

Paris, 25 January 2020

NOTE FROM THE FRENCH AUTHORITIES

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

The decrees setting out the multiannual energy programme (*programmation pluriannuelle de l'énergie* – PPE) and national low-carbon strategy (*stratégie nationale bas-carbone* – SNBC) were published in the Official Journal of the French Republic on 23 April 2020. They form part of the green transition and the progressive 'decarbonisation' of all sectors of the economy. Both texts have been revised to take account of the measures laid down in the Energy and Climate Law adopted on 8 November 2019. The new multiannual energy programme sets out the policy directions and priorities to be pursued by public authorities in managing all forms of energy within mainland France, in order to achieve the energy policy objectives laid down in Articles L. 100-1, L. 100-2 and L. 100-4 of the Energy Code.

Notably, the multiannual energy programme includes the following three components:

- **improving energy efficiency and reducing final and primary energy consumption**, particularly from fossil fuels;
- **developing and using renewable and recovered energy**. In particular, the multiannual energy programme sets targets for the development of the various renewable energy segments, the Minister for Energy having the option to launch calls for tenders to achieve them;
- **balanced development of grids, storage, energy conversion and demand-side management**, in order to promote, in particular, local energy production, the development of smart grids and self-generation.

The multiannual energy programme drew on preliminary work on future energy demand scenarios between now and 2030. The scenarios were based on different assumptions (macroeconomic data, home renovation 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 multiannual energy programme also drew on a consultation exercise involving representatives of professionals and users, environmental protection associations and the various state departments concerned. This consultation made it possible to identify the development potential of each segment of renewable energy and recovery and of district heating and cooling for the period from 2018 to 2028, along with the strengths, weaknesses, opportunities and threats for each segment.

The first multiannual energy programme covered the period from 2018 to 2023. The current multiannual energy programme covers the period from 2018 to 2028. It will be reviewed every five years and targets will

be set for two five-year periods.

All documents setting out the performance targets under the draft multiannual energy programme have been officially circulated. They can be consulted via the following link:

<https://www.ecologie.gouv.fr/programmations-pluriannuelles-lenergie-ppe/>

Direct link to the full multiannual energy programme:

<https://www.ecologie.gouv.fr/sites/default/files/20200422%20Programmation%20pluriannuelle%20de%20l%27e%CC%81nergie.pdf/>

Relevant regulations:

[Decree No 2020-456 of 21 April 2020 concerning the multiannual energy programme](#)

The revised national low-carbon strategy sets out the path towards a green and inclusive transition to carbon neutrality by 2050, in line with the targets set in the Paris Agreement. The principle of carbon neutrality requires France not to produce more greenhouse gases than it can absorb, in particular in its forests or its soil.

The national low-carbon strategy gives an outline of the transformation:

- in mobility, towards cleaner modes of transport and the development of carpooling, car sharing, cycling and public transport;
- in housing, towards much more energy-efficient buildings that are built with more natural materials, in particular wood, which continues to store carbon, and are more resilient to climate change;
- in agriculture and food, towards a better quality, more varied diet (including more legumes, in line with new dietary recommendations), based on agroecology, organic farming and local produce;
- in the production and consumption of fully decarbonised energy;
- in industry, towards French production of low-carbon technologies;
- in consumption patterns, towards a more circular economy.

It also covers sustainable forest and soil management that is better adapted to climate change.

All documents relating to the national low-carbon strategy have been officially circulated. They can be consulted via the following link:

<https://www.ecologie.gouv.fr/strategie-nationale-bas-carbone-snbc/>

Direct link to the full final document:

https://www.ecologie.gouv.fr/sites/default/files/2020-03-25_MTES_SNBC2.pdf/

Relevant regulations:

[Decree No 2020-457 of 21 April 2020 concerning the national carbon budgets and the national low-carbon strategy](#)

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

The table below shows the results of the assessment and follows the structure set out in Annex VIII to the Directive, as amended by the Commission Delegated Regulation of 4 March 2019 amending Annexes VIII and IX to Directive 2012/27/EU of the European Parliament and of the Council.

