

Paris, 31 December 2015

NOTE FROM THE FRENCH AUTHORITIES

Subject: Report from France on the transposition of Article 14(1) and (3) of Directive 2012/27/EU on energy efficiency

Enc.:

- 1. Multi-annual energy programme (*Programmation pluriannuelle de l'énergie, PPE*) – Initial guidelines and actions for 2016-2023 (summary document, including statistical data)**
- 2. Technical information on which draft PPE was based**
- 3. Guide by the French Environment and Energy Management Agency (ADEME), '*La chaleur fatale – connaître pour agir*', March 2015.**

At the start of 2015, work began in France on drawing up a multi-annual energy programme (*Programmation pluriannuelle de l'énergie, PPE*) determining the priority areas for action by the public authorities in the field of energy management, in order to meet the objectives of the Act on energy transition for green growth (*Loi relative à la transition énergétique pour la croissance verte, LTECV*).

The objectives set out in the LTECV regarding heating and cooling focus in particular on reducing final energy consumption by 50 % by 2050 and by 20 % by 2030 (compared to 2012), reducing primary consumption of fossil fuels by 30 % by 2030 (compared to 2012), achieving a rate of 38 % of final heat consumption from renewable heat by 2030 and increasing five-fold the amount of recovery and renewable heating and cooling supplied by the grid by 2030 (compared to 2012).

The PPE drew on preliminary work on future energy demand scenarios between now and 2030. The scenarios were based on different assumptions (macroeconomic data, home refurbishment rates, construction rates of model energy-efficient housing, etc.) and made it possible to identify several scenarios for how demand for heating and cooling might change by 2030.

The PPE was also based on a consultation exercise involving representatives of professionals and consumers, environmental protection associations and the different state departments concerned. This consultation made it possible to identify the development potential of each sector in the area of renewables and recovery and of district heating and cooling for the period 2018-2023, alongside the strengths, weaknesses, opportunities and threats for each sector.

This work also allowed quantified development objectives to be determined for each sector. These will be set out in a decree and will be consistent with the objectives of the LTECV objectives for 2030.

The first PPE will cover the period 2018-2023. It will then be reviewed every five years and objectives set for two five-year periods.

To date, a summary document including the quantified objectives under the draft PPE has been officially circulated. The summary document is enclosed with this note (Annex 1), together with an explanation of the basis for the draft PPE (Annex 2). The final report and the decree establishing in law the quantified production objectives for each sector are timetabled for the first half of 2016.

The legal framework for the multi-annual programme is set out in Article 176 of the LTECV: http://www.developpement-durable.gouv.fr/IMG/pdf/joe_20150818_0189_0001_1_-2.pdf

Assessment under Article 14(1): comprehensive assessment of the national potential for high-efficiency cogeneration and district heating and cooling

Article 14(1) of the Energy Efficiency Directive provides for a comprehensive assessment of the potential for applying high-efficiency cogeneration and efficient district heating and cooling, containing the information set out in Annex VIII.

The table below presents the outcome of this assessment according to the structure of Annex VIII to the Directive.

