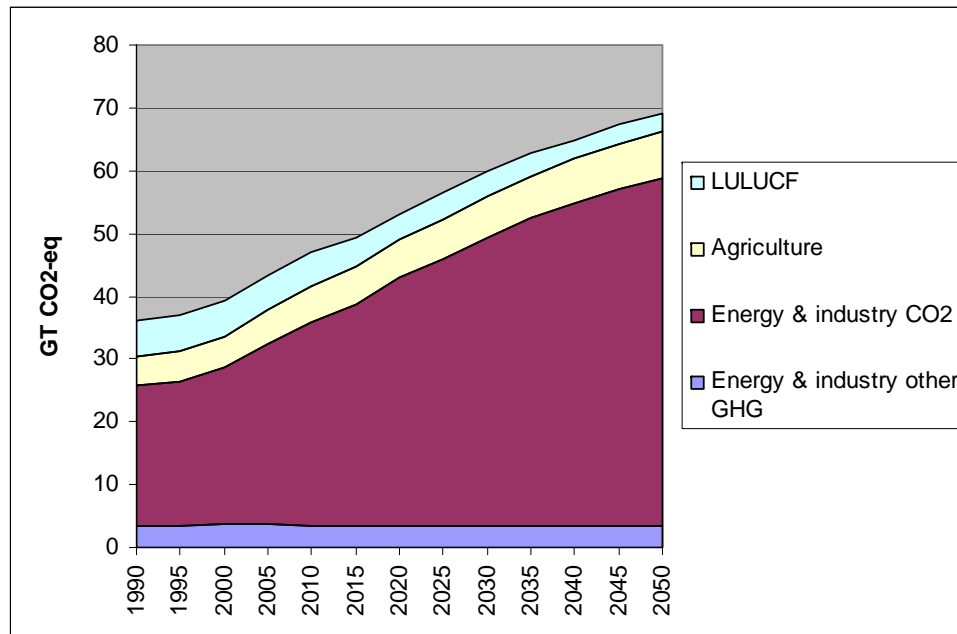


Joint Research Centre – Institute for Energy

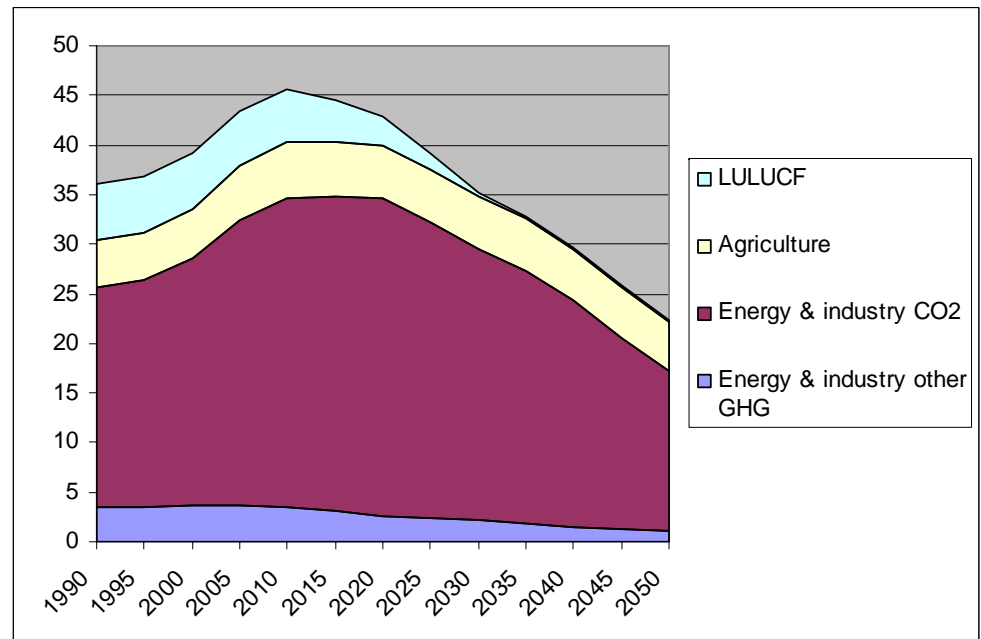


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Baseline



Limiting climate change to 2 C

Source: POLES (JRC-IPTS, Uni Grenoble), G4M (IIASA, Austria), Image (PBL)

Global emissions, excluding “Land Use, Land Use Change and Forestry” (LU LUCF), increase by 57% over the period 1990-2020. They increased in the modelled baseline by 23% over the period 1990-2005 and are projected to increase by a further 28% over the period 2005-2020.