Information under Annex VIII	Results of the assessment
Part I - OVERVIEW OF HEATING AND COOLING	
<p>1. heating and cooling demand in terms of assessed useful energy (1) and quantified final energy consumption in GWh per year (2) by sectors:</p> <p>(a) residential;</p> <p>(b) services;</p> <p>(c) industry;</p> <p>(d) any other sector that individually consumes more than 5% of total national useful heating and cooling demand</p>	<p>The energy balance sheet published each year by the Observation and Statistics Office at the Ministry of Ecological Transition enables the final renewable heat consumption in France to be monitored. It also gives each sector's final consumption:</p> <p>https://www.statistiques.developpement-durable.gouv.fr/bilan-energetique-de-la-france-en-2019-donnees-provisoires/</p> <p>Data are available for the last 5 years.</p> <p>The multiannual energy programme also breaks down the current final heat consumption by sector and energy type and shows its development over time.</p> <p><i>Figure 1 : Evolution de la consommation énergétique réelle (2010-2018) et projetée (2019-2028) par vecteur énergétique</i></p> <p>Figure 1: Development of actual (2010-2018) and projected (2019-2028) energy consumption by energy carrier</p> <p>[Key: Electricité = Electricity Gaz = Gas Produits pétroliers = Petroleum products Charbon = Coal Chaleur = Heat ENRt et déchets = Renewable thermal energy and waste]</p> <p>At 742 TWh in 2018, heat accounts for a little over 40% of final energy consumption in France. It is produced mainly from gas (40%), followed by renewables (21% – biomass, heat pumps, geothermal, biogas and solar thermal), electricity and oil (18% and 16% respectively), and to a small extent from coal (5%). Decarbonisation is therefore a priority.</p> <p>Link:</p> <p>https://www.ecologie.gouv.fr/programmations-pluriannuelles-lenergie-ppe/</p> <p>The energy demand figures are set out in detail in Chapter 2 of the multiannual energy programme. On page 28 of the full document, Table 7 shows the energy mix by sector.</p> <p>Link:</p>

Information under Annex VIII	Results of the assessment
	https://www.ecologie.gouv.fr/sites/default/files/20200422%20Programmation%20pluriannuelle%20de%20l%27e%CC%81nergie.pdf
<p>2. identification, or in the case of point 2(a)(i), identification or estimation, of current heating and cooling supply:</p> <p>(a) by technology, in GWh per year (3), within sectors mentioned under point 1 where possible, distinguishing between energy derived from fossil and renewable sources: (i) provided on-site in residential and service sites by: — heat only boilers; — high-efficiency heat and power cogeneration; — heat pumps; — other on-site technologies and sources; (ii) provided on-site in non-service and non-residential sites by: — heat only boilers; — high-efficiency heat and power cogeneration; — heat pumps; — other on-site technologies and sources; (iii) provided off-site by: — high-efficiency heat and power cogeneration; — waste heat; — other off-site technologies and sources;</p> <p>(b) identification of installations that generate waste heat or cold and their potential heating or cooling supply, in GWh per year: (i) thermal power generation installations that can supply or can be retrofitted to supply waste heat with a total thermal input exceeding 50 MW;</p> <p>(ii) heat and power cogeneration installations using technologies referred to in Part II of Annex I with a total thermal input exceeding 20 MW; (iii) waste incineration plants, (iv) renewable energy installations with a total thermal input exceeding 20 MW other than the installations specified under point 2(b)(i) and (ii) generating heating or cooling using the energy from renewable sources; (v) industrial installations with a total thermal input exceeding 20 MW which can provide waste heat;</p>	<p>Current heating and cooling supply is broken down by technology and segment in the 'key energy figures' published each year by the Observation and Statistics Office at the Ministry of Ecological Transition.</p> <p>The data are presented on pages 61 to 67 of the 2020 edition:</p> <p>https://www.statistiques.developpement-durable.gouv.fr/sites/default/files/2020-11/datalab_70_chiffres_cles_energie_edition_2020_septembre2020_1.pdf</p> <p>France has produced scenarios of how final energy consumption might change, which are set out in the national low-carbon strategy up to 2050.</p> <p>On the basis of those scenarios, specific data concerning the change in heating and cooling demand up to 2030 were presented in the draft multiannual energy programme for 2018-2028, according to a 'high' and a 'low' scenario.</p> <p>Link:</p> <p>https://www.ecologie.gouv.fr/programmations-pluriannuelles-lenergie-ppe/</p> <p>Heat consumption by sector is given on pages 31 et seq. of the multiannual energy programme.</p> <p>Buildings:</p>  <p><i>Figure 11 : Evolution à venir de la consommation finale d'énergie dans le bâtiment suite à la mise en œuvre de la PPE par vecteur énergétique (TWh) dans le scénario de référence</i></p> <p>Figure 11: Future development of final energy consumption by buildings after implementation of the multiannual energy programme, by energy carrier (TWh), in the baseline scenario</p> <p>[Key: Electricité = Electricity Gaz = Gas Produits pétroliers = Petroleum products Charbon = Coal Chaleur = Heat ENRt et déchets = Renewable thermal energy and waste]</p>

Transport:

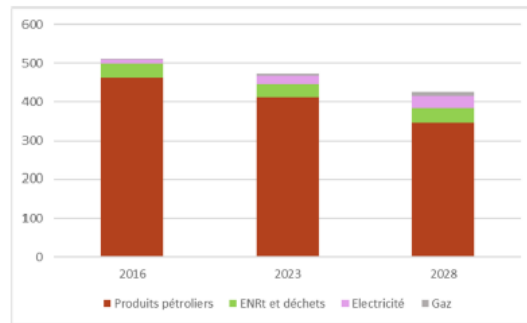


Figure 18 : Evolution à venir de la consommation finale d'énergie dans le transport suite à la mise en œuvre de la PPE par vecteur énergétique (TWh) dans le scénario de référence

Figure 18: Future development of final energy consumption by transport after implementation of the multiannual energy programme, by energy carrier (TWh), in the baseline scenario

[Key:

Produits pétroliers = Petroleum products
 ENRt et déchets = Renewable thermal energy and waste
 Electricité = Electricity
 Gaz = Gas]

Industry:

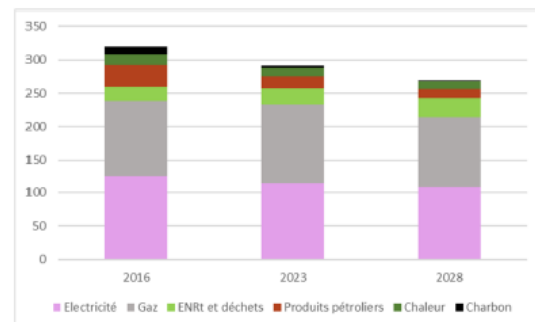


Figure 21 : Evolution à venir de la consommation finale d'énergie dans l'industrie suite à la mise en œuvre de la PPE par vecteur énergétique (TWh) dans le scénario de référence

Figure 21: Future development of final energy consumption by industry after implementation of the multiannual energy programme, by energy carrier (TWh), in the baseline scenario

[Key:

Electricité = Electricity
 Gaz = Gas
 ENRt et déchets = Renewable thermal energy and waste
 Produits pétroliers = Petroleum products
 Chaleur = Heat
 Charbon = Coal]

Agriculture:

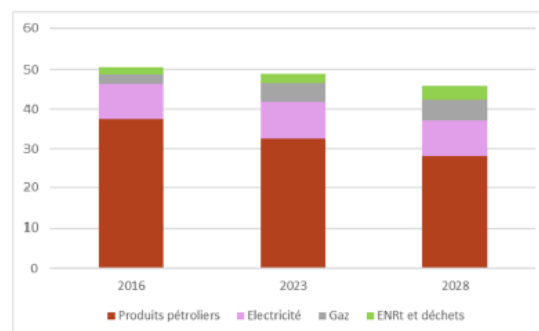
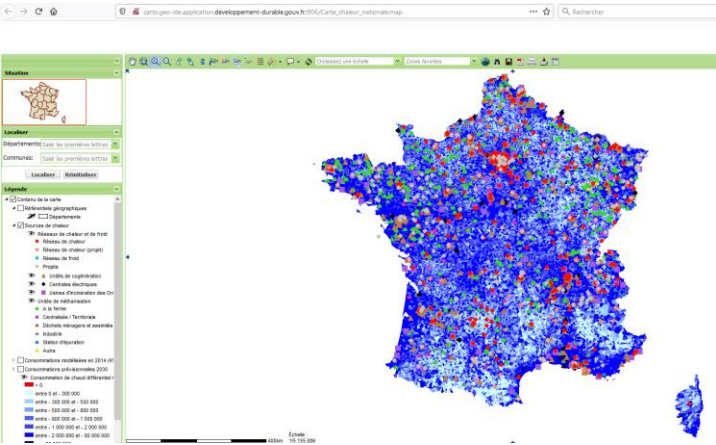
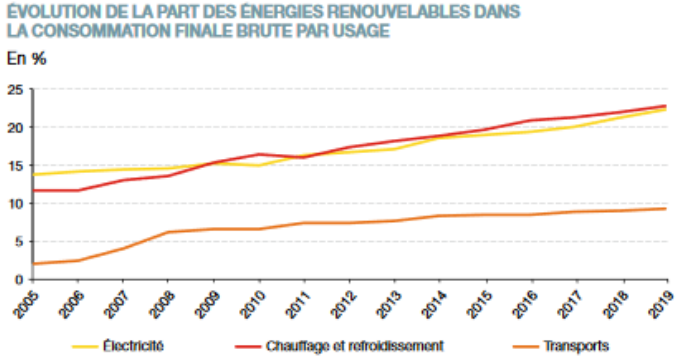


