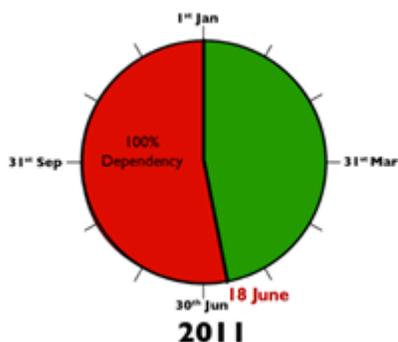


# EUSEW 2014 - executive summary

## **Buildings energy efficiency (nZEB, PEB, EPC, EPBD implementation)**

The main events related to the energy efficiency of buildings targeted the following: a policy for security of supply, the intelligent design of integrated policy packages, tools (e.g. Energy Performance Certificates - EPCs) to unlock the huge cost-effective energy savings potential, Positive Energy Buildings (PEB), creation of a pan-European EPC database, energy efficiency in the tourism sector and the impact of weak institutions and corruption on energy investment in South-East Europe.

The **energy security of the EU** and the independency of the gas imported from Russia becomes even more and more **key challenge** for Europe. The so called (by EuroACE) **energy dependency day** falls on June 18th.



For **each day of energy dependency** the EU **spends more than 1 billion € on energy imports**. Thus, energy efficiency is the cornerstone for EU's future twofold: ensure energy security and achieve a sustainable energy system.

Proper implementation as well as ambitious modifications of the relevant Directives (especially EPBD - revision before 2017, EED - revision 2014, RED) should be ensured in order to reach the 2030 climate and energy policy.

Positive energy buildings are a built reality. However, until then a strong and fast penetration of nZEBs within the existing national building stocks is a must. Tools such as EPCs (pan-European EPC database) have great potential to increase the number of nZEB.

Efforts to achieve nZEB-targets have to be intensified EU-wide:

- In most EU Member States (MS) current policies are not sufficient to achieve ambitious targets;
- Long-term (2050) roadmaps and visions are required to identify the key challenge in the building sector;
- Scenario-calculations of policy sets (quantitative ex ante policy analysis) can help to structure the discussion, anticipate possible effects and to select effective policies;
- Stakeholder-dialogue is essential for successful policy implementation;
- Policy packages tailor made for target group specific needs are required to address the heterogeneous barriers in the building sector.

## **Product energy efficiency (energy label/Ecodesign)**

The main events related to heating and cooling targeted the following: the way forward for European Energy Efficient Product Policy, Europe's energy label: Modernising the success story and pan-EU conformity assessment of energy related products.

The continuation of energy labelling (Ecolabel) and Ecodesign is of significant contribution to the 2020 targets for energy efficiency and greenhouse gas reductions. **Regulations must be enforced by developing market surveillance.**

The creation of **one pan-EU Ecodesign and Ecolabel standard**, not 28 fragmented national ones, is **promoted** to create a **level playing field** and **single market for products**, thus a **unified market surveillance authority** could be set up to coordinate in a harmonised way the national authorities.

After the success story of lighting energy labelling **Philips stands behind this approach**. Due to the technology advances new energy classes had to be defined i.e. **A+, A++, A+++**. This measure has created **confusion among consumers**. The amendment of the energy labels is promoted to take into consideration **A to G classes** for which the **energy range shall be shifted when the time comes**. Even the **digital version of the energy label** was brought on the discussion table with examples from already developed apps (provide help in selecting the most energy-efficient home appliance) in EU funded projects.

A **pan-European verification of product compliance to EU legislative requirements** is not only feasible and affordable within a reasonable time frame, but is also **fundamental in supporting the European Commission and the EU Member States in monitoring compliance** with the EU Directives and in regularly reporting to the European Parliament and the Council.

## Heating and cooling

The main events related to heating and cooling targeted the following: a heating and cooling strategy for Europe and the challenge of energy transition in the supply of heating and cooling for consumers and industry.