EU Key Climate and Energy Objectives for 2020

By 2020 -20% **EU GHG**

By 2020 +20% **ENERGY SAVING**

By 2020 binding 20% **RENEWABLES** in final energy consumption at EU level

RES in transport
Min 10% binding

ELECTRICITY
MS binding choice

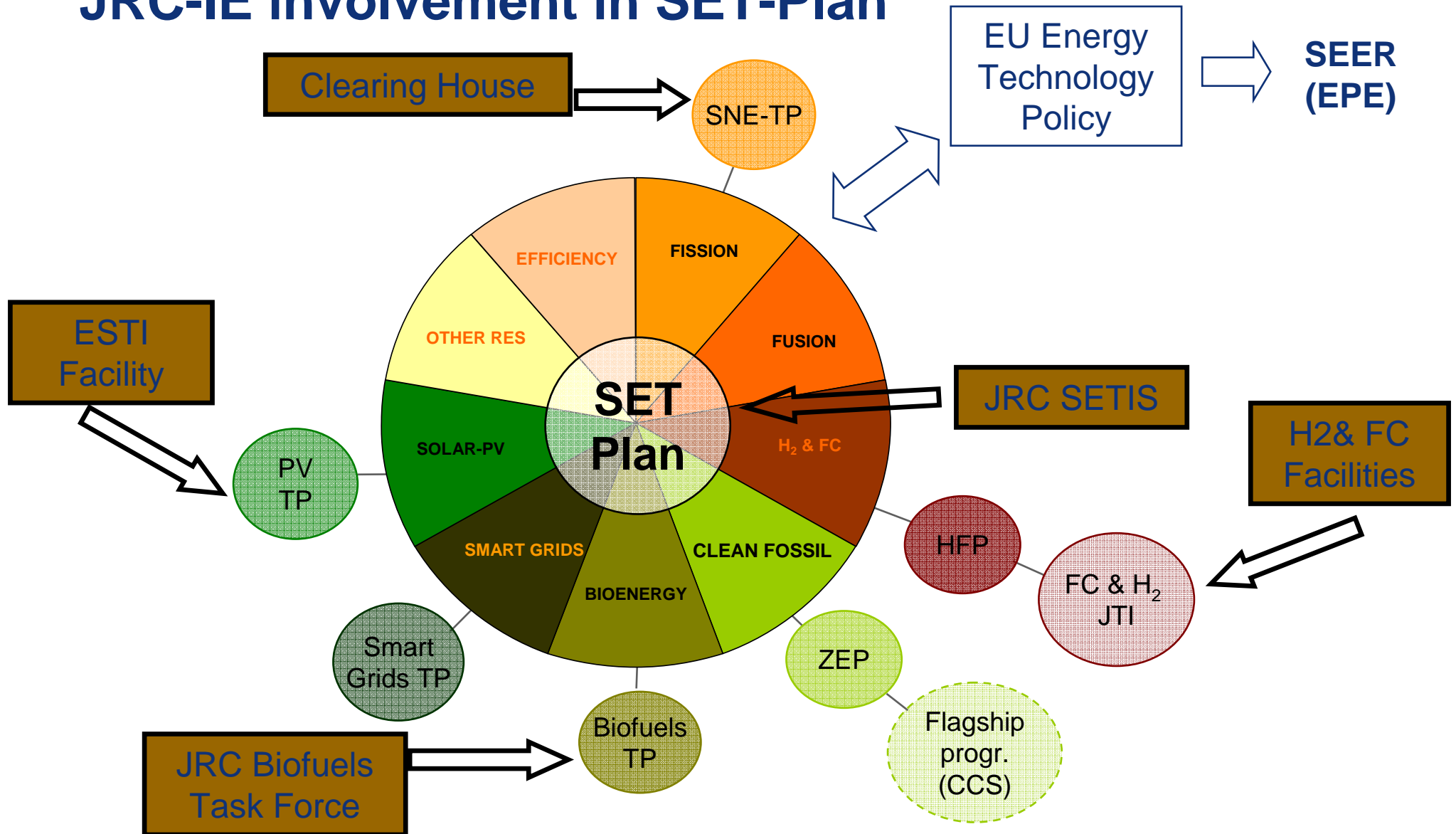
HEATING & COOLING
MS binding choice

NATIONAL TARGETS & ACTION PLANS

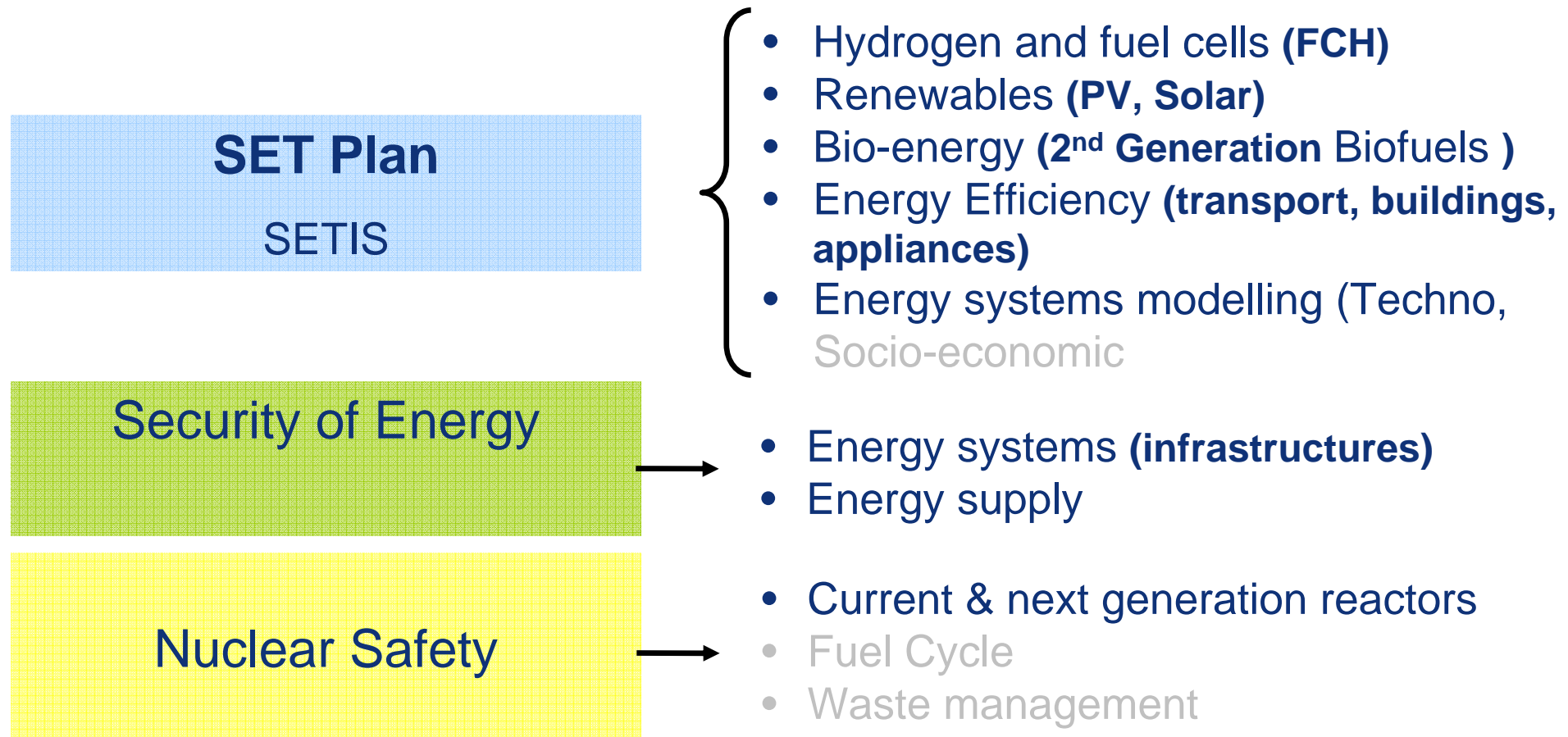
The SET-Plan Communication - COM(2007)723 - was adopted by the Commission in November 2007, and endorsed by the European Council on 13 March 2008.