Figure 24 : Evolution à venir de la consommation finale d'énergie dans l'agriculture suite à la mise en œuvre de la PPE par vecteur énergétique (TWh) dans le scénario de référence

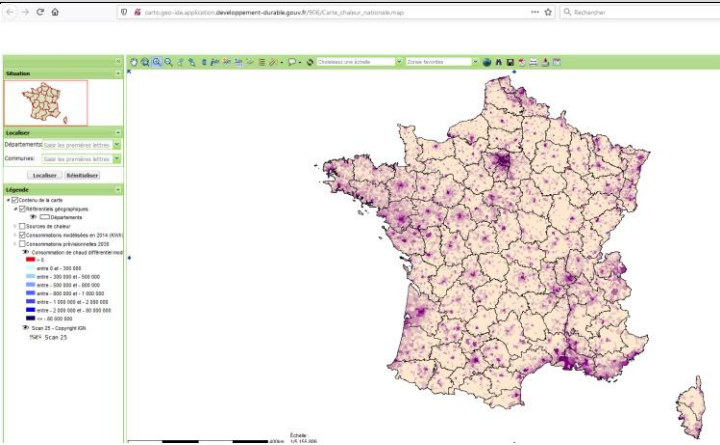
Figure 24: Future development of final energy consumption by agriculture after implementation of the multiannual energy programme, by energy carrier (TWh), in the baseline scenario

Information under Annex VIII	Results of the assessment
	<p><u>[Key:</u> Produits pétroliers = Petroleum products Electricité = Electricity Gaz = Gas ENRt et déchets = Renewable thermal energy and waste]</p> <p>Furthermore, CEREMA (the Centre for research and expertise on risks, the environment, mobility and planning) carried out mapping to identify heating and cooling needs and the main heating and cooling installations currently in place, planned or which could potentially be established (planned or existing district heating grids, electrical power plants, waste-to-energy power plants or cogeneration plants, etc.).</p> <p>Link: https://www.ecologie.gouv.fr/besoins-chaaleur-et-froid/</p> 
<p>(c) reported share of energy from renewable sources and from waste heat or cold in the final energy consumption of the district heating and cooling (4) sector over the past 5 years, in line with Directive (EU) 2018/2001;</p>	<p>The energy balance sheet published each year by the Observation and Statistics Office at the Ministry of Ecology, Sustainable Development and Energy enables final renewable heat consumption in France to be monitored. It also gives each sector's final consumption:</p> <p>https://www.statistiques.developpement-durable.gouv.fr/bilan-energetique-de-la-france-en-2019-donnees-provisoires/</p> <p>Data are available for the last 5 years.</p>

Information under Annex VIII	Results of the assessment
	<p>Page 65 of the document linked to below shows the declared share of energy from renewable sources in 2019.</p> <p>https://www.statistiques.developpement-durable.gouv.fr/sites/default/files/2020-11/datalab_70_chiffres_cles_energie_edition_2020_septembre2020_1.pdf</p>  <p>Source : calculs SDES</p> <p>DEVELOPMENT OF THE SHARE OF RENEWABLES IN GROSS FINAL ENERGY CONSUMPTION BY USE [Key: Electricité = Electricity Chauffage et refroidissement = Heating and cooling Transports = Transport]</p> <p>Comprehensive statistics for each year can be found via the following link:</p> <p>https://www.statistiques.developpement-durable.gouv.fr/chiffres-cles-des-energies-renouvelables-edition-2020</p>
<p>3. a map covering the entire national territory identifying (while preserving commercially sensitive information): (a) heating and cooling demand areas following from the analysis of point 1, while using consistent criteria for focusing on energy dense areas in municipalities and conurbations; (b) existing heating and cooling supply points identified under point 2(b) and district heating transmission installations; (c) planned heating and cooling supply points of the type described under point 2(b) and district heating transmission installations;</p>	<p>A national heat map is available on the website shown below. It sets out: the heating and cooling needs and the main heating and cooling installations currently in place, planned or which could potentially be established (planned or existing district heating grids, electrical power plants, waste-to-energy power plants or cogeneration plants).</p> <p>Link:</p> <p>http://carto.geo-ide.application.developpement-durable.gouv.fr/906/Carte_chaleur_nationale.map/</p>

Information under Annex VIII

Results of the assessment



4. a forecast of trends in the demand for heating and cooling to maintain a perspective of the next 30 years in GWh and taking into account in particular projections for the next 10 years, the change in demand in buildings and different sectors of the industry, and the impact of policies and strategies related to the demand management, such as long-term building renovation strategies under Directive (EU) 2018/844;

The national low-carbon strategy lays down guidelines for implementing the transition to a low-carbon, circular and sustainable economy in all sectors. It sets out the greenhouse gas emissions reduction trajectory up to 2050.

