



TEXTS ADOPTED

P8_TA(2016)0334

EU strategy on heating and cooling

European Parliament resolution of 13 September 2016 on an EU Strategy on Heating and Cooling (2016/2058(INI))

The European Parliament,

- having regard to the Treaty on the Functioning of the European Union, and in particular Article 194 thereof,
- having regard to the Paris Agreement made in December 2015 at the 21st Conference of the Parties (COP 21) to the United Nations Framework Convention on Climate Change,
- having regard to the Commission communication of 15 December 2011 entitled ‘Energy Roadmap 2050’ (COM(2011)0885),
- having regard to the Commission communication entitled ‘An EU Strategy on Heating and Cooling’ (COM(2016)0051),
- having regard to the Commission communication of 25 February 2015 entitled ‘A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy’ (COM(2015)0080),
- having regard to the Council conclusions of 23 and 24 October 2014 on the 2030 Climate and Energy Policy Framework,
- having regard to the Third Energy Package,
- having regard to Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC,
- having regard to Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings,
- having regard to Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC,
- having regard to the Commission communication entitled ‘Roadmap for moving to a competitive low-carbon economy in 2050’ (COM(2011)0112),

- having regard to its resolution of 5 February 2014 on a 2030 framework for climate and energy policies¹,
 - having regard to Regulation (EU) No 1291/2013 of the European Parliament and of the Council of 11 December 2013 establishing Horizon 2020 – the Framework Programme for Research and Innovation (2014-2020) and repealing Decision No 1982/2006/EC²,
 - having regard to its resolution of 9 July 2015 on resource efficiency: moving towards a circular economy³,
 - having regard to its resolution of 15 December 2015 entitled ‘Towards a European Energy Union’⁴,
 - having regard to Rule 52 of its Rules of Procedure,
 - having regard to the report of the Committee on Industry, Research and Energy and the opinion of the Committee on the Environment, Public Health and Food Safety (A8-0232/2016),
- A. whereas almost 50 % of the EU’s final energy demand is used for heating and cooling, of which 80 % is used in buildings; whereas the heating and cooling sector should reflect the 2015 Paris Agreement on climate change (COP 21); whereas a heating and cooling sector compatible with the EU’s energy and climate goals needs to be based on 100 % renewables by 2050 at the latest, which can only be achieved through reducing our energy consumption and making full use of the “energy efficiency first/first fuel” principle;
- B. whereas every 1 % increase in energy savings reduces gas imports by 2,6 %⁵;
- C. whereas more must be done both to reduce heating demands from buildings and to switch remaining demands away from burning imported fossil fuels in individual boilers towards sustainable heating and cooling options in line with EU 2050 objectives;
- D. whereas buildings represent a huge share of the total final energy consumption, and whereas a higher energy efficiency in buildings and demand-response programmes can play a crucial role in balancing energy demand and topping off peak demand, leading to reduced overcapacity and a lowering of generation, operational and transport costs;
- E. whereas the share of renewables has slowly been increasing (accounting for 18 % of primary energy supply in 2012), but there is still huge potential at all levels, and the share of renewables, and of recovered heat energy in heating and cooling, in the Member States should be further increased;
- F. whereas the EU heating and cooling market is fragmented as a result of its local nature, and of the different technologies and economic players involved; whereas the local and

¹ Texts adopted, P7_TA(2014)0094.

² OJ L 347, 20.12.2013, p. 104.

³ Texts adopted, P8_TA(2015)0266.

⁴ Texts adopted, P8_TA(2015)0444.

⁵ European Commission (2014), ‘Communication Energy Efficiency and its contribution to energy security and the 2030 Framework for climate and energy policy’ (COM(2014)0520).

regional dimension are essential in setting the right policies for heating and cooling, in planning and implementing heating and cooling infrastructure and in consulting consumers in order to remove obstacles and make heating and cooling more efficient and sustainable;

