShips demonstrators will be:
• A prototype harbour tug fuelled with compressed natural gas
• A demonstrator that converts an existing marine diesel engine to so-called dual fuel operation
• A decision support system for ship energy efficiency and emission reduction on passenger ships of different sizes

Making new and existing vessels more efficient and less polluting strong industrial involvement, therefore over 80% of the project partners are industrial enterprises. All in all 45 partners from 12 EU member states and one associated country are participating in the project coordinated by Damen Shipyards Gorinchem.

LINCOLN

Lean innovative connected vessels

727982

Programme:

H2020 Transport

Topic:
BG-02-2016-2017

Call for proposals:
H2020-BG-2016-1

Duration:
01/10/2016 to 30/09/2019

Funding scheme:
IA

Total cost:
€7,808,691

EU contribution:
€6,343,600

Coordinator:
POLITECNICO DI MILANO

Project website:
http://www.lincolnproject.eu

Project description on CORDIS:
http://cordis.europa.eu/project/reference/727982

The LINCOLN projects presents three new concepts of added-value specialized vessels able to run requested services for several maritime sectors in the most effective, efficient, economic valuable and eco-friendly way.

The project is developing three types of completely new vessels concepts at TRL5, through dynamic simulation model testing:
• A multi-platform catamaran to serve as service crew vessel and multipurpose survey vessel optimised for ocean energy and aquaculture. It will develop a new eco-friendly people transfer system with improved safety and reduced operations costs.
• A module-based high-speed patrol boat platform that is reconfigurable to adapt to the different operational requirements of patrol and security operators. LINCOLN will develop one platform where different vessels can be designed for several markets and built in series at a low cost. It is expected to launch a new “vessel as a service” business model.
• Emergency response and recovery vessels series for coastal rescue activities, with integrated electronics, IoT connectivity and an enhanced and low cost integrated dynamic position system, which will help rescue operators during their activities and enhance safety and security.
• All the three vessels will share the same design methodology:
• A lean fact-based design model approach, which combines real operative data at sea with lean methodology to support the development and implementation of the vessel concepts
• IT customised tools to enable the acquisition and use of field data coming from an IoT platform
• High Performance Computing simulation
• The project team will design and deliver three vessels to demonstrate the methodology and bring back EU yards to the edge of innovation.

LYNCEUS2MARKET

An innovative people localisation system for safe evacuation of large passenger ships

636286

Programme:

H2020 Transport

Topic:
MG-4.2-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/06/2015 to 31/05/2018

Funding scheme:
IA

Total cost:
€10,155,003

EU contribution:
€7,260,975

Coordinator:
RTD TALOS LIMITED

Project website:
http://lynceus-project.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193392_en.html

Lynceus2Market is developing an innovative people localisation system for safe evacuation of large passenger ships.

Maritime disasters in recent years are a stark reminder of the need for timely and effective evacuation of large passenger ships during emergency. The Lynceus2Market project addresses this challenge through delivering a revolutionary operational system for safe evacuation based on innovative people localisation technologies. It is based on the promising results developed in the LYNCEUS project where innovative technologies were tested in lab and in small scale pilots.

Lynceus2Market brings together cruise ship owners, operators, ship builders, maritime equipment manufacturers, a classification society, industry associations and important technology organisations with the aim to implement the first market replication of these technologies and products, as well as create significant impact by saving passenger lives during maritime accidents.

The system consists of:
• Life jackets that can provide passenger location in real-time during emergency
• Smart smoke detectors that also act as base stations of an on-board localisation system
• Innovative localisable bracelets able to send activity data to the emergency management team
• Low-cost fire and flooding escalation monitoring sensor nodes
• Novel mustering handheld devices for automatic identification and counting of passengers during evacuation
• Smart localisable cabin key cards
• Intelligent decision support software able to integrate all localisation, activity and disaster data to provide a real-time visualisation, passenger counting and evacuation decision support
• Innovative shore or ship-launched unmanned aerial vehicle for localising people in the sea in short time and assisting search and rescue operations when accident occurs in extreme weather, during the night or in a remote location

NOVIMAR

NOVel Iwt and MARitime transport concepts

723009

Programme:

H2020 Transport

Topic:
MG-2.3-2016

Call for proposals:
H2020-MG-2016-Two-Stages

Duration:
01/06/2017 to 31/05/2021

Funding scheme:
RIA

Total cost:
€7,923,951

EU contribution:
€7,923,951

Coordinator:
STICHTING NETHERLANDS MARITIME TECHNOLOGY FOUNDATION

Project website:
http://www.novimar.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/210785_en.html

The NOVIMAR project develops a new waterborne transport concept called the Vessel Train.

The Vessel Train consists of a Lead Vessel, followed by a series of lowly manned, digitally connected Follower Vessels. This concept will reduce operational costs and increase economies of scale due to better usage of existing infrastructure. Envisaged reduction of personnel costs will significantly enlarge the economic potential for smaller vessels. This in turn will lead to improved access to urban environments for smaller vessels, thereby reducing congestion in populated areas.