Information under Annex VIII	Outcome of assessment
a) Description of heating and cooling demand	<p>The energy balance sheet published each year by the Observation and Statistics Office of the Ministry of Ecology, Sustainable Development and Energy enables final renewable heat consumption in France to be monitored. It also specifies each sector's final consumption.</p> <p>http://www.statistiques.developpement-durable.gouv.fr/publications/p/2360/112/bilan-energetique-france-2014.html</p> <p>Finally, the draft multi-annual energy programme also details each sector's current final heat consumption by energy type and changes since 2007.</p>
b) Forecast of how this demand will change in the next 10 years, taking into account in particular the evolution of demand in buildings and the different sectors of industry	<p>France has produced scenarios of how final energy consumption might change. These are explained in the document '<i>Scénarios prospectifs Énergie - Climat - Air pour la France à l'horizon 2035</i>'.</p> <p>Three scenarios were developed: one taking into account existing measures prior to 1 January 2014 (reference scenario) and two others factoring in the LTECV measures, implementing them to a more and less ambitious extent.</p> <p>Based on these scenarios, specific data concerning the change in heating demand until 2030 was presented in the draft PPE which is currently being drawn up for the period 2018-2023 following a ²high</p> <p>See Annex 2.</p>
c) Map of the national territory	<p>A national heat map is available at http://reseaux-chaaleur.cerema.fr/carte-nationale-de-chaaleur-france, covering: heating and cooling needs, main heating and cooling installations currently in place, planned or which could potentially be established (planned or existing district heating, electrical power plants, waste to energy power plants or cogeneration plants).</p> <p>The map is a record of the heating and cooling needs of the residential, tertiary, industrial and agricultural sectors – excluding industrial and agricultural processes. These sectors have particular temperature profiles requiring feasibility studies far more specific than for other needs. (For that matter, these were recorded and examined in the ADEME study, carried out at the same time as the <i>Fonds chaleur</i> criteria were being expanded for them. This study can be found in Annex 3).</p>
d) Identification of the heating and cooling demand that could be satisfied by high-efficiency district heating and cooling, and	<p>In 2013, heating and cooling needs were estimated at 70.6 Mtoe. These were met by district heating and cooling, which provided a supply of 2.2 Mtoe (2.14 Mtoe heating supply and 0.07 Mtoe cooling supply).</p> <p>Based on the modelled heating and cooling needs and in view of the thermal</p>

Information under Annex VIII	Outcome of assessment
<p>cogeneration, including residential micro-cogeneration.</p>	<p>density criteria needed for district heating and cooling to be competitive in France¹, the development potential for district heating and cooling in 2030 is estimated at 20 Mtoe for the residential and tertiary sectors. In terms of the development potential for district heating and cooling in the industrial and agricultural sectors, both are often characterised by specific needs and account for approximately 6 % of the heat supplied.</p> <p>The estimated theoretical potential therefore leads to an approximately 10-fold increase in the quantity of district heating and cooling by 2030, compared to the 2013 reference year.</p> <p>Technical and economic feasibility is not taken into account in these figures, other than through the exclusion of buildings which are currently heated by means of a decentralised electrical heating system, bearing in mind that the connection of these buildings would not be economically reasonable given the lack of a secondary network.</p> <p>The LTECV sets the objective of increasing five-fold the amount of heating and cooling supplied by district heating. This already presents a challenge in terms of the development of district heating and cooling in France and is an ambitious objective under technically- and economically-reasonable conditions.</p>
<p>e) Identification of the potential for additional high-efficiency cogeneration, including from the refurbishment of existing and the construction of new generation and industrial installations or other facilities generating waste heat</p>	<p>The draft PPE sets out quantitative objectives for developing the high-efficiency cogeneration sector from biomass and biogas. These objectives are presented in the summary document which can be found in Annex 1 and will be established in a decree during the first half of 2016.</p> <p>The draft PPE does not set any development objectives for cogeneration installations using natural gas and favours the development of biomass cogeneration.</p> <p>The analysis of the national potential for using high-efficiency cogeneration, carried out in accordance with Directive 2004/8/EC, stated that <i>'for end-users of heating in France, cogeneration facilities are a structurally less competitive option than producing heat separately and purchasing electricity on the grid'</i>.</p> <p>Consequently, for thermal electricity installations, industrial installations, district heating systems and their energy generation installations, France notified an exemption pursuant to Article 14(4) from carrying out a cost-benefit analysis for the purposes of evaluating the costs and benefits of converting these installations into high-efficiency cogeneration installations.</p> <p>The analysis of the national potential for using high-efficiency cogeneration carried out in accordance with Directive 2004/8/EC constitutes the comprehensive assessment of the potential for applying high-efficiency cogeneration, as provided for under Article 14(1) of the Energy Efficiency Directive.</p>
<p>f) Identification of the energy efficiency potential of district heating and cooling infrastructure</p>	<p>District heating and cooling is a major vector for enabling large-scale production of renewable energy, which the grid can then transport to where end consumers are located.</p> <p>The LTECV sets the ambitious objective of increasing five-fold the amount of renewable and recovered heating and cooling supplied by the grid by 2030 (compared to the 2012 reference year). [Article 1(III)(9) of the LTECV]</p> <p>http://www.legifrance.gouv.fr/affichTexte.do ;jsessionid=E1260DB9E7AC5F5C1F6385F1309C511A.tpdila24v_1 ?cidTexte=JORFTEXT000031044385&categ</p>