- G. whereas biomass represents 89 % of total EU renewable heat consumption, and 15 % of total EU heat consumption, and has great potential to deliver further significant and cost-effective solutions to a growing heat demand;
- H. whereas heating and cooling is a prime example of the need for a holistic, integrated systems-based approach to energy solutions, encompassing horizontal approaches to energy system design and the wider economy;
- I. whereas the share of primary energy from fossil fuels in heating and cooling remains very high at 75 % and presents a major barrier to decarbonisation, thereby accelerating climate change and causing significant harm to the environment; whereas the heating and cooling sector should contribute fully to the EU's climate and energy objectives, and subsidies for the use of fossil fuels in this sector should gradually be phased out, in line with the European Council conclusions of 22 May 2013, in accordance with local conditions;
- J. whereas it is estimated that the amount of heat produced from industrial and other commercial processes that is then wasted into the atmosphere or water (rather than utilised in some productive way) is enough to cover the EU's entire heating needs in residential and tertiary buildings;
- K. whereas the buildings sector emits around 13 % of all CO₂ emissions in the EU;
- L. whereas the use of progressive, efficient heating or cooling systems in buildings must go hand in hand with a thorough process of thermal insulation in a homogenous way, thereby reducing energy demand and costs for consumers and contributing to alleviating energy poverty as well as creating qualified local jobs;
- M. whereas measures for developing a comprehensive and integrated strategy for heating and cooling within the Energy Union, if implemented correctly, offer significant opportunities for both businesses and consumers in the EU, in terms of reducing overall energy costs for industry, boosting competitiveness and delivering cost savings to consumers;
- N. whereas EU regulatory frameworks serve to underline broad objectives, but true progress in transforming heating and cooling as part of a wider energy-system overhaul is essential;
- O. whereas the aim of optimising the role of renewables, particularly electricity, into the overall energy grid through better integration with heating and cooling applications and transport, contributes to decarbonising the energy system, reducing energy import dependency, lowering energy bills for households and boosting competitiveness of EU industry;
- P. whereas the most effective way of delivering on these joint objectives is to empower and support local and regional authorities, in conjunction with all relevant stakeholders, to apply a fully integrated systems-based approach to urban planning, infrastructure development, building and renovation of housing stock, and new industrial

development, in order to maximise potential cross-overs, efficiencies and other mutual benefits;

- Q. whereas the energy efficiency of buildings also depends on the use of adequate energy systems; whereas the ‘energy efficiency first’ and ‘energy efficiency as the first fuel’ principles should be respected in the heating and cooling sector;
- R. whereas ambitious goals for deep renovation of the existing building stock would create millions of European jobs, especially in SMEs, increase energy efficiency and play a vital role in ensuring that energy consumption for heating and cooling is minimised;
- S. whereas architecture, urban planning, density of heat streams demand and the diversity of European climate zones and types of building must be taken into account in the planning of energy-efficient, low-emission public and residential buildings;
- T. whereas there is huge untapped potential for the use of waste heat and district heating systems, given that the excess heat available in Europe exceeds the total heat demand in all European buildings, and the fact that 50 % of the total EU heat demand can be supplied via district heating;
- U. whereas a significant proportion of Europe’s population lives in areas, especially cities, where exceedances of air quality standards occur;
- V. whereas heating and cooling are expected to remain the biggest sources of energy demand in Europe, whereas natural gas and LPG are widely used to meet this demand and its use could be optimised through highly efficient energy storage; whereas continued reliance on fossil fuels runs counter to the EU’s climate and energy obligations and decarbonisation goals;
- W. whereas there are currently major differences in annual expenditure on energy for heating purposes between the various climate zones in Europe, with an average of 60 to 90 kWh/m² in southern European countries and 175 to 235 kWh/m² in central and northern Europe;
- X. whereas the deployment of effective heating and cooling solutions has significant potential to stimulate the development of Europe’s industrial and service sectors, particularly in the renewable energy sector, and the creation of higher value added in remote and rural regions;
- Y. whereas energy has become a social asset, access to which must be guaranteed; whereas, however, not all citizens can gain access to energy, there being more than 25 million people in Europe who have serious difficulties in doing so;
- Z. whereas energy efficiency policies should focus on the most cost-effective ways to improve buildings performance by reducing heat demands and/or connecting buildings to high-efficiency alternatives;
- AA. whereas the low level of awareness among consumers concerning the lack of efficiency of heating systems is one of the factors having the greatest impact on energy bills;
- AB. whereas homes that have good thermal insulation are of benefit both to the environment and to the user, who enjoys lower energy bills;

- AC. whereas 72 % of the heating and cooling demand of single-family houses is consumed in rural and intermediate areas;
- AD. whereas nature-based solutions, such as well-designed street vegetation, green roofs and walls providing insulation and shade to buildings, reduce energy demand by limiting the need for heating and cooling;
- AE. whereas 85 % of the energy consumed in buildings is used for space heating and hot water production, and 45 % of the heating and cooling in the EU is used in the residential sector;
- AF. whereas industry, in cooperation with local authorities, has an important role to play in the better use of wasted heat and cool;
- AG. whereas, on average, Europeans spend 6 % of their consumption expenditure on heating and cooling, and 11 % cannot afford to keep their homes warm enough in winter;
- AH. whereas the cooling sector still needs to be analysed in a more thorough way, and to be taken more into account, in the Commission strategy and in Member State policies;
- AI. whereas it is important to promote studies on energy saving in historic buildings in order to optimise energy performance where possible, while ensuring that the cultural heritage is protected and preserved;
1. Welcomes the Commission communication “an EU Strategy on Heating and Cooling” as an important step in providing a holistic approach to transforming heating and cooling in the European Union, and identifying priority areas of action; fully endorses the Commission’s ambition of recognising and exploiting the synergies between the electricity and heating sectors, with the aim of achieving an efficient sector that increases energy security and facilitates cost-effective achievement of the EU’s climate and energy goals; calls on the Commission to consider heating and cooling sectors as part of European energy market design;
 2. Points out the necessity to take along specific measures for heating and cooling when revising the Energy Efficiency Directive (2012/27/EU), the Renewable Energy Directive (2009/28/EC) and the Energy Performance of Buildings Directive (2010/31/EU);
 3. Considers that the strategy on heating and cooling must allow for both of these necessities in equal measure, taking into account that Europe has different climate zones and that needs, in terms of energy use, differ accordingly;
 4. Underlines that the strategy on heating and cooling should prioritise sustainable and cost-efficient solutions enabling the Member States to reach EU climate and energy policy goals; notes that the Member States’ heating and cooling sectors are very diverse owing to different energy mixes, climatic conditions, grades of efficiency of the building stock and industry intensity, and stresses, therefore, that flexibility in choosing adequate strategy solutions should be ensured;
 5. Calls for specific sustainable heating and cooling strategies to be developed at national level, giving special attention to combined heat and power, cogeneration, district heating and cooling, preferably based on renewables, as is stated in Article 14 of the Energy Efficiency Directive;