Additional benefits of the Vessel Train will be obtained by overcoming traditional area-bound limitations of waterborne transport. This will be ensured in the way the NOVIMAR project incorporates sea-river connectivity and elaborates on possibilities for Roll-on/roll-off cargo handling.

The NOVIMAR project is unique because it provides technological capabilities for Vessel Train operations together with a sharp focus on economic feasibility and stakeholder alignment, fostering the market potential of the new transport concept.

Prominent

Promoting Innovation in the Inland Waterways Transport Sector

633929

Programme:

H2020 Transport

Topic:
MG-4.4-2014

Call for proposals:
H2020-MG-2014_TwoStages

Duration:
01/05/2015 to 30/04/2018

Funding scheme:
RIA

Total cost:
€6,572,616

EU contribution:
€6,249,998

Coordinator:
STICHTING STC-GROUP

Project website:
http://www.prominent-iwt.eu

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/193260_en.html

The PROMINENT project aims to further decrease the energy consumption and carbon footprint of inland waterway transport (IWT), an area where IWT has already a strong advantage compared to road transport. Besides the traditional research activities, the project will focus on the key items to support uptake of the developed technologies and concepts by the industry by preparing technologies and concepts applicable to 70% of the fleet, with a 30% reduction of implementation costs.

PROMINENT addresses the key needs for technological development, as well as the barriers to innovation and greening in the European inland navigation sector. The project ultimately aims at providing solutions which make inland navigation as competitive as road transport in terms of air pollutant emissions by 2020 and beyond.

PROMINENT will focus on:

- Massive transition towards efficient and clean vessels
- Certification and monitoring of emission performance and development of innovative regimes
- Harmonisation and modernisation of professional qualifications and the stimulation of the further integration of IWT into sustainable transport chains

The PROMINENT partners have found broad support among political and commercial decision makers in the field of inland navigation. Through its direct access to relevant industrial stakeholders and Member States the consortium has obtained significant backup needed to perform the work. The commitment of these organisations will lead to a high acceptance and further dissemination of results.

RAMSSES

Realisation and Demonstration of Advanced Material Solutions for Sustainable and Efficient Ships

723246

Programme:

H2020 Transport

Topic:
MG-2.2-2016

Call for proposals:
H2020-MG-2016-Two-Stages

Duration:
01/06/2017 to 31/05/2021

Funding scheme:
IA

Total cost:
€13,494,091

EU contribution:
€10,799,441

Coordinator:
CETENA S.p.A. Centro per gli Studi di Tecnica Navale

Project website:
http://www.ramsses-project.eu/

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/210788_en.html

The RAMSSES project aims to demonstrate the benefits of innovative materials for efficient ship designs. The project will contribute to a wider recognition of advanced materials in the maritime industry.

Technical properties and benefits of fibre reinforced plastics or innovative steel are known in principle. However, the biggest obstacle against their wide application is the lack of a suitable regulatory framework. Hence, designs using such materials have to undergo extensive case by case assessments prior to class approval. RAMSSES aims to overcome this barrier by developing a comprehensive material knowledge base and preparing the ground for a fast track to approval.

For a broad variety of ship types, RAMSSES develops, produces and assesses thirteen industry led and market driven demonstrator cases, which cover applications from structural components and equipment up to ship integration. The entire maritime process chain is considered, thus demonstrating designs and processes for production, assembly and repair. The maturity of each demonstrator is shown practically by installations either on shore under close to reality conditions or by on-board validation.

SHIPLYS

Ship Lifecycle Software Solutions

690770

Programme:

H2020 Transport

Topic:
MG-4.3-2015

Call for proposals:
H2020-MG-2015_TwoStages

Duration:
01/09/2016 to 31/08/2019

Funding scheme:
RIA

Total cost:
€6,144,150

EU contribution:
€6,144,150

Coordinator:
TWI LIMITED

Project website:
http://www.shiplys.com

Project description on CORDIS:
http://cordis.europa.eu/project/rcn/204770_en.html

In order to survive in the world market, small ship builders need to improve their capability to reduce the cycle time and costs of ship design and production, to be able to reliably produce better ship concepts through virtual prototyping and to meet the increasing requirements for LCCA (Life Cycle Cost Analysis), environmental assessments, risk assessments and end-of-life considerations.

Yet, the calculation and modelling to do this is difficult and time consuming, especially for SMEs without a large overhead of trained staff and tools. This is coupled with the lack of an industry specific lifecycle modelling technique, hindered by the lack of information to support reliable decision-making.

SHIPLYS aims to transfer experience from the development of industry modelling schemes e.g. Building Information Modelling (BIM), and use them to produce new techniques for quick, reliable multi-disciplinary modelling capability for the marine industry.

The project is working on the following innovations:
• Develop standardisation aspects of the new paradigm by transferring the key BIM product model principles
• Develop a virtual prototyping system to incorporate LCCA, environmental and risk assessment criteria for fast and cost effective evaluation of alternatives
• Add multi-criterion decision analysis techniques to support decision making across the short/ long term, based on key purchasing decision criteria
• Build on ISO10303 standards for interoperable data reuse