- **Joint strategic planning – European Community Steering Group and Information System**
- **Effective implementation:**
 - ✘ **European Industrial Initiatives: strategic technology alliances**
 - ✘ Wind, CCS, Solar, Bio energy, Nuclear Fission, Grids
 - ✘ **European Energy Research Alliance (EERA)**
 - ✘ **Trans-European Energy Networks and Systems of the Future – transition planning**
- **Increase in resources, both financial and human**
 - **Low carbon Financing Communication October 2009.**
- **Reinforce international cooperation**

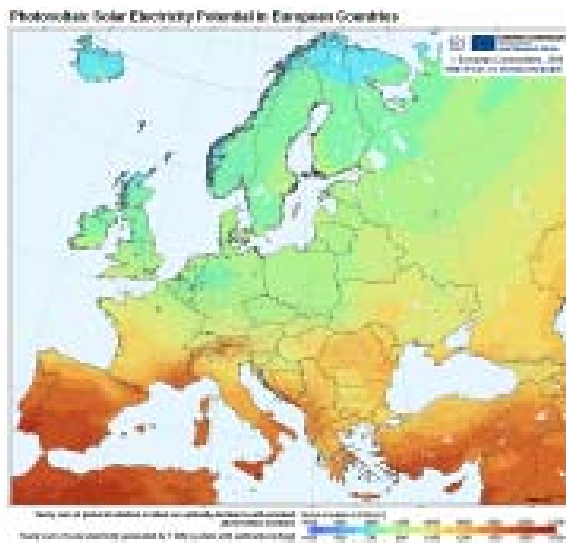
JRC-IE involvement in SET-Plan



Focus of JRC Research in the Energy Landscape



- European reference lab for PV performance
- ISO 17025 accreditation, with full traceability to SI units and best-in-class uncertainty levels



Facilities:

- 6 indoor solar simulators for performance evaluation of cells and modules
- 2 climatic chambers for lifetime testing
- Large outdoor test field, including tracking systems, building-integrated PV and meteo tower
- PV-GIS solar resource analysis tool

Market value of $\pm 1\%$
uncertainty:

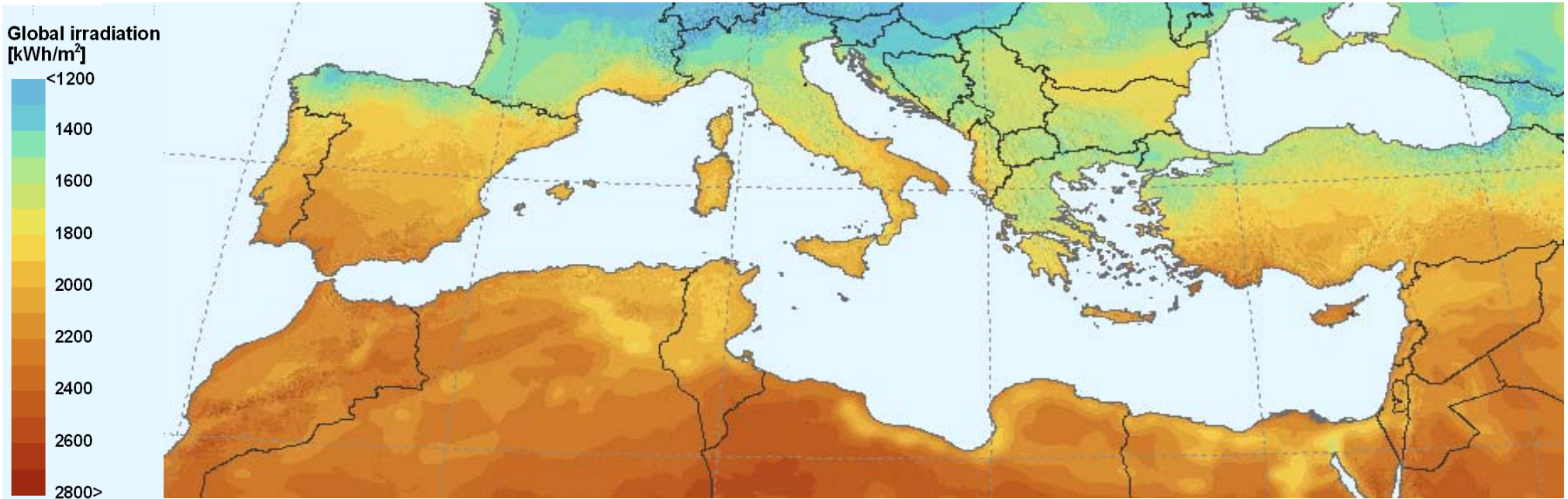
2007: ± 240 Mio€

2010: ± 1050 Mio€

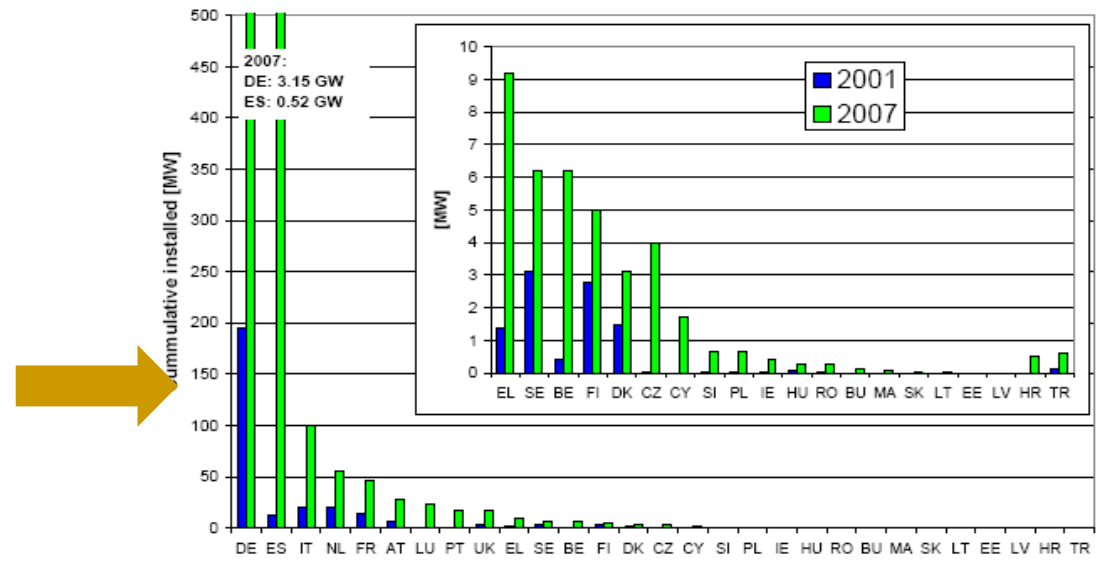
**) assuming worldwide production/capacity
figures and an average price of 3€/Wp*



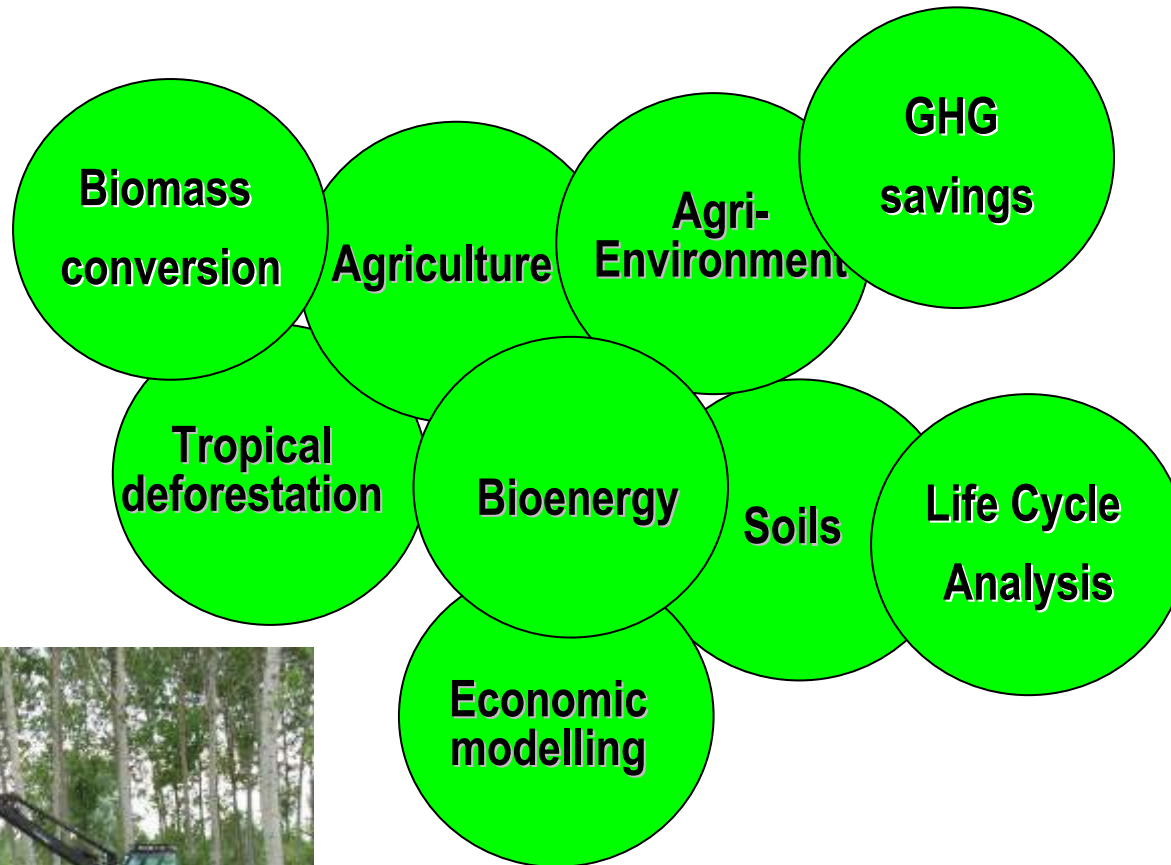
**Consumers and industry rely on accurate
performance measurement**