6. Notes that high energy efficiency, high-performance thermal insulation and the use of renewable energy sources and recovered heat are fundamental priorities for the EU's heating and cooling strategy; considers, therefore, that the 'energy efficiency first' principle should be respected, as energy efficiency offers one of the highest and fastest rates of financial return available and is a key part of the strategy for achieving a successful transition towards a secure, resilient and smart heating and cooling sector;
7. Notes that a more decentralised and flexible energy system, with power and heat sources placed closer to the point of consumption, can facilitate decentralised energy generation, thereby empowering consumers and communities to be more involved in the energy market, and to control their own energy use, as well as allowing them to become active participants in a demand-side response; takes the view that the shorter the chain by which primary energy is converted into other forms to generate usable heat, the higher the energy efficiency of the energy system overall; recognises, moreover, that such an approach diminishes transmission and distribution losses, improves the resilience of energy infrastructure and simultaneously provides local business opportunities for SMEs;
8. Underlines the complementarities between eco-design and energy labelling legislation, on the one hand, and the Energy Efficiency and Performance of Buildings directives, on the other, in reducing heating and cooling consumption; considers that domestic appliances (washing machines, dishwashers, etc.) should be as efficient as possible and designed in such a way that they can use the hot water supply at the place where they are installed; believes, therefore, that eco-design requirements and energy-labelling policies should be reviewed and improved on a regular basis, in order to achieve additional energy savings, and improve competitiveness, through more innovative products and reduced energy costs;
9. Recalls that heating and cooling constitute the largest share of the EU's energy demand; emphasises the importance of respecting the technology-neutral principle between the currently available renewable sources and market- and state-based incentives in the transition to a low-carbon and secure energy supply to the heating and cooling sector;
10. Stresses the need for a favourable framework for tenants and those living in multi-dwelling buildings, to enable them as well to benefit from the self-generation and consumption of renewable heating and cooling, and energy efficiency measures, thereby tackling the challenges of split incentives and, on occasion, impeding tenancy rules;
11. Highlights the fundamental role of renewable energy technologies, including the use of sustainable biomass, of aerothermal, geothermal and solar energy, and of photovoltaic cells in combination with electric batteries, to heat water and provide heating and cooling in buildings, in conjunction with thermal storage facilities that can be used for daily or seasonal balancing; calls on the Member States to provide incentives for the promotion and take-up of such technologies; calls on the Member States to implement fully the current Energy Efficiency and Performance of Buildings directives, including the 'Nearly Zero Energy Buildings' (nZEB) requirements and long-term renovation strategies, taking into account the need to mobilise sufficient investment for the modernisation of their building stocks; asks the Commission to present an EU-wide vision of an nZEB stock by 2050;
12. Considers that issues surrounding energy security in the EU largely concern the security of heat supply; considers, therefore, the diversification of sources for heating to be of

utmost importance, and calls on the Commission to explore ways to further support and accelerate the increased deployment of renewable heat technologies;

