

DECARBONISING

# HEATING & COOLING

EURELECTRIC'S PRIORITIES AND  
POLICY RECOMMENDATIONS



# WHAT IS EURELECTRIC'S TOOLKIT ON DECARBONISING HEATING AND COOLING?

EURELECTRIC's Toolkit on Decarbonising Heating and Cooling presents the power sector's priorities and key policy recommendations with regard to the different elements to achieve the decarbonisation of this key sector of the European economy, and the contribution of the electricity sector towards this goal.

In this context, we elaborate on the European power sector's key policy objectives for the decarbonisation of the heating and cooling sector, with explanations regarding our rationale behind such objectives.

We also outline what we see as the key drivers and enablers to achieve this objective: The relevant policies, instruments and mechanisms that should be reformed, adopted and implemented.

## ACKNOWLEDGEMENTS

This EURELECTRIC Toolkit has been prepared by the Working Group Energy & Resource Efficiency, the Working Group Climate Change and the Working Group Retail Market Design. We are grateful to the Members for their valued participation and contribution.

**The Union of the Electricity Industry – EURELECTRIC** – is the sector association representing the common interests of the electricity industry at pan-European level. Our work covers all major issues affecting our sector, from electricity generation and markets, to distribution networks, customers, as well as environment and sustainability issues. Our current members represent the electricity industry in over 30 European countries, including all EU Member States. We also have affiliates and associates on several other continents.

Our structure of expertise ensures that input to our policy positions, statements and in-depth reports comes from several hundred active experts working for power generators, supply companies and distribution system operators.

We have a permanent Secretariat based in Brussels, which is responsible for the overall organisation and coordination of EURELECTRIC's activities.

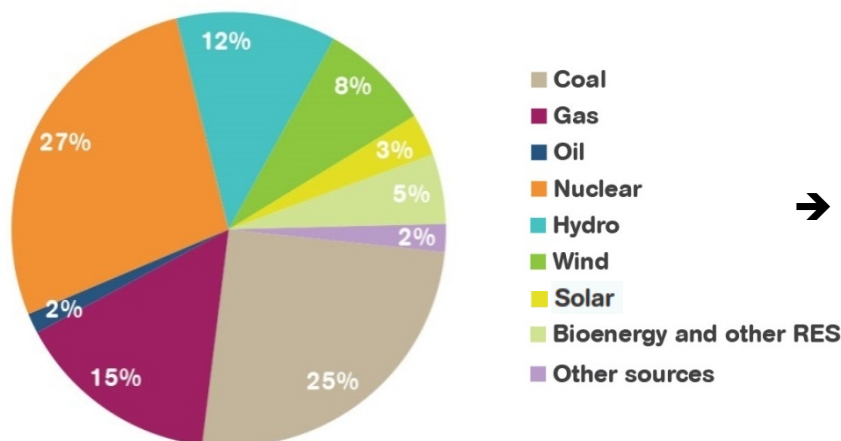
## Decarbonising Heating & Cooling through Electrification

With **75% of energy consumed for heating and cooling still causing greenhouse gas (GHG) emissions in 2014**, decarbonising this sector presents a significant challenge. To fulfil the EU's climate and energy goals, the heating & cooling sector must sharply reduce energy consumption and its use of fossil fuels.

**The power sector has already come a long way in its transformation towards low carbon generation:** In 2014, the power sector generated 55% of all the EU's electricity from low carbon sources and the share is increasing (see graph below).<sup>1</sup> As the power sector pursues carbon-neutrality by 2050, electricity becomes the obvious choice for driving the decarbonisation of the heating and cooling sector.

Decarbonising buildings will entail renovating the existing building stock, strong efforts in energy efficiency, and a key role for decarbonised electricity. Buildings can use automation and controls to serve their occupants better, as well as to provide flexibility for the electricity system through reducing and shifting demand, and thermal storage.

**EU POWER GENERATION MIX IN 2014 (TWh)**



→ 55% low carbon electricity generation in 2014

### Overcoming Barriers and Unlocking Catalysts for Sustainability

With key energy efficiency legislation up for review in the coming months, EURELECTRIC believes that the EU should aim to decarbonise heating and cooling by tightly interlinking it to the decarbonising electricity system. **The upcoming review of the Energy Efficiency Directive (EED), the Energy Performance of Buildings Directive (EPBD), as well as legislation on a European electricity market design**, gives EU policymakers an important opportunity to take the necessary steps to deliver on this objective.

EURELECTRIC puts forwards the following recommendations and outlines the policy actions required to achieve the significant decarbonisation potential of electrified heating & cooling in the upcoming legislative reviews:

<sup>1</sup> Source: EURELECTRIC: Power Statistics and Trends: The five dimensions of the Energy Union, December 2015.