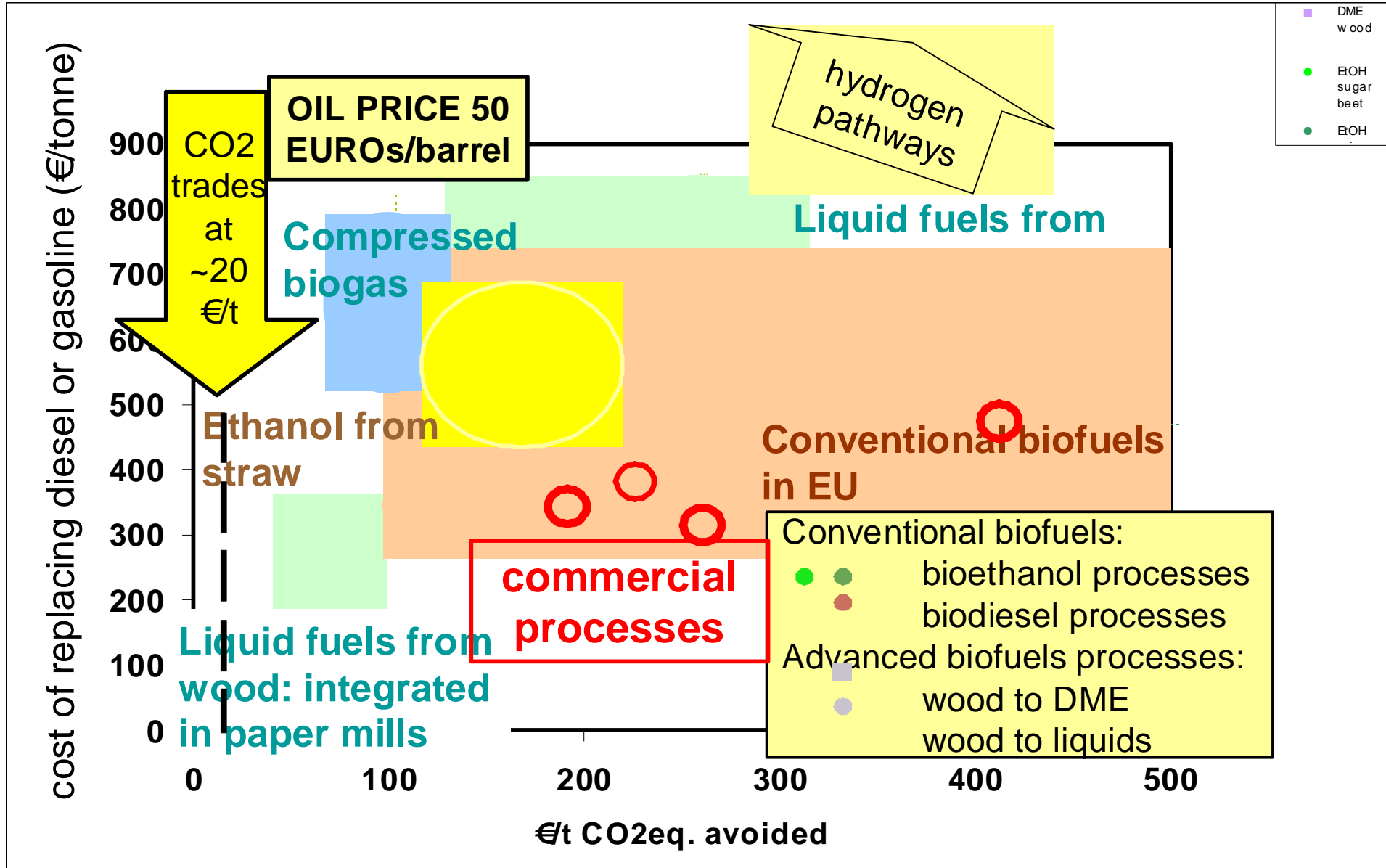


- PV-GIS : Solar Resources as compiled by JRC using satellite and land measurements.
- Cumulative PV installed capacity in EU Member States



Aim: provide technical support on the most relevant policy issues, bringing together key scientists from various JRC institutes





Biofuels: Well-To-Wheel Analysis

Issue:

Well-To-Wheels Analysis of different Fuel/Vehicle concepts.