¹ Estimate produced on the basis of mapping of heating and cooling needs in France by maintaining the densest links.

Information under Annex VIII	Outcome of assessment
	<p>orieLien=id.</p> <p>The PPE, which establishes objectives for the grid for 2018 and 2023, was drawn up in keeping with this ambitious objective for 2030.</p> <p>The objectives set in the draft PPE for district heating and cooling focus on the amount of renewable and recovered heating and cooling supplied by the grid and the number of equivalent housing units connected (in order to calculate the total amount of heating supplied by renewable energy, recovery and other sources of energy).</p> <p>These objectives take into account the potential for waste heat recovery (industrial, waste treatment) and for developing renewable solutions for the grid (biomass, geothermal, solar, biogas). They draw on the fact that the existing grid is becoming denser and greener and that a new and efficient grid is being created.</p> <p>Finally, the LTECV introduced new provisions for Regional Climate, Air and Energy Schemes. These will be underpinned, <i>inter alia</i>, by an assessment of the renewable energy and recovery potential, a survey of all district heating and an evaluation of possible energy efficiency improvements. (Article 196 of the LTECV).</p>
<p>g) Strategies, policies and measures that may be adopted up to 2020 and up to 2030 to realise the potential in point (e) and to meet the demand in point (d), in order to:</p> <p>i) increase the share of cogeneration in heating and cooling production and in electricity production</p> <p>ii) develop efficient district heating and cooling infrastructure to accommodate the development of high-efficiency cogeneration and the use of heating and cooling from waste heat and renewable energy sources</p> <p>iii) encourage new thermal electricity generation installations and industrial plants producing waste heat to be located in sites where a maximum amount of the available waste heat will be recovered to meet existing or forecasted heat and cooling demand</p> <p>iv) encourage new residential zones or new industrial plants which consume heat to be located where available waste heat can contribute to meeting their heating and cooling</p>	<p>All measures promoting the development of renewable and recovered energy and district heating or cooling are listed in the National Energy Efficiency Action Plan [http://www.developpement-durable.gouv.fr/IMG/pdf/0378_Annexe_1_PNAEE_.pdf] and Renewable Energy Action Plan [https://ec.europa.eu/energy/en/topics/renewable-energy/progress-reports].</p> <p>Article 1 of the LTECV also sets ambitious objectives for developing solutions for renewable and recovered energy and district heating and cooling, including in particular reducing energy consumption by 30 % by 2030, achieving a rate of 38 % of final heat consumption from renewable heat by 2030 and increasing five-fold the amount of renewable and recovered heating and cooling by 2030 (compared to 2012).</p> <p>It is important to bear in mind that each district heating system is clearly positioned at a geographical level based on district, industrial zone, city or agglomeration, according to a structural and long-term approach.</p> <p>District heating systems therefore have to find their place within territorial energy planning, through Regional Climate, Air and Energy Schemes (SRCAE), the Territorial Climate, Air and Energy Plan (PCAET) and urban and spatial planning tools such as Territorial Coherence Schemes (SCoT) and Local Urban Development Plans (PLU), with a strengthened energy-climate focus, or through blueprint initiatives and initiatives for identifying priority development zones.</p> <p>The LTECV has introduced new provisions for doing so, such as Local Urban Development Plans (PLU). These will determine the general approach, including for the energy systems chosen for all local public establishments and public establishments for cooperation between local authorities. (Article 173 of the LTECV).</p> <p>Article 194 of the LTECV also lays down the requirement for regional authorities responsible for public heating or cooling distribution on 1 January 2009 to produce a blueprint of their district heating or cooling system before 31 December 2018. [http://www.developpement-durable.gouv.fr/IMG/pdf/joe_20150818_0189_0001_1_-2.pdf]. This blueprint includes a quality assessment of the service provided and</p>

