# EU strategy on heating and cooling

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PURPOSE: to present an EU strategy on heating and cooling systems in buildings and industry.

BACKGROUND: developing a strategy to make heating and cooling more efficient and sustainable is a priority for the Energy Union.

- With **50% of final energy consumption in 2012**, heating and cooling is the EU's biggest energy sector. It is expected to remain so. **Renewables accounted for 18%** of the primary energy supply for heating and cooling in 2012, while fossil fuels accounted for 75%.
- 45% of energy for heating and cooling in the EU is used in the residential sector, 37% in industry and 18% in services. The Commission stated that each sector has potential to reduce demand, increase efficiency and shift to renewable sources.

**Buildings** (and people living in them) are the first consumers of heating and cooling. Space heating accounts for more than 80% of heating and cooling consumption in colder climates.

However, in Europe **old buildings** cause various problems:

- almost half of the EU's buildings have individual boilers installed before 1992, with efficiency of 60% or less;
- 22% of individual gas boilers, 34% of direct electric heaters, 47% of oil boilers and 58% of coal boilers are older than their technical lifetime.

**Industry** accounted for a quarter of the EU's final energy consumption in 2012. 73% of this is used for heating and cooling. European industry has cut its energy intensity twice as fast as the US since 2000. The improvement rate is steeper in energy intensive sectors The reason is clear: energy is an important cost. By putting a price on CO2 emissions, the EU Emissions Trading Scheme has provided an incentive to use low carbon fuels and to invest in energy efficiency.

Significant potential remains. Using existing technologies, it is possible to reduce energy costs in industry by 4-10% with investments that pay for themselves in less than 5 years. However, the visibility of energy savings is low.

Consumers must be at the centre of this strategy, **using modern technologies and innovative solutions** to shift to a smart, efficient and sustainable heating and cooling system that can unlock energy and budgetary savings for companies and citizens, improve air quality, increase well-being for individuals and provide benefits to society as a whole.

CONTENT: this strategy provides a framework for **integrating efficient heating and cooling into EU energy policies** by:

- focusing action on stopping the energy leakage from buildings;
- maximising the efficiency and sustainability of heating and cooling systems;
- supporting efficiency in industry;
- reaping the benefits of integrating heating and cooling into the electricity system.

**Tools and solutions**: heating and cooling are produced locally in markets that are fragmented. Tackling the obstacles to more efficient and sustainable heating and cooling will require action at local, regional and national level, within a supportive European framework. The Commission invites Member States to:

- **review their property laws** to address how to share gains from energy improvements in private rented properties between landlords and tenants, and how to share benefits and costs among residents of multi-apartment buildings;
- ensure that a share of energy efficiency funding is dedicated to **improvements for energy-poor households** or (as a proxy) for those living in the most deprived areas, for example, by investing in energy-efficient heating and cooling equipment;
- work with stakeholders to raise consumer awareness of household energy efficiency aspects;
- stimulate the take-**up of the recommendations** of company energy audits;
- **support local and regional actors** who can improve the bankability of investments through 'bundling' individual projects into bigger investment packages.

**Buildings**: the Energy Performance of Buildings Directive (EPBD) lays down a framework for improving the energy performance of Europe's building stock. However, the rate of building renovation is low (0.4 to 1.2% per year). As part of the **review of the EPBD (including REFIT component) in 2016**, the Commission will look into **strengthening the reliability of energy performance certificates** and reinforcing their signals for renewable energy.

The Commission will examine:

- developing a toolbox of measures to **facilitate renovation in multi-apartment buildings**;
- promoting proven energy efficiency models for publicly owned educational buildings and hospitals;
- using inspections of boilers to provide information on the efficiency of existing heating and cooling systems;
- facilitating the market uptake of voluntary certification schemes for non-residential buildings.

The Commission will also look into:

- strengthened feedback to consumers through advanced metering and billing;
- making **advanced tools** for metering, control and automation based on real time information standard requirements for service sector buildings;
- empowering consumers to participate in demand response, thus saving them money.

**Renewable-based and efficient heating and cooling** : in the reviews of the Energy Performance of Buildings Directive (EPBD), the Energy Efficiency Directive (EED) and the Renewable Energy Directive, the Commission will look into:

- promoting renewable energy through a comprehensive approach to speed up the replacement of obsolete fossil fuel boilers with efficient renewable heating and increasing the deployment of renewable energy in district heating and CHP;
- supporting local authorities in preparing strategies for the promotion of renewable heating and cooling;
- setting up a website with price comparison tools on the lifetime costs and benefits of heating and cooling systems.

**Smart systems**: smart grids, smart metering, smart homes and buildings, self-generation and thermal and electrical and chemical storage need to be promoted by a modern market design.

As part of the Electricity Market Design, Renewable Energy Directive and EED reviews, the Commission will look into:

- rules to integrate thermal storage (in buildings and district heating) into flexibility and balancing mechanisms of the grid;
- incentivising citizen participation in the energy market through decentralised production and consumption of electricity;
- incentivising the uptake of renewable energy in heat production, including CHP;
- incentivising the take-up of fully interoperable smart buildings solutions, systems and appliances.

The Commission will: (i) intensify cooperation with European consumer associations; (ii) extend the work of the BUILD UP skills campaign to improve training for building professionals, in particular through a new module for energy experts and architects; (iii) set up sectoral round tables with industry and develop benchmarks/guidance for best practice on energy efficiency and renewable energy.

**Innovation**: under the Strategic Energy Technology Plan, the Commission will:

- promote renewable and waste heat based cogeneration of heat and power;
- examine new approaches to low temperature heating in industry;
- develop advanced materials and industrialised construction processes with the construction sector and leading institutions in materials and industry.

Research, innovation and demonstration actions funded by Horizon 2020 will also support the EU strategy on heating and cooling. In addition, the Commission will support the use of the European Structural and Investment Funds (ESIF) for the implementation of the national and regional heating and cooling-related smart specialisation priorities.

**Financing**: under the '**Smart Finance for Smart Buildings**' initiative the Commission will:

- test a framework for underwriting procedures for financial institutions to incorporate impacts of energy efficiency in everyday market practice;
- encourage Member States to establish one stop shops for low-carbon investments (encompassing advisory services, Project Development Assistance and project financing);
- encourage retail banks to offer products adapted for renovation of privately rented buildings (e.g. deferred mortgages, term loans) and disseminate best practices, also in relation to tax treatment of renovation.

The Commission called on the European Parliament and the Council to endorse this strategy.