- **Improving financing tools.** Investments are essential and have been identified by stakeholders, including EURELECTRIC, as an area where improvement is needed. Triggering investments by homeowners and investors is the decisive point. It will be crucial to fully utilise innovative financing solutions and provide easier access to finance. **A key instrument to achieve this will be the review of the EED and the Smart Financing initiative.**
- **Cleaning up the electricity bill.** Over the last 8 years, policy support costs (levies) that form part of the consumer’s electricity bill have increased by 170% for households on average. This represents a big obstacle to electrification. Support for power sector policies must be made less burdensome on the bill. **This is possible by removing policy costs from the bill, also for EED policy tools such as obligation schemes.**
- **Unlocking key technologies.** Many boilers in the EU are over 20 years old and very inefficient. To change this, EU policy needs to be built on consumer choice and markets which will unlock electric technologies will enable smart metering, flexibility, storage and higher RES penetration. **Market approaches are essential when reviewing the EED and Electricity Market Design.**
- **Applying a system perspective.** Policy priorities should recognise the impact that buildings have on the energy system they are connected to via local generation, local storage or demand response. This interaction should be optimised from the individual building as well as the system perspective. **This needs recognition when reviewing the EED and Electricity Market Design.**
- **Installing a forward-looking Primary Energy Factor (PEF) - the devil is in the detail.** Policy items, such as outdated & backward looking primary energy conversion factors severely undermine the attractiveness of electric technologies. The current PEF is extremely harmful to the competitiveness of important technologies such as electric heat pumps or smart heat storage, to the benefit of fossil heating technologies. We believe that a forward-looking approach to the PEF should be applied to recognise the transformation of the power sector. This is linked to the point of ‘unlocking technologies’. **The PEF must be revised in the EED, EPBD, EcoDesign and Labelling.**
- **Thinking and acting for the long term.** Decarbonisation of heating by 2050 can only be achieved by individually replacing equipment with non-emitting alternatives or connecting them to large decarbonised networks. Any fossil heating equipment installed today will emit GHG for over 20 years. Today’s policy decisions must trigger a divestment from fossil heating equipment as soon as possible. **This must be achieved in the current reviews of the EED and the EPBD.**
- **Allowing flexibility.** EU Member States face different challenges in decarbonising their economies, including their heating sectors. Flexible tools in existing legislation (e.g. performance standards, certification...) allow each Member State to tailor its approach. **It is important to maintain and strengthen this flexibility, also in the way targets are defined when reviewing the EED and EPBD.**
- **Improving standards & certification.** Energy Performance Certificates have, in most countries, shown to be simple and valuable instruments. They can create demand for efficiency products/services in buildings by making consumers aware of their energy usage, increasing awareness as long as they are easy to understand. **Keeping them transparent and applying the lessons learnt is critical for the EPBD review.**
- **Enhancing demand response.** Connecting buildings to a smarter energy system must go hand in hand with making the building smarter. It will be important to get consumers involved and allow demand side action to finally develop across the EU. In this way also more renewable energy can be integrated, stored and used. Keys to demand response are deregulated prices and “freeing up the bill” by removing policy costs from the power bill. **The reviews of the EED and Electricity Market Design Directive reviews are critical for this.**

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## The Benefits of Electrification of Heating and Cooling

- 1. Increasing renewables integration:** The share of renewable electricity produced in the EU is projected to increase from 28% in 2014 up to 50% in 2030. A large part of this will come from variable RES. As a result, increased flexibility will be needed and can be provided inter alia through heat pumps, thermal storage, as well as electric vehicles (EVs) as decentralised storage where the potential is enormous. This will also help with the achievement of the 27% RES target for 2030.
- 2. Reducing greenhouse gas emissions:** Due to electricity generation's ability to become carbon-neutral, electrification becomes a core part of the solution to Europe's GHG reduction challenge. Currently, low carbon fuels only meet 25% of energy demand in the heating and cooling sector. The share of decarbonised electricity generation in 2014 was already 55% - this is projected to reach 75% by 2030. Linking the heat and cooling system with the electricity system is an imperative for decarbonisation. Finally, linking the two sectors has a positive impact on the EU ETS, as GHG emissions are moved from end-user to source without increasing the cap.
- 3. Empowering consumers:** Electrifying a large part of the heating sector in Europe will also contribute to achieving the much needed integration with the modern electricity system. This will allow European consumers to take ownership on their energy bill through consumption and production through demand response, decentralised generation, using EVs as decentralised storage etc. These synergies are strong and will accelerate RES penetration and sustainability across all energy using sectors.
- 4. Improving energy efficiency:** The automatic management of energy demand in buildings will elevate efforts in energy efficiency to a new level. Controlling the electricity consumption of heating and cooling, water heating, appliances and lighting according to our needs is already possible via smart grids, and goes hand in hand with electrification.
- 5. Improving air quality:** Buildings are responsible for large shares of particulate matter, NOx and SOx emissions. Electric technologies such as heat pumps and smart electric boilers produce no emissions at source. As a result, air quality (especially in cities) will improve significantly, eliminating related health problems and associated costs.
- 6. Reducing fossil fuel imports and increasing security of supply:** Heating and Cooling accounts for 13% of EU oil consumption and 59% of total EU gas consumption (direct use only) – which equates to 68% of all gas imports into the EU. The shift away from fossil fuel energy needs for this sector would lead to net savings of around €40 billion on gas imports and €4.7 billion on oil imports per year.<sup>1</sup>
- 7. Unlocking industry potential:** Electric technologies are also becoming more and more viable to many energy intensive industry sectors. They are not only very efficient, but with increasingly decarbonised electricity (and decentralised generation) they also demonstrate high levels of sustainability. Using such technologies reduces waste heat from industry and fosters the integration of renewables further.