Information under Annex VIII	Outcome of assessment
<p>demands</p> <p>v) encourage thermal electricity generating installations, industrial plants producing heat, waste incineration plants and other waste-to-energy plants to be connected to the local district heating or cooling network</p> <p>vi) encourage residential zones and industrial plants which consume heat to be connected to the local district heating or cooling network</p>	<p>possibilities for extending and increasing the density of the network and for connecting this network to other networks located nearby. It also includes an assessment of the possibilities for increasing the share of the network supply sourced from renewable and recovered energy.</p> <p>Article L128-4 of the Town Planning Code states that any action or development project as defined under Article 300-1 and subject to an impact assessment must also undergo a feasibility study concerning the development potential for renewable energy in the region, in particular in terms of the suitability of setting up or connecting to a district heating or cooling network supplied by renewable and recovered energy.</p> <p>Finally, the successful regions in the 'Energy-positive regions for green growth' (<i>Territoires à énergie positive pour une croissance verte, TEPCV</i>) tender can be constructed around district heating projects. The financial allocation for the TEPCV can be used to structure sectors (e.g. biomass) or carry out studies for determining potential. Of the 500 candidate regions, 212 were awarded the title 'Energy-positive region' in February 2015 and will benefit from financial support.</p>
<p>h) Description of the share of high-efficiency cogeneration and the potential established and progress achieved under Directive 2004/8/EC</p>	<p>Public support schemes for developing cogeneration installations are limited to high-efficiency cogeneration installations and have enabled real progress to be made in energy efficiency.</p> <p>The Order of 3 July 2001 establishing the technical characteristics of cogeneration installations eligible under the electricity purchase requirement initially established the condition whereby eligibility for the purchase requirement was subject to a 5 % primary energy saving (for installations of less than 12 MW – the only installations currently eligible). The Order was revised in 2013 (Order of 9 October 2013), increasing the primary energy saving requirement to 10 %. As the scheme is open to all installations being refurbished and was introduced at a time when a large number of installations were coming to the end of their initial contract, the 10 % threshold is now applied to many of the installations in place.</p> <p>Furthermore, the transitional premium granted between 2014 and 2016 to installations of over 12 MW in order to compensate for their availability for the electric system is also subject to achieving a primary energy saving of at least 10 %.</p> <p>According to industry associations, the efficiency of 1 to 12 MWe cogeneration installations increased overall between 2005 and 2015.</p> <p><u>Downward trend due to:</u></p> <ul style="list-style-type: none"> - stricter legislation on NOx and CO emissions, generally requiring constructors to reduce the mechanical efficiency of machines in order to reduce emissions of pollutants (in particular thermal NOx); - ageing installations, although reduced due to major preventative maintenance work on installations. <p><u>Upward trend, due to combined effect (by order of importance) of:</u></p> <ul style="list-style-type: none"> - improved electrical efficiency of new generation of electricity units, linked to higher compression rates for engines and improved turbine regulation and combustion chambers; - roll-out of high-efficiency recovery exchangers; - better use of low-temperature thermal units (in particular greenhouses); - deployment of thermal storage capacity (in particular greenhouses). <p>In all cases, the performance of installations improved overall following</p>

