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Five Principles for the Heating and Cooling Strategy

The Energy Union Communication requires the European Commission to present a Heating and Cooling Strategy by the end of 2015. Its main aim is to define a strategy to reduce the EU energy import bills and cut energy costs for households and businesses, as heating and cooling is the largest source of energy demand in Europe.¹

WWF believes that the following 5 high-level principle should guide the Commission's Heating and Cooling Strategy:

- 1) Take a 2050 timeline,
- 2) Take a holistic planning approach,
- 3) Reduce energy demand, as a first step, in key sectors, such as buildings and industry,
- 4) Prioritize provision of efficient heat, and
- 5) Support the transition towards a renewables based heat system.

¹ A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy, page 12.

1. TAKE A 2050 TIMELINE

The Heating and Cooling (H&C) Strategy should put forward long-term solutions to decarbonize the EU heating and cooling system - looking well beyond 2030. The Strategy needs to be developed from a 2050 perspective and recommend policy options that ensure the achievement of the EU's target of **cutting greenhouse gas emissions by 80-95% by that date, focusing on the no-regrets options of energy efficiency and renewables energy**². Without a plan that looks to 2050, the EU risks supporting policies and investments in technologies and systems that are either over-dimensioned for future energy-demand or based on fossil fuels.

2. TAKE A HOLISTIC PLANNING APPROACH

A comprehensive approach to energy planning should be promoted in order to maximise synergies between different components of the energy system.

- a) Firstly, energy **planning should be based on realistic energy demand projections** that reflect the potential for saving energy in different sectors, such as buildings or industry. Such potential savings should reflect the successful implementation of energy efficiency policies.
- b) The heat market and the electricity market should be **better linked, and their planning should be jointly developed**. As a first step, the H&C Strategy and the expected New Energy Market Design Initiative should be coherent and complementary.
- c) National planning of heating and cooling systems should be strengthened by **building on the implementation of the Energy Efficiency Directive Art.14**³, which should start by mapping out heating and cooling capacities. This planning should also clearly identify, quantify, and take into account the potential for heating and cooling (including for cogeneration and district heating) from renewable energy sources.
- d) **Buildings** need to be considered as a key **part of the energy system infrastructure**, including the heat infrastructure, and their renovation should be prioritized and addressed within city and local planning.

3. REDUCE ENERGY DEMAND IN KEY SECTORS

The first step of the H&C Strategy should be to enable the reduction of **heating and cooling needs in key sectors such as buildings and industry**. For example, as space heating accounts for around 80% of the final energy use in the residential sector⁴, the first priority should be drastic reductions here, only then followed by consideration of the most efficient, and renewables based, heat generation solutions. Policies and investments to reduce energy use are a prerequisite for a successful and affordable transition towards a renewables based heat system.

²The European Council reconfirmed in February 2011 the EU objective of reducing greenhouse gas emissions by 80-95% by 2050 compared to 1990.

³ Article 14 is about the "Promotion of efficiency in the heating and cooling."

⁴ European Commission, Issue Paper I, Decarbonisation of heating and cooling use in buildings, page 3.

a) Reduce Demand in the Building Sector

- Keep prioritising the **implementation and the enforcement** of the Energy Performance of Buildings Directive (EPBD) and of the buildings related articles (Art.4 and Art.5) of the Energy Efficiency Directive (EED);
- Strengthen the current EPBD by
 - (i) Providing a more **harmonised technical definition of nearly-zero energy buildings**, which include clear numerical indicators for maximum energy consumption, to avoid to big discrepancies in ambition among MSs,
 - (ii) Including a **definition of deep renovations**, and
 - (iii) Speeding up renovation rates by exploring the possibility of requiring the implementation of the recommendations in the Energy Performance Certificate when they have a short pay-back time and do not create lock-in effects, or exploring ways to financially support energy efficiency improvements when a building is sold or rented.
- Strengthen the EED by
 - (i) Ensuring that the long-term renovation roadmaps (Art.4) set a reduction of energy use from the building stock of at least 80% by 2050,
 - (ii) **Reinforcing the provision on central government buildings** (Art.5) by enlarging its scope to all public buildings and by ensuring that the refurbishments to be carried out are deep renovations⁵. and
 - (iii) Make the energy efficiency obligation scheme of Art.7 a clear financing tool for deep renovations.

b) Reduce Demand in the Industrial sector

- **Energy audits**: Ensure good implementation of Art.8 of the EED on energy audits and amend this article by requiring that all recommendations resulting from the energy audit with a short pay-back are put in place, as long as they do not create lock-in effects. This article could also be extended to cover SMEs, so that smaller European businesses can find the best solutions to reduce their energy consumption. Financial support could be provided to SMEs for carrying out energy audits, with additional support if some of the recommendations are implemented.
- **Require industrial insulation**: insulating the surfaces of production units (furnaces, boilers, tanks, pipes etc.) could cut industrial energy consumption by a further 5%⁶, thereby significantly reducing energy needs. By insulating equipment and repairing damaged insulation, cost-effective savings with payback periods of less than one year can typically be achieved.