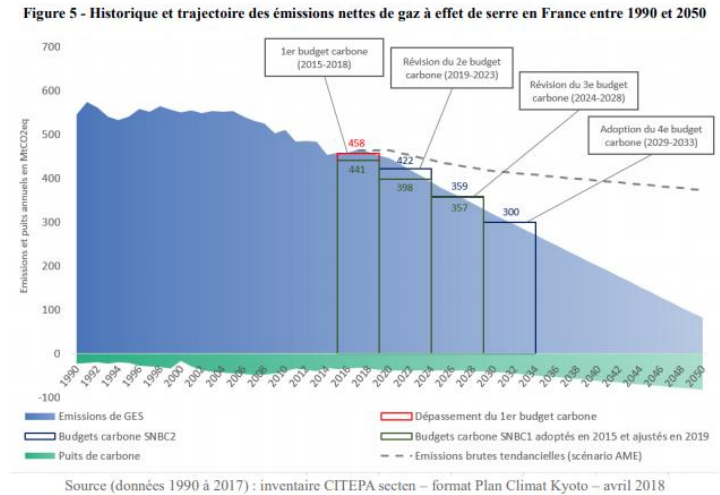


Figure 5 - Past and projected net greenhouse gas emissions in France between 1990 and 2050

Key:
 1er budget carbone (2015-2018) = 1st carbon budget (2015-2018)
 Révision du 2e budget carbone (2019-2023) = Review of the 2nd carbon budget (2019-2023)
 Révision du 3e budget carbone (2024-2028) = Review of the 3rd carbon budget (2024-2028)
 Adoption du 4e budget carbone (2029-2033) = Adoption of the 4th carbon budget (2029-2033)
 Emissions de GES = Greenhouse gas emissions
 Budgets carbone SNBC2 = SNBC2 carbon budgets
 Puits de carbone = Carbon sinks
 Dépassement du 1er budget carbone = Amount by which 1st carbon budget was exceeded
 Budgets carbone SNBC1 adoptés en 2015 et ajustés en 2019 = SNBC1 carbon budgets adopted in 2015 and adjusted in 2019
 Emissions brutes tendancielle (scénario AME) = Trend in gross emissions (WEM (with existing measures) scenario)
 Source (données 1990-2017): inventaire CITEPA secten – format Plan Climat Kyoto – avril 2018
 = Source (1990-2017 data): CITEPA secten inventory – Kyoto Climate Plan format – April 2018]

Link:
<https://www.ecologie.gouv.fr/strategie-nationale-bas-carbone-snbc/>

On pages 22 et seq., Chapter 2.2(C) of the national low-carbon strategy identifies a baseline scenario for each sector for the next 30 years:

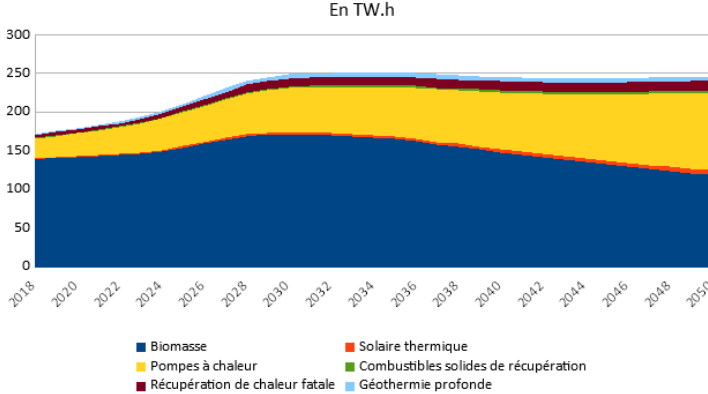
- for buildings, on pages 23 and 24,
- for industry, on page 28,