13. Considers that the use of mapping resources for heating purposes, appropriate architectural solutions, facility management best practices and urban design principles, including urban level network solutions such as district heating and cooling, in the planning of whole residential and commercial areas should be the basis for energy-efficient and low-emission construction in the various climate zones in Europe; underlines that a properly insulated building fabric has a high thermal storage capacity, resulting in significant heating and cooling savings;
14. Stresses that energy demand in the building sector is responsible for about 40 % of energy consumption in the EU, and a third of the natural gas use, and could be reduced by up to three quarters if the renovation of buildings is speeded up; highlights that 85 % of this energy consumption is used for heating and domestic hot water, and that, as such, modernisation of old and inefficient heating systems, increased utilisation of electricity from renewables, better use of “waste heat” through highly efficient district heating systems, and deep renovation of buildings with improved thermal insulation, remain key to delivering a more secure and sustainable approach to heat supply; recommends the continuation of increasing energy efficiency standards for buildings, taking account of and encouraging technical innovation, particularly as regards ensuring homogeneity of insulation; further recommends continued support for the construction of nZEBs;
15. Encourages the Member States to develop long-term heating and cooling strategies based on an integrated approach, harmonised mapping and the assessment made following Article 14 of the Energy Efficiency Directive; stresses that the strategy should identify priority areas for intervention and enable optimised urban energy planning; calls on the Commission to assist the Member States in this exercise by elaborating general guidance for national heating and cooling strategies;
16. Draws attention to the economic effect of renovating and insulating buildings, often resulting in up to 50 % lower heating and cooling costs, and calls on the Commission to provide adequate co-financing for initiatives aimed at renovating public housing and apartment blocks with low levels of energy efficiency;
17. Welcomes the Commission’s intention to develop a toolbox of measures to facilitate the renovation in multi-apartment buildings; considers that a harmonised and comprehensive toolbox should also be developed for the energy planning of cities, to enable the mapping of local heating and cooling potential, optimised and integrated building renovation, and heating and cooling infrastructure development;
18. Reiterates the importance of developing EU schemes that provide incentives for energy-efficient retrofits of public buildings, dwellings and social housing, and for the construction of ecological new buildings, that go beyond the minimum legal requirements;
19. Points out the local character and potential of heating and cooling; calls on local and regional authorities to facilitate further thermo-modernisation through the renovation of existing public, commercial and residential buildings with low energy performance; highlights the importance of movements such as the Covenant of Mayors, which allow a sharing of knowledge and best practices;

20. Stresses the need to carry out mapping of local heating and cooling potentials throughout Europe, so that cities are better able to identify locally available resources, allowing them to contribute to increasing the EU's energy independence, boost growth and competitiveness through the creation of local, non-outsourcable jobs, and provide clean and affordable energy to consumers;
21. Calls on local authorities to assess existing heating and cooling potential, as well as future heating and cooling needs, in their areas, taking into account the potential of locally available renewable energy sources, thermal energy from cogeneration and district heating volumes;
22. Believes that an attractive financing system should be set up for households located outside areas with centralised heating and cooling systems, to promote new technologies for heating households using renewable energy sources;
23. Calls on local authorities to address the specific problems of rural buildings, which tend to be older, less energy efficient and less beneficial to health, and which tend to provide lower thermal comfort;
24. Considers that the shorter the chain by which primary energy is converted into other forms to generate usable heat, the higher the energy efficiency, and, noting the wide range of climatic and other conditions in the Union, calls on the Commission to promote technology-neutral instruments enabling each community to develop cost-efficient solutions to reduce the carbon intensity of the heating and cooling sector;
25. Notes that while EU regulatory frameworks serve to underline broad objectives, true progress in revolutionising heating and cooling, as part of a wider energy system overhaul, is essential;
26. Highlights that EU policy tools and capacities are not yet sufficiently developed to drive the transformation of the heating and cooling sector, to maximise the use of potentials or to deploy solutions for demand reduction and decarbonisation at the required scale and pace;
27. Stresses the importance of district energy networks that offer an alternative to more polluting systems for individual heating, given that it is a particularly efficient and cost-effective means of delivering sustainable heating and cooling, integrating renewable energy sources, recovered heat and cold, and storing surplus electricity at times of low consumption, thereby offering flexibility to the grid; highlights the need to integrate a greater share of renewable energy sources, taking into account that over 20 % of district heating and cooling is already generated from renewable energy, in line with Article 14 of the Energy Efficiency Directive, which requires comprehensive assessments of the potential for efficient district heating and cooling; calls for the modernisation and extension of existing district heating systems to shift to high-efficiency and renewable alternatives; encourages the Member States to put in place fiscal and financial mechanisms to encourage the development and use of district heating and cooling, and to tackle regulatory barriers;
28. Calls on the Commission to assess seriously the Member States' comprehensive assessments of the potential for cogeneration and district heating in accordance with Article 14 of Energy Efficiency Directive, so that these plans reflect the true economic

potential of these solutions and provide a sound basis for policies in line with EU objectives;