⁵ For additional recommendations on Art.5, please see the Coalition for Energy Savings Report "Implementing the EU Energy Efficiency Directive: Analysis of Member States plans to implement Article 5."

⁶ ECOFYS, Climate protection with rapid payback Energy and CO2 savings potential of industrial insulation in EU27, available at <http://www.eiif.org/?Studies/14>, page 31.

- The EU should ensure that the post-2020 Emission Trading System functions well and complements efficiency and renewable energy policies by putting a meaningful price on carbon pollution. This will effectively drive energy efficiency investments, as well as the use of sustainable renewable energy in the industrial sector.

4. PRIORITIZE PROVISION OF EFFICIENT HEAT

Policies that seek to reduce energy use and those that support the provision of efficient renewable heat should be integrated in order to increase their effectiveness and affordability. District heating and cooling networks are considerably more efficient than individual heating systems and should be promoted, especially in urban areas. However, for new heat networks, the business model that should be encouraged is to sell less heat and hot water⁷ to more customers -taking into account the reduced heating needs of new nearly-zero energy buildings as well as of deeply renovated ones.

In summary, the planning of new heat network infrastructure should never be an incentive to de-prioritize the reduction of energy use in buildings. On the contrary, new heat networks should be seen as an opportunity to ensure the planning of a better functioning, and more economically viable system, with reduced heat losses and adequate sizing.

When it comes to individual heating systems, the Ecodesign Directive should be the legislative tool used to ensure that less efficient, and fossil-fuels based, heating and cooling products are phased-out of the market. For example, the 2018 legislative review of boiler and water heater regulations should be the moment at which the level of ambition is increased, promoting cleaner technologies and banning energy guzzling products from the market (eg. remaining non condensing boilers, electric boilers and storage water heaters). Also, boiler scrappage schemes should be further encouraged in order to accelerate the uptake of the most efficient solutions, while the inclusion of the actual energy efficiency of these products on the accompanying energy labels, would further raise awareness around the performance of these products.

For energy production, cogeneration, which allows the simultaneous production of electricity and heat, needs also to be encouraged for new plants. The most efficient new generation plants allow up to 90% of fuel input to be converted into usable energy, compared to an average global fuel efficiency of traditional power plants of around 35%.⁸ Following the US example, the EU should introduce an Emission Performance Standard⁹, which will phase out the construction of the most polluting and inefficient power plants and will support the construction of the most efficient ones, such as those based on cogeneration.

⁷ While deep renovations of the building stock can drastically reduce the energy for heating and cooling purposes, these have no influence on the patterns of hot water use.

⁸ Co-generation and Renewables, International Energy Agency, page 6.

⁹ An Emissions Performance Standard (EPS) establishes a maximum level of CO₂ emissions per unit of output from an electricity generating power plant.

5. SUPPORT THE TRANSITION TOWARDS A RENEWABLES BASED HEAT SYSTEM

The H&C Strategy must pave the way towards a renewables based energy system, which phases out the use of fossil fuels by 2050. While the penetration of renewables into the electricity system has progressed well in recent years, their up-take in the heat sector is still lagging behind.

Renewable energy can be used by several types and sizes of heating technologies and applications – providing heat to different types of clients (households, businesses, and industry). Renewable heat technologies include solar water heaters, air-source and ground-source heat pumps, but as well district heating and cooling networks and combined heat and power plants that run on renewables energy. The H&C Strategy should ensure that:

- a) Access to information, advice and knowledge transfer about renewables technologies and their application is provided at different levels, including to households and to local communities. Independent information and advice centres need to be promoted and encouraged to help consumers take-up renewable heat solutions in conjunction with building renovations, and
- b) A sufficiently qualified and numerous workforce exists to ensure the installation and maintenance of renewable heating and cooling systems.

The big challenge, and opportunity, for district heating and cooling networks and for cogeneration remains the switch from fossil fuels to renewable energy. While DH and CHP efficiency advantages are clear, their decarbonisation at scale must be urgently accelerated in order to ensure DH and CHP are champions of both renewables and energy efficiency.

In addition, when promoting renewable energy sources, WWF recommends carefully considering the use of biomass and waste-to energy (and their related technologies and applications):

- a) Biomass: Certainly, sustainable biomass has a role to play in Europe's transition to an energy system based on renewable energy, including in the heating and cooling sector. However, to avoid serious negative consequences for carbon emissions, biodiversity and land conflicts, the EU should introduce four main safeguards for bioenergy use as part of the EU's 2030 climate and energy policies: to introduce a cap to limit the use of biomass for energy production to levels that can be sustainably supplied; ensure efficient and optimal use of biomass resources, in line with the principle of cascading use; include correct carbon accounting for biomass; introduce comprehensive binding sustainability criteria,
- b) Waste-to-energy: It should not be considered renewable energy and its use should be carefully assessed and considered only after a strict enforcement of the waste hierarchy, which prioritize the prevention, re-use and recycling of waste, in that order. Waste-to-energy can discourage waste prevention and create a perverse effect of encouraging a more wasteful

society. It also has negative health impacts through the production of hazardous ash and increased emissions from the long distance transportation of waste.

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To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

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