Information under Annex VIII	Outcome of assessment
	<p>refurbishment (mostly 1 to 12 MW installations between 2012 and 2015), and was achieved at a faster rate once the primary energy saving criterion was changed at the end of 2013, increasing for contracts under the 2013 Order (PE>10 %) compared to contracts under the 2001 Order (PE>5 %). The best performance came from medium- to high-power engines with low-temperature heat recovery (in the case of greenhouses).</p> <p>Cogeneration installations subject to a purchase requirement, which currently have a combined electrical power of 1750 MW connected to the grid, generate an estimated overall primary energy saving of 15 % (within the meaning of the Commission's Decision of December 2011). Some two thirds of these cogeneration installations are installations which were refurbished following the expiry of their initial purchase requirement contract dating back from 1999 to 2003 – the period in which nearly all cogeneration installations in France were constructed.</p>
i) An estimate of the primary energy to be saved	<p>The LTECV set the ambitious objective of reducing final energy consumption by 50 % by 2050 (compared to 2012), with an interim objective of 20 % by 2020. It also set the objective of reducing primary fossil fuel consumption by 30 % by 2030 (compared to 2012).</p> <p>Furthermore, France produced scenarios mapping changes in final energy consumption. These are explained in the document '<i>Scénarios prospectifs Énergie - Climat - Air pour la France à l'horizon 2035</i>'.</p> <p>Three scenarios were developed: one taking into account existing measures prior to 1 January 2014 (reference scenario) and two others factoring in the LTECV measures, implementing them to a more and less ambitious extent.</p> <p>Based on these three scenarios, specific data concerning the change in heating demand until 2030 was presented in the draft PPE which is currently being drawn up for the period 2018-2023.</p> <p>Annex 2 to this report contains the information used as a basis for drawing up the PPE, describing the change in heating and cooling demand until 2030 in each sector and the trend in renewable energy generation and delivery by district heating until 2030. The document also indicates the energy savings which must be achieved.</p>
j) Estimate of public support measures to heating and cooling (annual budget)	<p>An impact assessment is currently being finalised on the basis of which it will be possible to verify the maximum allocation of public resources from the State and public institutions for meeting the objectives of the PPE.</p> <p>According to estimates, public support measures for heating and cooling would be as follows:</p> <ul style="list-style-type: none"> - an average annual <i>Fonds chaleur</i> of EUR 475 million for the industrial, tertiary, agricultural and public sectors; - an estimated annual budget of approximately EUR 60 million between 2015 and 2018, and EUR 70 million between 2019 and 2023 for reduced-rate VAT for networks supplied in excess of 50 % through renewable energy and recovery; - approximately EUR 500 million per year estimated for the energy transition tax credit for renewable heating and cooling equipment, available to private individuals; - finally, the LTECV sets the objective of a carbon tax of EUR 100 per tonne in 2030 and EUR 56 per tonne in 2020. The draft Amending Finance Act for 2015 provides for an increase in the rate attributed to carbon under the domestic consumption tax on energy products (TICPE), from EUR 22 per tonne of CO₂ in 2016 to EUR 30.5 per tonne of CO₂ in 2017.

Information under Annex VIII	Outcome of assessment
	See Annex 1.

I. National cost-benefit analysis in accordance with Article 14(3) for efficient district heating and cooling

As stated in the introduction, at the start of 2015, work began in France on drawing up a multi-annual energy programme (*Programmation pluriannuelle de l'énergie, PPE*) determining the priority areas for action by the public authorities in the field of energy management, in order to meet the objectives of the LTECV.

The PPE drew on preliminary work carried out on future energy demand scenarios which made it possible to identify several scenarios for how demand will change for heating and cooling by 2030.

The PPE was also based on a consultation which allowed the development potential of each sector in the area of renewables and recovery and of district heating and cooling for the period 2018-2023, to be identified, alongside the strengths, weaknesses, opportunities and threats for each sector.