29. Stresses that in dense urban agglomerations it is imperative that the use of inefficient and unsustainable individual or district heating/cooling systems gradually be replaced with efficient district heating/cooling systems or are modernised with state-of-the-art heating/cooling technologies, shift to high-efficiency local cogeneration systems and renewable alternatives;
30. Calls on the Commission to propose, in its initiatives on the Renewable Energy Directive and market design, measures that contribute to a more efficient and flexible energy system by further integrating electricity, heating and cooling systems;
31. Calls on the Commission to establish a common European framework to promote and provide legal certainty for self-generation, in particular by encouraging and supporting neighbourhood cooperatives that make use of renewable sources;
32. Calls for the development of a heating and cooling energy demand indicator for buildings at a national level;
33. Calls for a strategic approach to reduce the CO₂ emissions of industrial heating and cooling demands, by improving efficiency of the processes, substituting fossil fuels by sustainable sources and integrating industries in the surrounding thermal energy environment;
34. Highlights the huge potential of clustering energy and resource flows to save primary energy use, especially in industrial environments, where, according to the cascading system, excess heat or cold from one process can be re-used in another one that demands less extreme temperatures, and, where possible, in heating and cooling buildings via district heating systems;
35. Notes that outdated heating plants with low energy efficiency should urgently be replaced with the best available alternatives that are fully compatible with the EU's energy and climate objectives, such as more environmentally friendly cogeneration plants making use of sustainable fuels in accordance with sustainability criteria for biomass;
36. Notes that heating and cooling is a very local sector, since availability and infrastructure, as well as the demand for heat, depends essentially on local circumstances;
37. Agrees with the Commission that, as stated in the heating and cooling strategy, the economic potential of cogeneration is not exploited, and calls on the Commission and the Member States to further promote high-efficiency cogeneration and district heating, in line with the Commission's communication on the state of the Energy Union (COM(2015)0572);
38. Takes the view that a system-level approach on cooling is required, including for the built environment and other activities, such as transport refrigeration;
39. Expresses the view that, in Europe's temperate climate zone, reverse systems for heating and cooling using efficient heat pumps could become very important under certain conditions, given their flexibility; highlights that hybrid heating systems, which

provide heat from two or more energy sources, can facilitate a growing role for renewable heating, in particular for existing buildings where they can be introduced with limited refurbishment needs; calls on the Commission and the Member States to provide, with regard to heat pumps, adequate aligned calculation methods, and to promote the sharing of best practices for support mechanisms in order to support efficient, sustainable and low-carbon solutions to various thermal needs;

40. Encourages the Commission to closely monitor compliance with EU legislation on fluorinated greenhouse gases with a view to reducing the emission of such gases in the atmosphere; asks the Commission to ensure that the use of alternative refrigerants is safe, cost-effective and in line with other EU objectives with regard to the environment, climate change and energy efficiency;
41. Takes the view that the Member States should explore the possibility of using heat from geothermal waters, from energy recovered directly from industrial processes and from other lower-temperature heat sources, such as heat contained in deep-sea mines for heating (cooling), which could, with the help of huge heat pumps, heat whole towns through existing and new district heating networks, not just individual buildings, if suitable district heating infrastructure is available or developed;
42. Stresses the role of technologies capable of reducing both thermal energy demand and greenhouse gas emissions, such as the use of low-enthalpy geothermal energy, renewable-based heating/cooling districts, small-scale tri- or co-generating power plants burning natural gas and/or biomethane, or combinations of these;
43. Expresses the view that heat storage facilities that use electric resistance during off-peak demand hours (i.e. by storing energy in the form of heat), thereby improving the quality of electricity supply by facilitating the integration of variable renewable sources, could play a very important role in heating and help balance the grid and lower energy production, imports and prices;
44. Takes the view that waste heat and cold obtained through industrial processes and cogeneration, in the production of electric energy in conventional power plants, from well-insulated residential buildings using recuperative methods, and from micro-generation, should play a much greater role in heating and cooling than they have in the past; stresses that harnessing industrial waste heat and cold should be recognised and encouraged through research, as it presents a great opportunity for investment and innovation; stresses that industries and nearby residential or service buildings should be encouraged to cooperate and share their energy production and needs;
45. Stresses that public funding or public ownership of district heating infrastructure should not contribute to a costly lock-in of high-carbon infrastructure; calls on national, regional and local authorities to scrutinise public financial support for district heating infrastructure in the light of the EU's objective of 80-95 % greenhouse gas reductions by 2050 compared to 1990 levels and an orderly transition of the energy economy;
46. Takes the view that integrating the production, consumption and reuse of waste cold creates environmental and economic benefits and reduces the primary energy demand for cold;