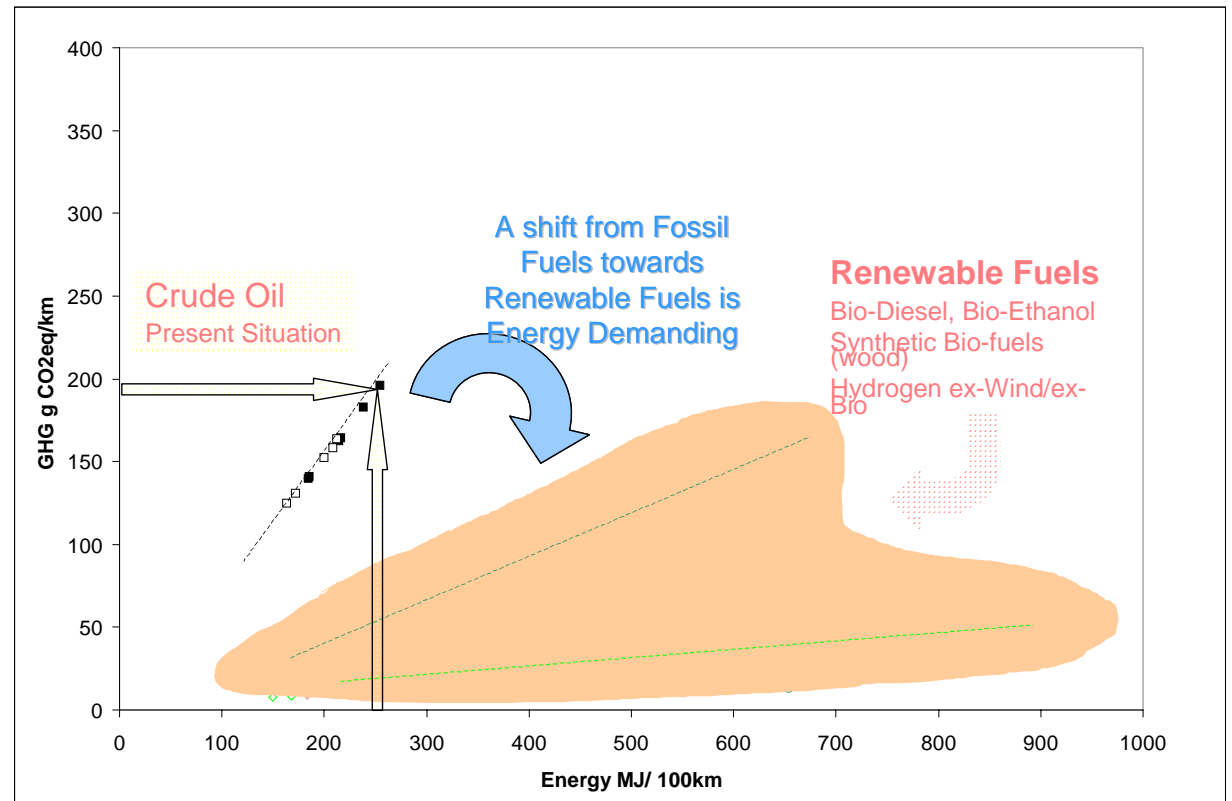
JRC Work:

JRC/EUCAR/CONCAWE have developed a broad study on present and future fuel/vehicle combinations to calculate their greenhouse-gasses emissions, energy consumption and associated costs.

Impact:

Commission DGs (TREN, AGRI, ENV, RTD, ECFIN)
 European Parliament, Member States, IEA, EEA
 Industry (ENGVA, eBio, EBB,...)

The report is available online: <http://ies.jrc.ec.europa.eu/WTW>

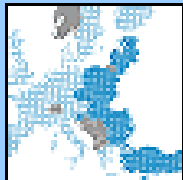




End-use Energy Efficiency <http://re.jrc.ec.europa.eu/energyefficiency/>



Scientific & Technical Reference
on Renewable Energy and End-use Energy Efficiency



1. Data gathering and monitoring of end-use efficiency in buildings in MS and Candidate Countries



2. Policy Analysis

- Energy Service Companies
- Financing Efficiency and ESCOs
- Support for EU energy efficiency policies and action plans (white certificates)

4. EC voluntary programmes



MotorChallenge



GreenBuilding



GreenLight

3. Codes of Conduct & Energy Star



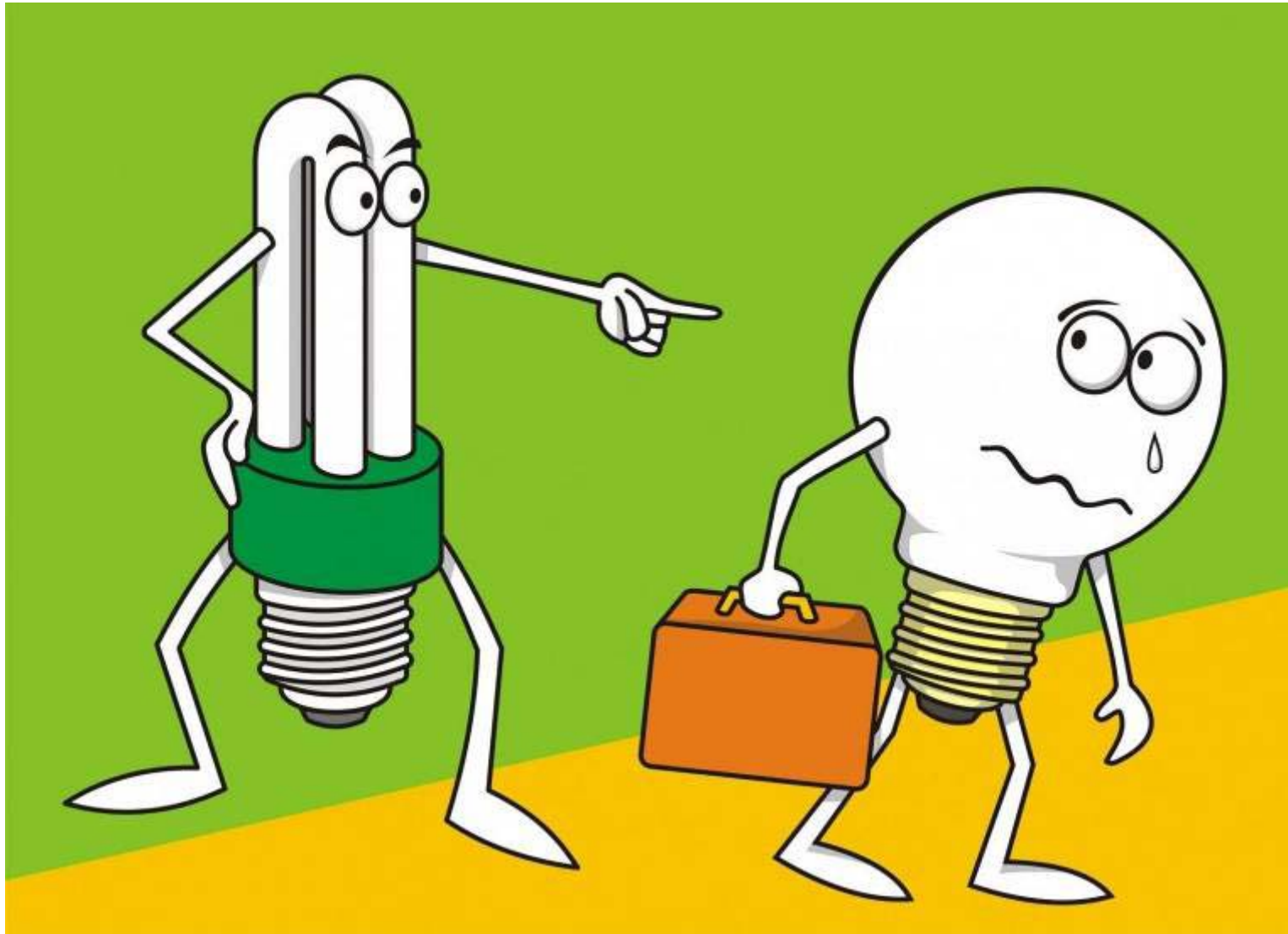
EU actions to improve energy efficiency on electrical equipment while either off and stand-by, focus on ICT and Data Centres