Information under Annex VIII	Results of the assessment
	<ul style="list-style-type: none"> • for energy production, on page 29. • etc. <div data-bbox="678 302 1361 667"> <p>Consommation d'énergie finale de l'agriculture dans l'AMS</p> <p><i>Consommation d'énergie finale de l'agriculture dans l'AMS</i></p> </div> <p>Final energy consumption by agriculture in the WAM (with additional measures) scenario [Key: Consommation en TWh = Consumption in TWh Charbon = Coal Produits pétroliers raffinés = Refined petroleum products Gaz (dont gaz renouvelable) = Gas (including renewable gas) EnR thermiques et déchets = Renewable thermal energy and waste Électricité = Electricity Réseaux de chaleur = District heating grids]</p> <div data-bbox="678 896 1351 1209"> <p>Consommation d'énergie finale des bâtiments dans l'AMS</p> </div> <p>Final energy consumption by buildings in the WAM scenario [Key: Consommation en TWh = Consumption in TWh Charbon = Coal Produits pétroliers raffinés = Refined petroleum products Gaz = Gas EnR thermiques et déchets = Renewable thermal energy and waste Électricité = Electricity Réseaux de chaleur = District heating grids]</p> <div data-bbox="678 1473 1370 1805"> <p>Consommation d'énergie finale de l'industrie dans l'AMS</p> </div> <p>Final energy consumption by industry in the WAM scenario [Key: Consommation en TWh = Consumption in TWh Charbon = Coal Produits pétroliers raffinés = Refined petroleum products Gaz (dont gaz renouvelable) = Gas (including renewable gas) EnR thermiques et déchets = Renewable thermal energy and waste Électricité = Electricity Réseaux de chaleur = District heating grids]</p>

Information under Annex VIII	Results of the assessment
Part II - OBJECTIVES, STRATEGIES AND POLICY MEASURES	
5. planned contribution of the Member State to its national objectives, targets and contributions for the five dimensions of the energy union, as laid out in Article 3(2)(b) of Regulation (EU) 2018/1999, delivered through efficiency in heating and cooling, in particular related to points 1 to 4 of Article 4(b) and to paragraph (4)(b) of Article 15, identifying which of these elements is additional compared to integrated national energy and climate plans;	<p>The following link focuses on France's contribution to the five dimensions of the energy union (France's integrated national energy and climate plan, March 2020):</p> <p>https://ec.europa.eu/energy/sites/ener/files/documents/fr_final_necp_main_fr.pdf/</p> <p>French law sets ambitious targets for the development of renewable heat, including the target that 38% of heat consumption should be from renewable sources by 2030. It had reached a share of 22% in 2019 and has been increasing since 2010.</p> <p>It also sets a target for a fivefold increase in the amount of renewable and recovered heating and cooling supplied by district heating and cooling grids by 2030 as compared with 2012. In 2017 district heating grids supplied 25.6 TWh of net heating, of which 59.4%, or 15.2 TWh, was from renewable and recovered energy. This is a twofold increase on 2012.</p> <p>In order to achieve the targets it has set itself, the Government makes use of a planning tool, the multiannual energy programme (<i>programmation pluriannuelle de l'énergie</i> – PPE), which sets quantitative targets for each segment over a period of 10 years.</p> <p>Overall, the draft multiannual energy programme envisages a 27% increase in renewable heat production by 2023 and an increase of between 40% and 60% by 2028, with 2017 as the baseline.</p> <p>Those targets, along with the associated guidelines and measures, also make it possible to meet the requirement laid down by Article 23 of the European Directive on the promotion of the use of energy from renewable sources, namely for each Member State to increase their share of renewable heat by 1.3 points per year between 2021 and 2030.</p>
6. general overview of the existing policies and measures as described in the most recent report submitted in accordance with Articles 3, 20, 21 and 27(a) of Regulation (EU) 2018/1999.	<p>To boost renewable heat production, cross-cutting measures have been adopted that apply to all segments. For some segments, those measures should be sufficient to facilitate the penetration of renewable heat, but for other sectors, they will be supplemented by specific measures.</p> <p>The main cross-cutting measures include:</p> <ul style="list-style-type: none"> - ensuring that future environmental legislation on new buildings (RE 2020) results in a minimum rate of renewable heat in all new buildings (individual, collective and tertiary) as soon as it is implemented; - making it easier to classify efficient district heating and cooling grids (classification of a district heating or cooling grid is a way of identifying areas within which all new installations should be connected to the grid); - further strengthening the Heat Fund from 2019, with an annual budget of EUR 307 million in 2019 and EUR 350 million from 2020 onwards; stabilising the level of commitment authorisations by ADEME (the Environment and Energy Management Agency) for the Heat Fund at EUR 350 million from 2022 onwards, provided that there is no change in the carbon tax by that date;