47. Emphasises that waste-to-energy will continue to play a significant role in heating since the alternative is often landfill and the use of fossil fuels, recalling that there is a need to increase recycling;
48. Calls on the Member States to use legal and economic means to accelerate the gradual phasing-out of outdated solid-fuel furnaces with an energy efficiency level of less than 80 %, and to replace them, where possible, with efficient, sustainable heating systems at local level (such as district heating systems) or micro level (such as geothermal and solar systems);
49. Points out that the introduction of smart heating systems can help consumers understand their energy consumption better and help renew inefficient heating systems, promoting energy savings;
50. Reminds the Commission and the Member States that 75 % of the existing European building stock is energy inefficient, and that estimates show that 90 % of these buildings will still be in use by 2050; highlights, therefore, the urgent need to specifically target these buildings for deep renovation;
51. Calls on the Commission to draw up a plan, as part of the 'waste to energy' programme, to promote and exploit the potential contribution of the sustainable use of organic waste to heating and cooling connected to district heating and cooling systems;
52. Stresses that biogas represents an important sustainable source for heating and cooling systems, and that, for this reason it is necessary to set up a clear target for organic recycling in order to incentivise investments in the collection and treatment of bio-waste;
53. Calls on the Member States to phase out the use in urban areas of outdated furnaces for heating purposes that generate 'low height' emissions – releasing into the atmosphere natural pyrolytic gases from incomplete combustion, NO_x, soot, particulate matter and fly ash dispersed by convection – in the heating of agglomerations, and to promote, through incentives, the use of sustainable – including renewable – alternatives;
54. Calls on the Member States to take measures to phase out energy-inefficient furnaces and boilers using heating oil and coal that currently fuel over half of the building stock in the countryside; takes the view that energy provision should stem from lower carbon and renewable sources;
55. Stresses that renewable-based district heating prevents the spread of more polluting individual heating systems, which increase air pollution in residential areas and are much more difficult to control than widespread district heating systems; emphasises, however, that infrastructure and climate conditions vary within the Union and that these systems often need modernising in order to enhance their efficiency; calls, therefore, for an analysis of the need to support district heating infrastructure, and of taxation practices as regards renewable energy sources and district heating;
56. Takes the view that the Member States should, as a matter of urgency, take steps towards phasing out low-temperature furnaces used for the combustion of solid fossil fuels and organic waste, which, during the combustion process, release into the atmosphere a variety of harmful substances; takes the view that the Member States should, where possible, encourage the phasing out of old and inefficient wood-burning

fireplaces in densely built towns and cities, and facilitate their replacement with modern efficient, environmentally and health-friendly alternatives, in conjunction with initiatives to raise awareness about potential health risks and best practices regarding wood fires;

57. Calls on the Commission and the Member States to close the regulatory gap stemming from the Ecodesign Directive and the Medium Combustion Plants Directive, which results in emissions leakage of installations below 1 MW that fall outside of the scope of the Directives;
58. Takes the view that the increasing need for cooling requires further consideration of this issue, including an integrated approach to the entire cooling chain – from demand for industrial cooling from high temperatures to cooling for households and cooling requirements in the food industry;
59. Notes that the availability of quality data is a precondition if consumers and authorities are to be able to make rational choices about energy efficiency and heating solutions; highlights the importance of extending the possibilities offered by digitalisation to the heating and cooling sector; calls on the Commission to develop a definition of, and methodology for calculating, renewable cooling;
60. Considers that water-efficient heat exchangers can play a vital role in cooling in industrial processes by transferring heat to natural bodies of water close to the sites at which products are stored, the temperature of which does not exceed 6 °C throughout the year (free cooling);
61. Takes the view that high-power stationary fuel cells could, in the very near future, be an environmentally friendly alternative to coal as a solid fuel;
62. Considers that power-to-gas has great future potential as a way of storing and transmitting renewable energy and using it for the purpose of central and local heat generation; observes that the use of power-to-gas is an efficient way of using renewable energy for heat generation, particularly in conurbations, thanks to the possibility of using existing infrastructure; calls, therefore, on the Commission and the Member States to promote research and pilot projects relating to power-to-gas;
63. Believes that the European Union's strategy for innovative heating and cooling requires intensive research, providing a basis for the creation of industries making environmentally-friendly equipment to serve this purpose;
64. Stresses the benefits of research and technological innovation for European industry, strengthening its competitive advantage and commercial viability, as well as contributing to the EU's energy and climate goals; highlights, in this context, the need for increased research, development and innovation in the field of energy efficiency and renewable heating and cooling (RHC) technologies, with a view to reducing costs, enhancing performance and increasing deployment and integration into the energy system; calls on the Commission to work with sector stakeholders to maintain updated technology roadmaps on RHC to coordinate, track and identify gaps in RHC technology development;