This work allowed quantified development objectives to be determined for each sector. These will be set out in a decree and will be consistent with the objectives of the LTECV objectives for 2030.

In accordance with Article 14(3) of the Directive, the PPE is capable of facilitating the identification of the most resource- and cost-efficient solutions for meeting heating and cooling needs. Furthermore, the PPE, accompanied by its environmental assessment, constitutes the national cost-benefit analysis.

The PPE is limited geographically to mainland France (Article 176 of the LTECV). Corsica, Guadeloupe, French Guiana, Martinique, Mayotte, Réunion and Saint Pierre and Miquelon each have their own separate PPE (Article 203 of the LTECV).

The PPE takes into account all available supply, whether in the form of renewable or recovered energy. In this way, the different sources of renewable heat have been taken into account (biomass, heat pumps, geothermal, biogas and solar) and all sources of heat recovery have been integrated (industrial waste heat recovery, incineration waste heat recovery, waste water recovery, etc.). For sources of industrial waste heat recovery, the PPE drew on the document '*Chaleur fatale industrielle*' produced by the ADEME and included in Annex 3.

The PPE is based on different scenarios mapping changes in final heating and cooling consumption. Following preliminary work on future scenarios, it was possible to model three contrasting scenarios for heating demand: a reference scenario, a low energy trend scenario and a high energy trend scenario.

During the scenario work prior to the PPE, a reference scenario was used, namely the 'with existing measures' scenario. The results extracted from the reference scenario indicated a final heating consumption of 70 Mtoe in 2030.

Annex 2 includes a summary of the results of the reference scenario and indicates the corresponding energy mix. Two alternative scenarios were developed: a 'high' scenario and a 'low' scenario. These scenarios produced a final heating consumption figure of 60 Mtoe and 54 Mtoe respectively. The results are detailed in Annex 2.

The PPE only takes into account efficient district heating and cooling solutions and efficient individual systems. The methodology for the PPE took the form of a SWOT analysis, which ensured that technical, economic, environmental, social, regulatory and innovation-based aspects were taken into account.

The PPE will be issued as a report and a decree which will be published by the first half of 2016 and will explain the methodology chosen in order to set objectives for each sector. The PPE will also be accompanied by an environmental assessment which will identify the effects on the environment of the chosen approaches and provide recommendations on how to reduce these effects. Finally, the PPE will also include an impact assessment indicating the maximum allocation of public funding for the chosen approaches.

In addition, a financial assessment will be carried out on a case-by-case basis using the *Fonds chaleur* support system. Each renewable and recovered heating or cooling project and each project for establishing a grid or increasing the grid density will undergo an economic assessment (over a 20-year period for grids) to enable the scale of the support to be decided.

The financial assessment will be carried out on a case-by-case basis and take into account different parameters, e.g. installation investment costs, grid investment costs, operating costs, energy costs, etc. The assessment is particularly important as it notably allows local supply difficulties to be taken into account. Support allocated from the *Fonds chaleur* is calculated in such a way as to ensure that the final consumer benefits from a 5% reduction compared to a fossil fuel alternative.

II. Information concerning the assessment under Article 14(1)

The French authorities also wish to inform the European Commission of the following information concerning the assessment provided for in Article 14(1).

A. Article 14(2): measures to encourage the uptake of efficient heating and cooling systems at local and regional levels

The PPE establishes priority areas for action by the public authorities concerning energy management in mainland France. Specific local PPEs for the French overseas territories are also being drawn up at present.

The document for mainland France was drawn up on the basis of the resources identified at local level in the Regional Climate, Air and Energy Schemes (SRCAEs).

The SRCAEs will then be revised for each region, taking into account the national objectives which will be set under the PPE. Local adaptation is also envisaged by means of the Territorial Climate-Energy Plans (PCAET).