Information under Annex VIII	Results of the assessment
	<ul style="list-style-type: none"> - simplifying the rules with regard to the Heat Fund; developing renewable energy development contracts relating to a particular territory or property, which enable grants to be given to clusters of small projects; - making aid for the renovation of private dwellings (the income tax credit for energy transition (CITE) and its successor 'MaPrimeRénov') more effective and setting a flat-rate amount that is differentiated according to the type of technology and takes particular account of the renewable heat produced by each type of equipment; - maintaining the reduced-rate VAT of 5.5% for eligible renewable heating equipment and associated work (e.g. exhaust duct, pellet silo); - improving coordination between energy savings certificates and aid from the Heat Fund; - making the eligibility criteria for a heating grid to qualify for the reduced-rate VAT of 5.5% more ambitious by raising the 50% threshold for renewable and recovered energy on the basis of a sustainable timetable (60% in 2030). <p>Those cross-cutting measures are supplemented by specific measures for certain segments:</p> <ul style="list-style-type: none"> - promoting the recovery of heat from biomass before it is used in high-efficiency cogeneration; - rapidly replacing individual inefficient wood-burning heaters (fireplaces, stoves, inserts) with appliances that perform better in terms of efficiency and air quality (green flame rating, pellets, etc.); - developing territorial biomass analyses at regional level in order to mobilise biomass resources that are available but as yet unused; - using the income tax credit for energy transition and then 'MaPrimeRénov' to ensure ongoing financial support for air/water heat pumps and geothermal heat pumps; - using the Heat Fund to support heat-pump-assisted geothermal energy and geothermal renewable cooling projects; - using the Heat Fund to support investment in geothermal energy, geothermal heating and cooling grids and geothermal heat storage solutions; - using the income tax credit for energy transition and then 'MaPrimeRénov' to ensure ongoing support for individual solar thermal devices (combined solar system, solar water heater, etc.) as part of a renewed focus on the most effective action; - with regard to multi-occupant housing, the tertiary sector and industry: extending, by at least 3 years, the call for projects under the Heat Fund for large areas of solar thermal collectors and allowing aid from the Heat Fund for refurbishing faulty installations; - incorporating a technological and economic assessment of solar or geothermal heat production into the energy audits of large and medium-sized enterprises; ° - making it mandatory to recover energy from biogas captured at waste storage facilities, where economically and technologically feasible;

Information under Annex VIII	Results of the assessment														
	<ul style="list-style-type: none"> - promoting the recovery of waste heat by household waste incineration plants and waste-to-energy plants, in connection with publication of the BREFs (best available techniques reference documents) for the sector; - evaluating the potential for recovering heat from waste water. <p>A general overview of France's policy can be found in the final version of the integrated national energy and climate plan pursuant to the relevant articles of Regulation (EU) 2018/1999:</p> <p>https://ec.europa.eu/energy/sites/ener/files/documents/fr_final_necp_main_fr.pdf</p> <p>Furthermore, in conjunction with its efforts on renewable energy, and while creating a framework for action on the part of the public, businesses and the State, France has also set itself ambitious medium- and long-term energy-efficiency targets: to reduce final energy consumption by 7% by 2023 (in comparison with 2012), 20% by 2030 and 50% by 2050.</p> <p>To achieve those targets, France will make use of two main cross-cutting measures, namely the energy savings certificates scheme and EU regulations on the ecodesign of energy-related products and energy labelling of those products. It will also make use of targeted measures for all sectors: residential, tertiary, industry, transport and agriculture. The flagship measures include the long-term building renovation strategy, environmental and energy regulations for new buildings, the income tax credit for energy transition, now superseded by 'MaPrimeRénov', interest-free eco-loans, energy audits and the extension of the exchange premium for replacing an old vehicle with an energy-efficient vehicle.</p> <p>France published an update on the implementation of its energy-efficiency policy in accordance with Articles 24(1) and 24(2) of Directive 2012/27/EU in March 2020:</p> <p>https://www.ecologie.gouv.fr/sites/default/files/Rapport%20annuel%202020.pdf</p>														
Part III – ANALYSING ECONOMIC POTENTIAL FOR EFFICIENCY IN HEATING AND COOLING															
<p>7 and 8. an analysis of the economic potential (€) of different technologies for heating and cooling shall be carried out for the entire national territory by using the cost-benefit analysis referred to in Article 14(3) and shall identify alternative scenarios for more efficient and renewable heating and cooling technologies, distinguishing between energy derived from fossil and renewable sources where applicable.</p>	<p>The attached report assesses the maximum potential (in TWh) for solutions based on renewables and efficient recovery.</p> <p>Potential in TWh</p>  <table border="1"> <thead> <tr> <th>Technologie</th> <th>Potential (TWh)</th> </tr> </thead> <tbody> <tr> <td>Biomasse solide</td> <td>~175</td> </tr> <tr> <td>Pompes à chaleur</td> <td>~100</td> </tr> <tr> <td>Récupération de chaleur fatale</td> <td>~15</td> </tr> <tr> <td>Solaire thermique</td> <td>~10</td> </tr> <tr> <td>Géothermie profonde</td> <td>~5</td> </tr> <tr> <td>Combustibles solides de récupération</td> <td>~5</td> </tr> </tbody> </table> <p>Key: Biomasse solide = Solid biomass</p>	Technologie	Potential (TWh)	Biomasse solide	~175	Pompes à chaleur	~100	Récupération de chaleur fatale	~15	Solaire thermique	~10	Géothermie profonde	~5	Combustibles solides de récupération	~5
Technologie	Potential (TWh)														
Biomasse solide	~175														
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Combustibles solides de récupération	~5														

