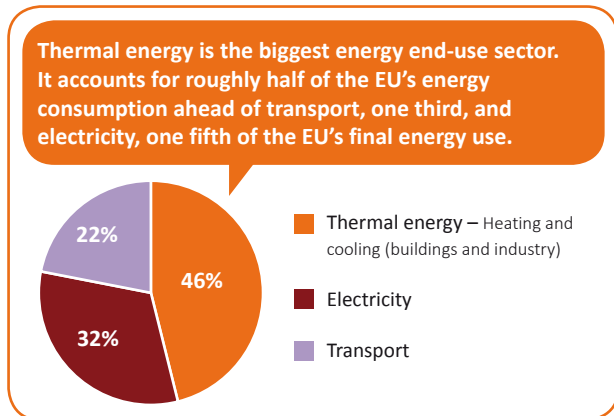


Heating systems and their energy use



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Europe consumes half of its energy for Heating and Cooling in buildings and industry. Most of this thermal energy is produced from fossil fuels. Only 15% comes from Renewable Energies! (<http://heating-and-cooling-in-europe.eu/>)

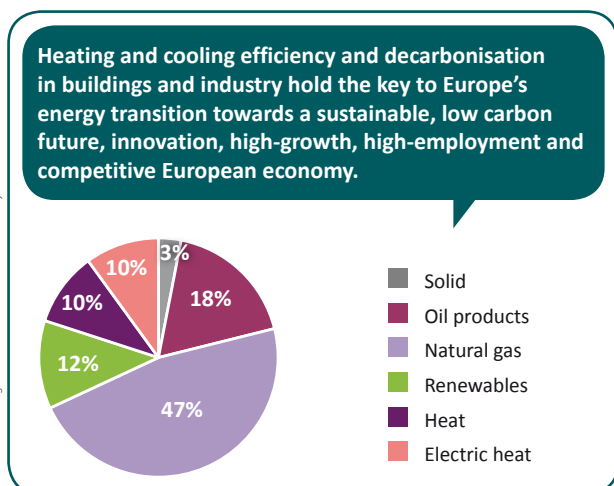


the last two decades, during which most of the energy performance improvement took place. Buildings from before 1920 and from the 50–60s consume five to ten times more for heating than today's buildings' typical range of 34–125 kWh/m².

Buildings consume more than two thirds of the thermal energy in Europe. Around 60% of buildings' heat is produced from natural gas. Reducing buildings' energy demand and switching to renewable, low-carbon energy would not only help meet Europe's climate goals, but also save money for consumers, increase Europe's security of supply and lower industry's exposure to high and volatile prices of imported gas and oil.

In residential and service sector buildings most of the heating and cooling is produced from natural gas and oil. Electricity and district heat each supply around one tenth of heat. Renewable heat in buildings is only 12% of the heat from individual appliances, but a somewhat higher proportion of district heat is also counted.

Distribution of EU28 total end-use heat demand for space heating and domestic hot water in residential & service sectors, by fuel type and energy carrier:



Source: Stratego EU28 Heat Market Assessment for year 2010.

Tackling buildings' 32.8 billion m² of heated and cooled surface area, two thirds of which is in residential sector, is a formidable challenge, due to the dispersed ownership and tenant structure, the large variety of building types, e.g. detached, semi-detached and apartment blocks in residential homes, and the split incentives between owners and tenants. Tackling this will require innovative financial instruments and the mobilisation of private investment through leveraging EU and Member States' public funds.

The EU Commissioner for Climate Action and Energy: Miguel Arias Cañete and many prominent speakers expressed and illustrated this view. Improving the thermal performance of buildings **and** improving the energy efficiency of the heating systems of the existing building stock is one of the main challenges of our heating industry. A huge potential of innovative, smart solutions also taking in account local and regional energy grids, relevant storing potentials and the local and nearby use and production of sustainable energy.

Buildings have an enormous energy efficiency and decarbonisation potential, because Europe's building stock is old and mostly inefficient, with almost 40% of homes built before 1950 or during the 50–60s' construction boom. Only 18% of buildings date from

This emphasises the importance of the heating systems standards currently being developed by CENTC 228 "Heating systems and water based cooling systems in buildings". These standards being imbedded in the overall modular structure of the EPB-standards support the innovation of heating systems as part of the future intelligent (smart) energy infrastructure. ■