**Heating and cooling plays an essential part in the EU's energy transition** towards an efficient, clean, decarbonised energy system and is central to realising the EU's objectives on sustainability, competitiveness and energy security by 2020, 2030 and beyond. **Heating and cooling used 969 Mtoe or 55% of the EU's total primary energy consumption of 1759 Mtoe in 2010.** The cost-effective potential of energy efficiency improvement in heating and cooling is significant and must be tapped in all sectors (households, services and industry) to **reduce the EU's import dependency, and to create a highly competitive yet sustainable economy in Europe.** The energy requirements of buildings, around 70-80% of which is currently used for space heating, hot water, cooling and air conditioning can be significantly reduced and supplied in more efficient ways. Large saving potentials exist also in the industrial and services sectors. Moreover, the **share of renewable energy in heating and cooling** is currently only around **15%** and must rise considerably in synergies with energy efficiency for the EU to meet its energy, climate and energy security objectives.

**For cities district heating and cooling (DHC) is foreseen as the path to achieve the highest energy efficiency and highest integration of renewables.** This is due to difficulty in retrofitting existing buildings with high level of renewables in cities (German example: at **national level 12%** of energy use is covered from renewable energy sources RES, where at **city level only 1%** of energy use is covered from RES). By exploiting the **synergies** between district heating and cooling systems with e.g. **cogeneration (CHP) & smart grids, large scale heat pumps, large scale solar thermal and large scale biomass boilers** the effects can be multiplied significantly. Best practices and case studies at country level (e.g. Denmark - **2010 60% CHP in electricity supply & 80% CHP in district heating supply**), city level (e.g. DHC London, DHC Rotterdam) and large scale renewables integration with DHC prove the feasibility of this approach on the long term.

Scenarios and milestones set by European countries see DHC & CHP as the key to the energy transition e.g.

- **Germany's EnergieWende & 2020 target 25% of electricity from CHP & foreseen scenario 2025 - end of oil boilers, 2035 end of gas boilers, 2035 onwards - DHC + CHP & large scale renewable;**
- **Denmark's Government milestones: 2030 - coal phased out, 2035 - electricity and heat 100% from RES, 2050 - all energy flows/supply 100% RES.**

## Electricity grids

The main events related to electricity grids targeted the following: tools to support the European Electricity Grid Initiative and the roll-out of smart grids.

The **European Electricity Grid Initiative (EEGI)** is one of the European Industrial Initiatives under the **Strategic Energy Technologies Plan (SET-PLAN)** and proposes a 9 year **European research, development and demonstration (RD&D)** programme to accelerate innovation and the development of the **electricity networks of the future in Europe**.

**GRID+** is the latest Coordination and Support Action which has been created for providing **operational support for the development of the EEGI**. This EU funded project addresses the five remaining critical issues regarding electricity systems: **costs, benefits, KPIs, knowledge sharing and financing involving all stakeholders**. This ensures a rational, fluid and stable EEGI workflow in order to safely reach the 2020 European goals. An **EEGI labelling** has been initiated for acknowledging that a specific project is **in line with the spirit of the EEGI** and the EEGI Functional Objective as specified in the EEGI Research and Innovation Roadmap. Closely linked to the EEGI label a **GRIDInnovation-on-line library** was created that offers an innovative and structured approach for **delivering the new knowledge generated from innovative smart grid projects**.

In the EEGI Roadmap the expected outcomes and impacts are clearly presented as follow:

- **Outcomes for the network system innovation players by 2022:**
  - **Improve planning approaches** for both transmission and distribution operators;
  - **Improve real time coordination** techniques during daily operations at transmission level;
  - **Demonstrate potential capabilities for large scale aggregation of small load and generation;**
  - **Improve the interaction** between operators in the distribution network at Medium and Low Voltage level;
  - Recommend for **continuously improved market designs;**
  - Make technical recommendation for the **deployment of demand response** in line with the market design options.
- **Expected impacts for the Society before 2030:**
  - To **optimize the capital investment** and OPEX intensity needed to increase the network capacity for grid-users;
  - To **pave the way for a fully decarbonised system** (extremely large share of renewable electricity production in the EU);
  - To **share the new knowledge** (scalability and replicability of technical innovation).

The **biggest smart grid project funded by the EU €25 M** (€54 M overall) is called **GRID4EU**. It started in 2011 and it is planned to end in the beginning of 2016 and consists in a **large-scale demonstration project of advanced smart grids solutions with wide replication and scalability potential for Europe**. It includes among other partners 6 European energy distributors (ERDF - France, ENEL Distribuzione - Italy, Iberdrola - Spain, CEZ Distribuce - Czech Republic, Vattenfall Eldistribution - Sweden and RWE - Germany).