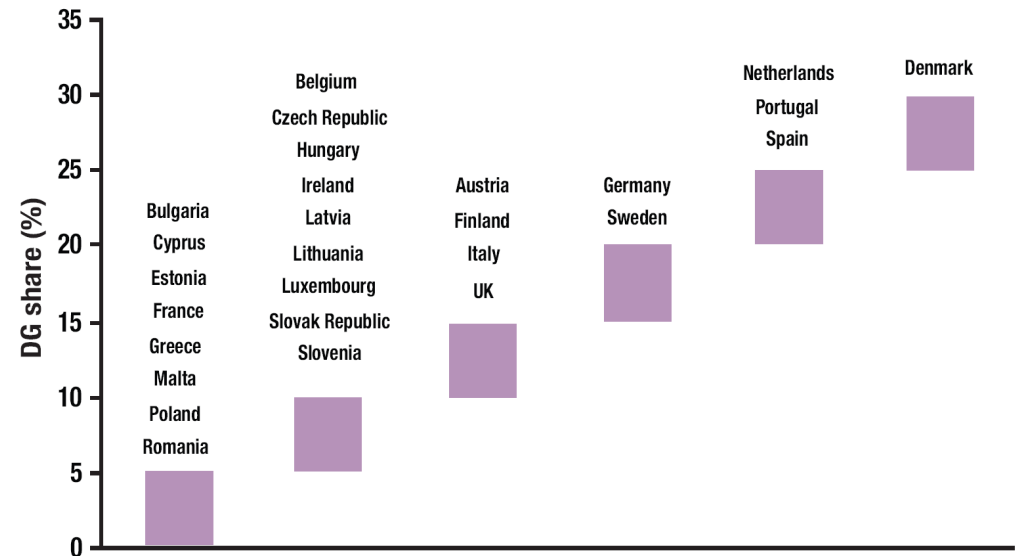
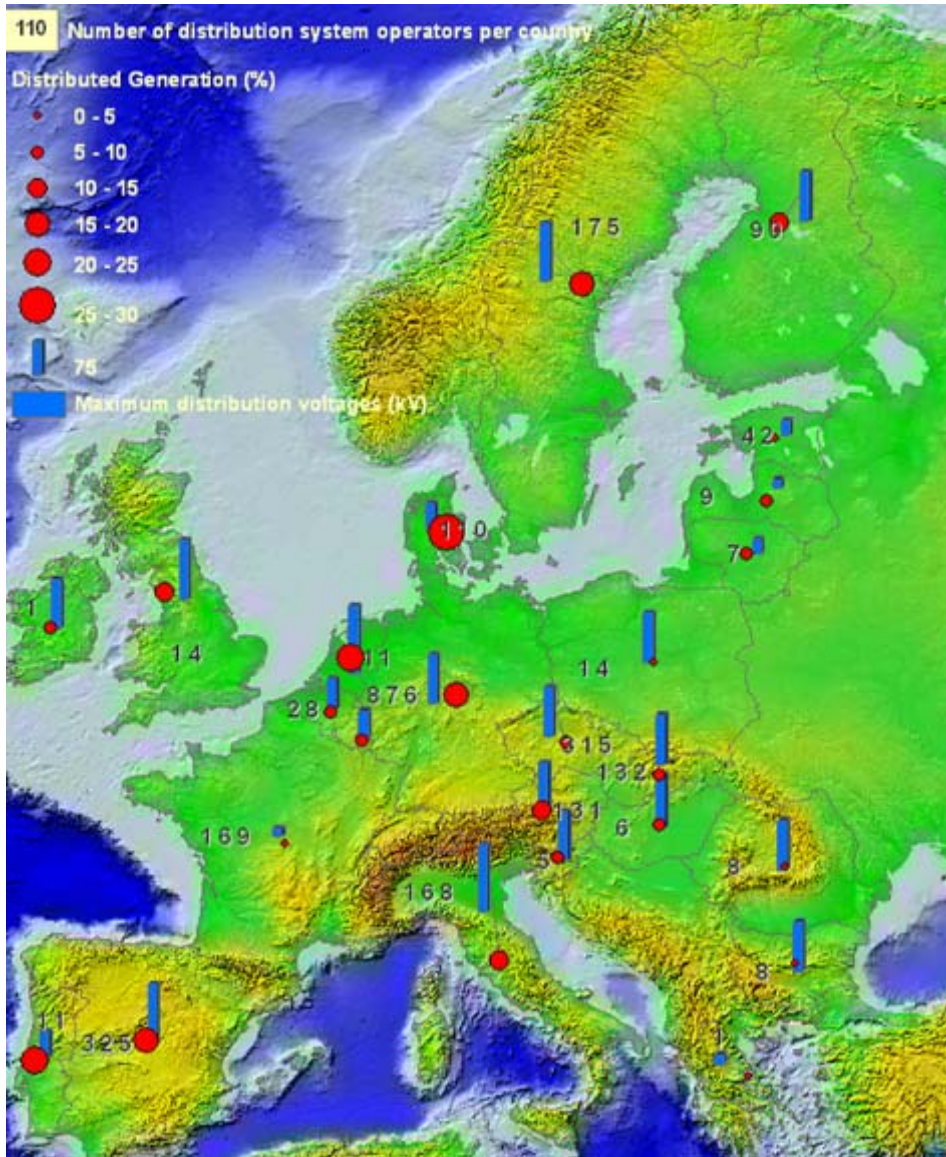
..but improvements in efficiency are offset by additional consumption