The LTECV has also strengthened the role of the regional authorities in the management of district heating and cooling. Consequently, regional authorities responsible for public heating or cooling distribution must produce a blueprint of their district heating or cooling system before 31 December 2018.

The blueprint helps meet the objective of obtaining a supply sourced from renewable and recovered energy. It includes a quality assessment of the service provided, possibilities for extending and increasing the density of the network and for connecting the network to other networks located nearby.

Grid classification is also a way of identifying zones in which any new installation must be connected to the grid, providing that, in particular, at least 50 % of the grid supply comes from renewable or recovered energy. The 'Grenelle 2' Act [redefined the structure and classification procedure for district heating and cooling](#).

Finally, renewable heating projects and district heating and cooling projects for which support has been requested from the *Fonds chaleur* will be examined at regional level and again at national level, according to their importance. These support arrangements will maintain a dynamic at all territorial levels, whilst supplementing the funding from regional authorities or the ERDF.

B. Article 14(4): outcome of assessment of potential for high-efficiency cogeneration and/or efficient district heating and cooling

As stated above, the analysis of national potential for using high-efficiency cogeneration, carried out in accordance with Directive 2004/8/EC, stated that '*for end-users of heating in France, cogeneration facilities are a structurally less competitive option than producing heat separately and purchasing electricity on the grid*'.

Consequently, for thermal electricity installations, industrial installations, district heating systems and their energy generation installations, France notified an exemption pursuant to Article 14(4) from carrying out a cost-benefit analysis for the purposes of evaluating the costs and benefits of converting these installations into high-efficiency cogeneration installations.

Moreover, the PPE identified potential for using efficient district heating and cooling. Measures have already been taken to drive the development of this infrastructure. The LTECV therefore set the objective of increasing five-fold the amount of renewable and recovered heating and cooling supplied by the grid by 2030.

The draft PPE sets out objectives for 2018 and 2023 for developing renewable energy and recovery within district heating and cooling. It also establishes a yardstick for expressing the overall heating and cooling objective in terms of the grid (equivalent housing units connected). A number of measures have been implemented to promote development. These measures are listed in the National Energy Efficiency Action Plan²:

- district heating and cooling is eligible for investment support from the *Fonds chaleur* if sourced from renewable and recovered energy at a rate of at least 50 % (networks mobilise 30 to 40 % of the budget for this fund);
- heating networks supplied at a rate of at least 50 % by renewable and recovered energy benefit from a reduced rate of VAT on the supply of heating;
- the grid classification procedure provides that new and heavily renovated buildings must be connected to networks supplied predominantly by renewable or recovered energy;
- the maximum consumption of new buildings is modulated by means of thermal regulation if connected to a low GHG-emitting heating network;
- the individual cost-benefit analysis transposed into French law in the Environmental Code requires all new installations over 20 MW and those undergoing major refurbishment to assess the suitability of connecting the installation to district heating or cooling in order to be supplied by recovered energy.

Supplementary measures were adopted by way of the LTECV or are envisaged in the short term:

- according to the LTECV, a district heating and cooling blueprint must be drawn up before 31 December 2018 (Article 194);
- furthermore, support for increasing grid density, in the form of a repayable advance under the *Fonds chaleur*, will be introduced as of 2016;
- finally, the draft PPE contains a number of new recommendations for promoting the development of renewable and recovered heating and cooling and its delivery by district heating and cooling.

The draft PPE also highlighted the development potential for cogeneration from biomass. Development objectives for 2018 and 2023 have been set.

Cogeneration benefits the following measures listed in the National Energy Efficiency Action Plan:

- support for the cogeneration of electricity from biomass is based on purchase tariffs and calls for tender;
- regulated purchase tariffs support the development of 5 to 12 MWe installations;
- CRE tenders support the development of installations of over 12 MWe. Energy efficiency is a grading criterion for projects.

² http://www.developpement-durable.gouv.fr/IMG/pdf/0378_Annexe_1_PNAEE_.pdf