65. Takes the view that, given the urgent need to achieve quick and effective results in the thermo-modernisation process of the EU's thermal sector, the EU should focus on research to increase the deployment of the currently best available technologies;
66. Takes the view that research under the Horizon 2020 framework programme should cover the development of sustainable heating and cooling solutions, waste heat and waste cold valorisation technologies, new materials with maximum thermal conductivity (heat exchangers), minimum conductivity – i.e. maximum thermal resistance (thermal insulation), and maximum heat accumulation rates (heat stores);
67. Takes the view that progress should be made under the Horizon 2020 framework programme in R&D relating to sustainable and efficient heating and cooling systems and materials, such as small-scale renewable generation and storage solutions, district heating and cooling systems, cogeneration and insulation materials, as well as innovative materials such as structural window glass that lets in high levels of short-wave radiation (sunlight) from outside and lets out only a minimum of the long-wave thermal radiation that would otherwise escape to the outside;
68. Emphasises the importance of extensive scientific research into the development of innovative technological solutions designed to deliver appliances and entire heating and cooling systems that are energy efficient and based on renewables;
69. Calls for a review of existing legislation focused on safeguarding technology neutrality and cost efficiency so as to ensure that it does not promote or discredit one technology over another – renewable energy produced on-site, such as by means of residential solar panels, or near a building should, for instance, be accounted for when calculating the building's energy performance, regardless of the source;
70. Highlights the importance of combining the most advanced technologies with smart energy management, for example through home automation and smart heating control systems, especially in a connected world where the appliance can easily adapt to weather conditions and electricity price signals and contribute to the stabilisation of the grid by shifting demand; calls on the Commission to integrate smart technologies in the relevant Energy Union initiatives in a better way, in order to ensure real interconnectivity of smart appliances, connected homes and smart buildings with smart grids; takes the view that such solutions should be promoted when renovating the existing building stock as they help consumers understand their consumption patterns better, and adjust the operation of their heating system accordingly;
71. Stresses that the building sector has a high potential in reducing energy demand and CO₂ emissions; underlines that further efforts are needed to increase the building renovation rate; notes that attractive financial incentives, the availability of highly competent experts at various levels, and the exchange and promotion of best practices are necessary to achieve this;
72. Calls on the Commission to identify and remove remaining barriers to energy efficiency measures, particularly domestic renovations by households, and to develop a genuine market in energy efficiency in order to foster the transfer of best practices and ensure the availability of products and solutions throughout the EU, with the aim of building a true single market in energy efficiency products and services; underlines the job creation and economic growth potential not only of initial roll out of such products and

services, but also in the on-going maintenance and day-to-day running of an integrated energy system encompassing heating and cooling;

73. Believes that industry needs clear signals from policy makers in order to make the necessary investments in achieving the EU's energy objectives; highlights the need for ambitious binding targets and a regulatory framework that promotes innovation, without creating unnecessary administrative burdens, in order to best promote cost-effective and environmentally sustainable heating and cooling solutions;
74. Believes that investment in energy efficiency in buildings should go hand in hand with investment in renewable heating and cooling (RHC); considers the synergies that are found between energy efficiency in buildings and RHC to present a significant opportunity in the move towards a low-carbon economy; welcomes efforts at national level to increase the number of nZEBs;
75. Recommends that individual thermal renovation systems be designed for architectural landmarks, with a dual focus on investments on the building's shell, combined with the optimisation of building control and automation systems and the supply of efficient heating and cooling, while taking care not to compromise the unique architectural style of the buildings concerned;
76. Notes that the architectural design of intelligent buildings should take a holistic approach to ensuring thermal comfort (cooling) through the shape and mass of buildings, the adaptation of space and the adjustment of parameters such as the amount of daylight and ventilation and recuperation intensity, while at the same time having low running costs;
77. Underlines the importance of standardised thermal energy audits, and the cost-effectiveness of remediating problems with industrial insulation to save energy and reduce emissions; points out that industrial energy costs could be further reduced with investments in existing and proven sustainable technologies;
78. Underlines that the European Structural and Investment Funds are an important tool for modernising the energy system; takes the view that the restrictions that have been in place thus far on ERDF funding for the low carbon transition priority have not been effective; considers that, for the post-2020 programming period, the budget percentage earmarked for this priority should be increased;
79. Underlines the importance of ensuring access to finance, both short- and long-term, for investments in projects of all sizes related to the modernisation of the heating and cooling sector, including for district heating and cooling, the upgrading of relevant grid infrastructure, the modernisation of heating systems, including a shift to renewable sources, and an acceleration in the rate of building renovation; calls, in this regard, on the Commission to develop a robust innovative and long-term financial mechanism; highlights the role that the European Fund for Strategic Investments (EFSI) and other applicable European funds, such as those available from the European Investment Bank (EIB) or through the EU emissions trading system (ETS), could play in terms of finance and technical assistance, ensuring that projects are attractive to investors by offering stable regulatory conditions, particularly by minimising bureaucracy and encompassing an expedient application and approval process; calls on the Commission to strengthen the current provisions on heating and cooling in the post-2020 programming period for all applicable European funds, and for the elimination of barriers that hinder local

authorities in allocating useful resources to renovating public buildings; supports the ‘smart finance for smart buildings’ initiative, promoting a greater uptake of energy efficiency in combination with renewables in the building sector; believes that the modernisation and thermal insulation of buildings should take priority over other measures in terms of access to funding in light of their enormous job-creation potential;