Including standby consumption







- Distribution grids penetrated by growing DG (esp. RES & CHP) pushing the evolution towards **smartgrids** (i.e. more active & transmission-like architectures)

Main Energy source: Oil.

- Renewable **10%** renewable energy as % of total energy consumption by **2020**

Energy Sources potential or being developed

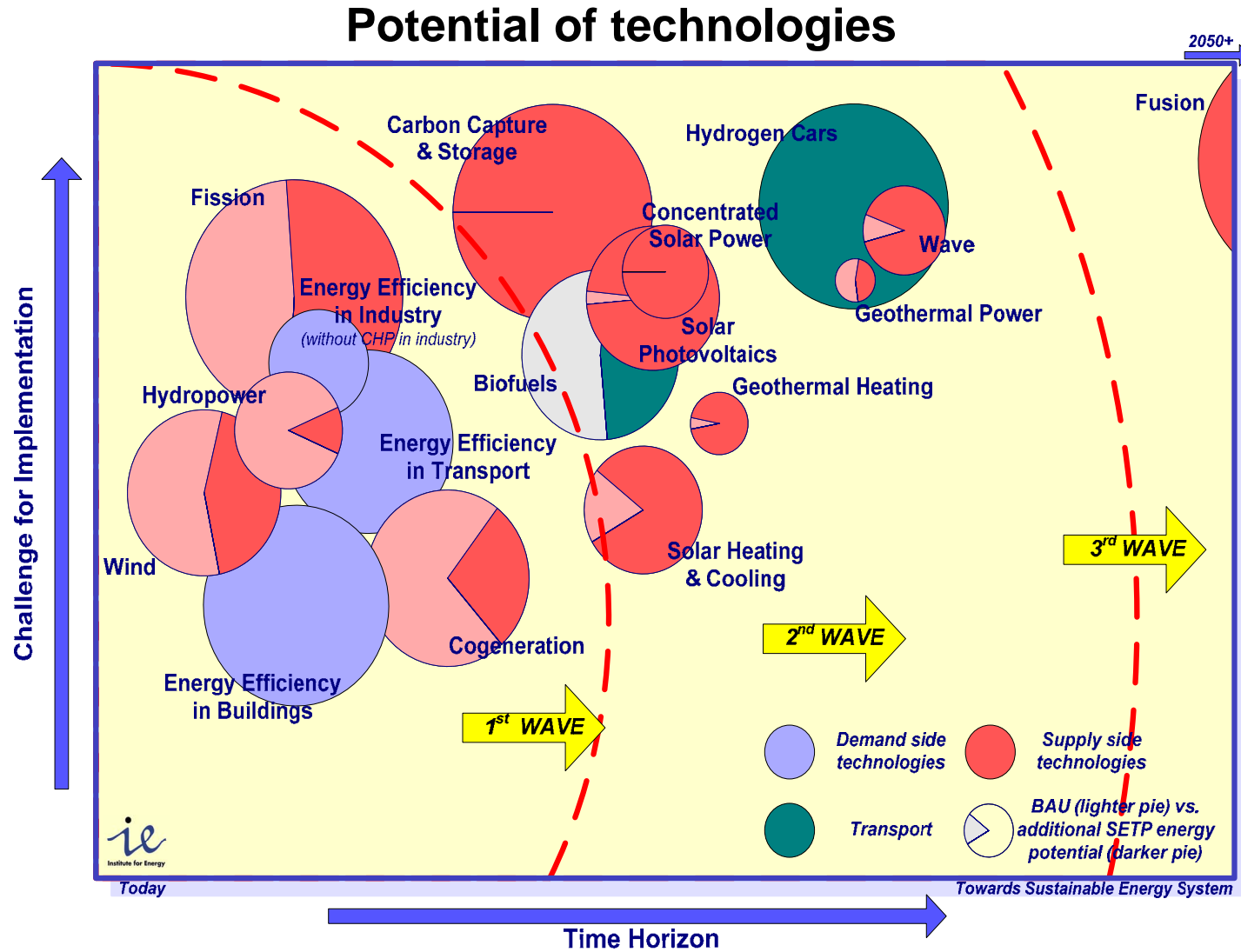
- Wind
- PV/ Solar thermal
- Biomass
- Energy Efficiency
 - High energy intensity
 - EE action plan to save 189-225 GWh by 2016.
- Energy Grid:
 - Grid to integrate RES.



The Information System of the SET-Plan



- SET-Plan technology priorities - 2007 Technology Map
- Technology roadmaps, as the basis for implementation
- Current R&D investment gap - 2009 Capacities Map.
- Key reference values for operational and economic performance of the technologies as an input to the definition of KPIs – vital for review and monitoring of the SET-Plan effectiveness and impact



Graphic illustration of the JRC technology map of the SET Plan

Thank you for your attention



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