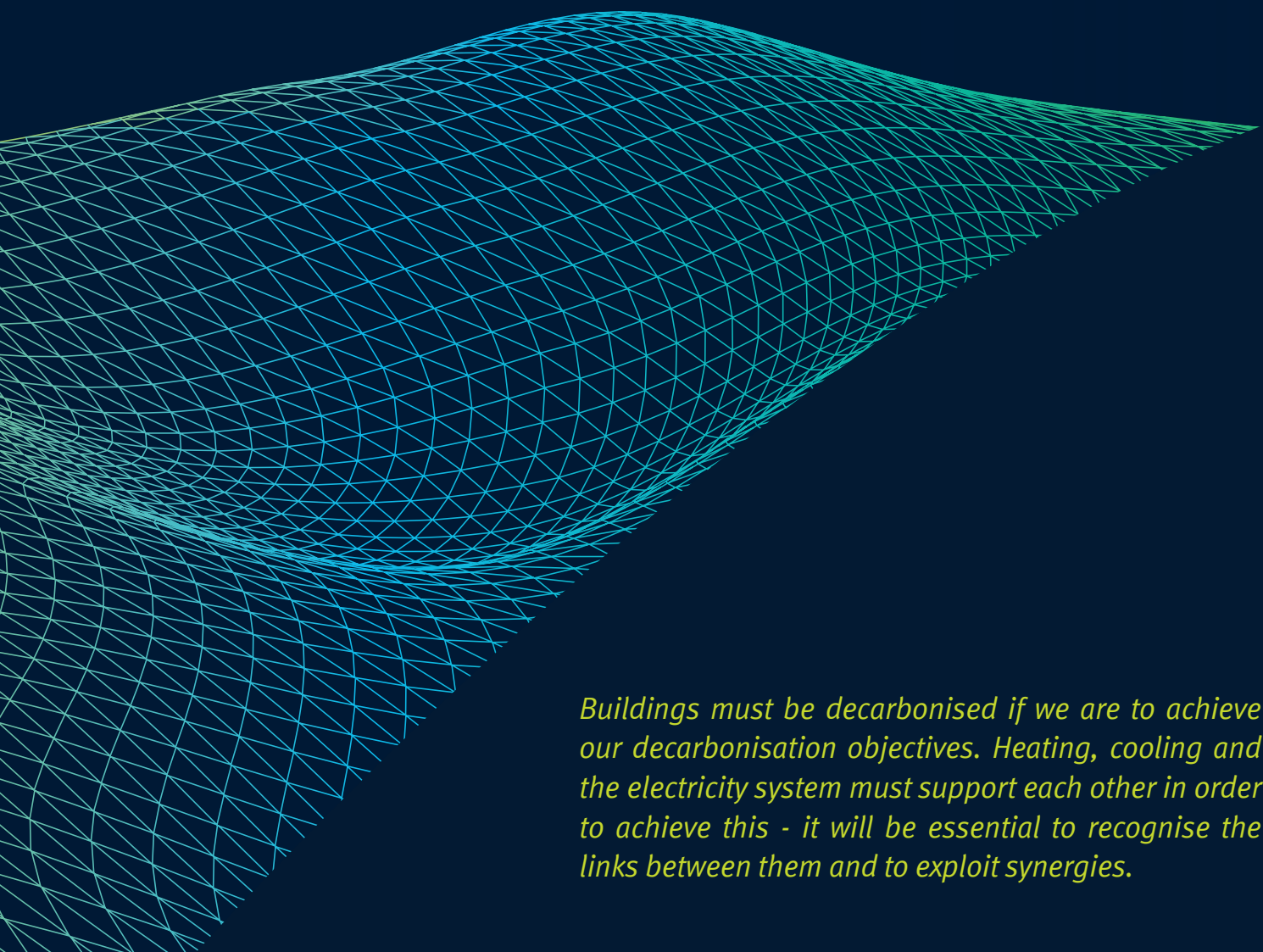
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<sup>1</sup> See "Main origin of primary energy imports, EU-28, 2004–14", EUROSTAT.

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*Buildings must be decarbonised if we are to achieve our decarbonisation objectives. Heating, cooling and the electricity system must support each other in order to achieve this - it will be essential to recognise the links between them and to exploit synergies.*



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EU Transparency Register number: 4271427696-87