80. Reiterates the need to use Structural Funds for a wider range of building and building system upgrades, especially in the form of preferential loans to private building owners, which would facilitate a much stronger drive towards a greatly-needed upgrade on existing buildings, especially in the lesser-developed parts of the EU;
81. Underlines that to stimulate improvements in the heating and cooling sector, the Commission should fully use the ‘ex ante conditionalities’ foreseen by Article 19 of Regulation (EU) No 1303/2013, and ensure that existing EU legislation with relevant measures on heating and cooling is adequately transposed and implemented;
82. Considers that the State Aid Guidelines for efficient technologies – which are indispensable for the decarbonisation path of the heating and cooling sector, especially as community-based solutions – should take into account the need of adequate public support;
83. Is of the view that initiatives such as the European Local ENergy Assistance (ELENA) facility, Smart Cities and Communities, and the new integrated Covenant of Mayors for Climate and Energy could support local and regional operators in the renovation of energy systems in buildings;
84. Calls on the Commission to ensure that the EU budget is used in accordance with the decarbonisation and energy efficiency goals;
85. Calls on the Member States to take targeted measures to strongly incentivise energy efficiency improvements and a broader use of renewable energy support (RES) in low-income and vulnerable households; calls on the Commission to allocate a much higher share of EU funds to energy efficiency and RES programmes for vulnerable, energy-poor households and to provide guidance to the Member States on specific energy poverty measures;
86. Considers that citizens should be provided with better information about the energy consumption of their respective households, and the possible energy savings and benefits of renewable-based upgrades of their heating systems, including the possibility of producing and consuming their own renewable energy for heating and cooling;
87. Takes the view that the Member States must make sure – through, inter alia, information campaigns, one-stop shops, collective purchasing schemes (helping consumers club together to make purchases at reduced prices) and the clustering of individual projects (bringing several small projects into one larger cluster to enable them to find investments at better rates) – that consumers are fully aware of, and have access to, the technological and economic benefits of more sustainable heating and cooling systems, and energy efficiency improvements, so as to enable them to make the best possible choices according to their individual circumstances, and to benefit from the economic, health and quality of life improvements available; notes that households in remote and isolated locations may require particular attention and unique solutions; highlights the potential of ‘prosumers’ in establishing energy systems providing

renewable heating and cooling; emphasises the importance of ongoing education, training, certification and supervision of installers and architects, given that they are the first point of contact for household consumers;

88. Considers the continuing training of experts assessing the thermal condition of buildings, and the efficiency of the way in which they are heated (cooled), to be essential; believes that optimally located service groups that are accessible to end users are becoming a necessity;
89. Emphasises the importance of giving consumers the freedom to choose from a variety of high-efficiency and renewable heating technologies that best meets their personal heating needs;
90. Underlines that it is therefore necessary to enable consumers, through information and incentives, to accelerate the modernisation of their old and inefficient heating systems in order to deliver high energy-efficiency gains, which are already attainable through the use of existing technologies, including renewable heating systems; points out the lack of awareness among consumers about the often low performance of their installed heating systems; calls on the Commission to bring forward proposals to help raise awareness about, and increase the modernisation rate of, existing heating and cooling systems as part of the forthcoming revision of the Energy Performance of Buildings Directive; and consider introducing an energy labelling system for installed heating systems;
91. Emphasises the active role that consumers can play in the path to a sustainable European heating and cooling system; takes the view that an efficient outcome of the new regulation on “energy labelling”, whereby the scales of the new labels are forward-looking, allowing the differences in terms of energy efficiency of different products to be highlighted, can make it easier for consumers to address their choices in terms of energy savings, and to reduce their bills;
92. Urges the Commission and the Member States to come up with specific strategies to tackle the ever-growing problem of energy poverty in order to help all consumers, especially the most vulnerable, to ameliorate their housing, heating and cooling conditions, on an individual or collective basis, whether they are home owners or tenants;
93. Stresses the need to achieve a high level of energy independence through the priority use of local resources;
94. Calls for waste heat from existing industrial concerns to be used for domestic heating;
95. Takes the view that the key to combating energy poverty is to cut overall heating costs for individual households by ensuring that there is a significant increase in energy efficiency at the three main stages of energy use: during conversion from primary energy to useful energy, during further transport of that energy and, in particular, during use by the end user; calls on the Member States to make energy-efficiency measures and the switch to renewable heating and cooling a true priority;
96. Considers it important to ensure that a share of energy efficiency funding is dedicated to improvements for energy-poor households, or for those living in the most deprived areas, by, for example, helping them invest in more energy-efficient heating and cooling equipment;

97. Believes that under the Energy Efficiency Directive, the Member States should establish state building renovation plans with a view to making buildings energy efficient, not least by offering incentives for the renovation of buildings owned by private individuals, and that such plans should also encompass specific measures for the most vulnerable groups to help combat energy poverty;
98. Calls on the Commission, when implementing the Energy Efficiency Directive, to develop training for practitioners in the fields of energy efficiency auditing and planning, and to help private individuals, and the most vulnerable groups in particular, to carry out activities of this kind;
99. Underlines that while a large proportion of European buildings today suffer from the wasting of energy because of their poor insulation quality and their old and inefficient heating systems, energy poverty affects nearly 11 % of the EU population;
100. Calls on the Commission, the Member States and local authorities, in light of the risk of possible future gas supply crises, to fully integrate the production of biogas from manure processing in the implementation of the circular economy;
101. Instructs its President to forward this resolution to the Commission.