Information under Annex VIII	Results of the assessment
	<p> Pompes à chaleur = Heat pumps Récupération de chaleur fatale = Recovery of waste heat Solaire thermique = Solar thermal Géothermie profonde = Deep geothermal Combustibles solides de récupération = Solid recovered fuel] </p> <p>En TW.h</p>  <p> Biomasse Pompes à chaleur Récupération de chaleur fatale Solaire thermique Combustibles solides de récupération Géothermie profonde </p> <p> [Key: Biomasse = Biomass Pompes à chaleur = Heat pumps Récupération de chaleur fatale = Recovery of waste heat Solaire thermique = Solar thermal Combustibles solides de récupération = Solid recovered fuel Géothermie profonde = Deep geothermal] </p> <p> The analysis concentrates on studying systems that are considered efficient in France. Those systems have been integrated, in different proportions, into two scenarios which reflect two different trajectories. Those two scenarios outline supply to match the projected demand for heat in metropolitan France for the period from 2018 to 2050. </p> <p> The maximum potential deployment of efficient systems has been projected and forms the basis for the ‘alternative’ scenario. That scenario uses the efficient solutions to their maximum potential, with the supply shortfall being met by the use of conventional solutions. </p> <p> For the two cases studied, the results of the analysis show that the ‘alternative’ scenario performs best in economic and financial terms. <u>As the trajectories for the deployment of efficient solutions are those laid down by the multiannual energy programme, the analysis confirms that the appropriate trajectory has been chosen by France in its programme.</u> </p>
Part IV - POTENTIAL NEW STRATEGIES AND POLICY MEASURES	
<p>9. Overview of new legislative and non-legislative policy measures (§) to realise the economic potential identified in accordance with points 7 and 8, along with their foreseen: (a) greenhouse gas emission reductions; (b) primary energy savings in GWh per year; (c) impact on the share of high-efficiency cogeneration; (d) impact on the share of renewables in the national energy mix and in the heating and cooling sector; (e) links to national financial programming and cost savings for the public budget and market participants; (f) estimated public support measures, if any,</p>	<p>The multiannual energy programme proposes implementing the following strategy by 2028:</p> <p>Link:</p> <p>https://www.ecologie.gouv.fr/programmations-pluriannuelles-lenergie-ppe/</p> <p>The targets set in the draft multiannual energy programme for district heating and cooling grids focus on the amount of renewable and recovered heating and cooling supplied by the grids and the number of dwelling equivalents connected (in order to calculate the total amount of heating supplied by renewable energy, recovery and other sources of energy).</p>

Information under Annex VIII	Results of the assessment
<p>with their annual budget and identification of the potential aid element.</p>	<p>Those targets take into account the potential for waste heat recovery (industrial, waste treatment) and for developing renewable solutions for the grids (biomass, geothermal, solar, biogas). They are based on the fact that existing grids are becoming denser and greener and that new, efficient grids are being created.</p> <p>For each segment, the multiannual energy programme sets out the means to achieve those targets.</p> <p>Other measures for realising that potential have been added by France's recovery plan. The flagship measures that will make it possible to accelerate the deployment of renewable and recovered heat and energy efficiency are as follows:</p> <ul style="list-style-type: none"> - a new industrial decarbonisation scheme with a budget of over EUR 1.2 billion as part of the recovery plan, including support for energy-efficient equipment and the creation of investment aid and operating aid for biomass process heat plants which are currently being notified to the European Commission. <p>Link: https://www.economie.gouv.fr/plan-de-relance/profils/entreprises/decarbonation-industrie/</p> <ul style="list-style-type: none"> - substantially strengthening the policy for energy renovation of buildings by: <ul style="list-style-type: none"> - extending and increasing aid for renovation of private dwellings through 'MaPrimeRénov', which funds work to insulate housing and decarbonisation of heating systems (aid for installing renewable energy heating). <p>Link: https://www.maprimerenov.gouv.fr/</p> <ul style="list-style-type: none"> - increasing the State budget for renovation of public buildings; - State funding for complete thermal renovation of social housing; - creating tax credits for renovating the tertiary-sector buildings of SMEs. <p>These measures will make it possible to increase the pace of the energy renovation of public and private buildings, thus reducing energy demand and allowing renewable heating systems to be installed.</p>