



LIFE SAVE - Solar Aided Vehicle Electrification

LIFE16 ENV/IT/000442



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#### Project description:

##### Background

Transport accounts for about 63% of oil consumption and 29% of CO<sub>2</sub> emissions. More efficient, multimodal and environmentally-safer transport is a widely-sought goal. The EU aims to achieve a 95 g CO<sub>2</sub>/km cap in emissions from transport by 2020 with further restrictions foreseen thereafter (68-78 g CO<sub>2</sub>/km by 2025). The Air Quality Directive of 2008 has also limited nitrous oxides (NO<sub>x</sub>) emissions and most major European countries desire a higher degree of energy independence and a shift towards a less oil-intensive transport. Data shows a gradual increase in the number of electric vehicles in the EU, driven by consumer choice and an automotive industry in transition.

##### Objectives

The LIFE SAVE project will further develop a prototype technology called HySolarKit produced by a Horizon 2020 SME instrument project. The aim is to produce a market-ready version of this technology. HySolarKit is an add-on kit that converts vehicles with an internal combustion engine into a hybrid solar vehicles, so reducing fuel consumption and greenhouse gas emissions. Flexible solar panels mounted on the car also recharge the vehicle's battery. The Hybrid Electric Retrofit System (HERS) includes two electric motors in the wheels of the rear axle, solar panels, and an electronic interface to connect to the battery and the vehicle's control systems.

Specific project aims include:

- Enabling the kit to effectively convert passenger cars into hybrid or light electric vehicles;
- Enhancing replicability by increasing market insight in specific countries, assessing regulatory constraints and users' willingness to pay, and conducting cost analysis for up-scaling, transferability analysis through patents, and technology intelligence to find extra-sectoral uses; and
- Assembling four high-level prototypes and setting a performance and environmental demonstration schedule in Europe, with a particular focus on Malta.

Expected results:

- Advance HySolarKit technology and promote it around Europe;
- Achieve a target commercial price of €3 000-3 500 per kit for a vehicle with an average yearly mileage. This equates to a payback period of 3-4 years for consumers;
- Reduction of fuel consumption by up to 25% in retrofitted hybrid electric vehicles;
- Reduction of up to 12% in recharging time for retrofitted hybrid electric vehicles;
- Four high-level prototypes to be built and tested in Malta;
- Improved system integration through an upgraded power electronics system for 45V battery architectures;
- Development of five complete kits: two kits will be mounted onto commercial passenger cars and two onto light electric vehicles. One kit will be used to upgrade a demonstrator owned by eProInn;
- A 23% decrease in the time needed to go from 0 to 100 km/h and improved adherence on the front wheels through the integration of the wheel motors, which turns the vehicle into a 4x4 drive;
- Creation of a business plan and organisational structure for a commercial joint venture between the project partners. This new company will be operational within 6-12 months of the end of the project;
- Commercial and licencing agreements with an original equipment manufacturer (OEM) and after-market representatives through Landi Renzo and Solbian networks, with at least 1 300 distribution points in the EU, and the engagement of at least one car fleet owner; and
- At least two agreements in Malta with public or private transport companies and insurance firms through a dedicated framework contract.

Results

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Environmental issues addressed:

Themes

Air & Noise - Air pollutants

Climate change Mitigation - Renewable energies

Keywords

transportation mean, greenhouse gas, energy supply, electric vehicle

Target EU Legislation

- Climate Change & Energy efficiency
- Directive 2009/28 - Promotion of the use of energy from renewable sources (23.04.2009)
- Directive 2009/33 - Promotion of clean and energy-efficient road transport vehicles (23.04.2009)
- Air
- Directive 2008/50/EC - Ambient air quality and cleaner air for Europe (21.05.2008)
- COM (2013/0918) - A Clean Air Programme for Europe (18.12.2013)

Natura 2000 sites

Not applicable

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Beneficiaries:

Coordinator	Mecaprom Technologies Corporation Italia Srl
Type of organisation	International enterprise
Description	Landi Renzo provides alternative fuel systems and components for cars, in particular LPG (liquefied petroleum gas) and CNG (compressed natural gas). The company's research and development is aimed at encouraging the use of alternative fuels that are cheaper and which respect the environment.
Partners	SOLBIAN ENERGIE ALTERNATIVE SRL, Italy EPROINN Srl, Italy

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Administrative data:

Project reference	LIFE16 ENV/IT/000442
Duration	01-SEP-2017 to 31-AUG -2020
Total budget	3,294,332.00 €
EU contribution	1,814,187.00 €
Project location	Piemonte(Italia) Valle d'Aosta(Italia) Liguria(Italia) Lombardia(Italia) Trentino-Alto Adige(Italia) Veneto(Italia) Friuli-Venezia Giulia(Italia) Emilia-Romagna(Italia) Toscana(Italia) Umbria(Italia) Marche(Italia) Lazio(Italia) Campania(Italia) Abruzzo(Italia) Molise(Italia) Puglia(Italia) Basilicata(Italia) Calabria(Italia) Sicilia(Italia) Sardegna(Italia) Malta(Malta) Extra-Regio(Malta) Mediterr. Malta (M)(Malta)

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