

The French Authorities

Progress report on the promotion and use of renewable energy sources

1st report

Implementation of article 22 of European Union Directive 2009/28/EEC

9 December 2011



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This report has been prepared for the European Commission pursuant to article 22 (1) of Directive 2009/28/EEC regarding the promotion and use of energy produced from renewable sources, based on the model provided by the Commission.

Note: the data provided herein for 2010 are drawn partly from estimates; these data may vary with the publication of results from final surveys for 2010.

## 1. Sectoral and overall shares, actual production and consumption of energy from renewable sources for 2009 and 2010.

Table 1 below provides a quick comparison with table 3 of the national action plan for renewable energy, indicating France's targets in terms of renewable energy shares for gross final energy consumption. For the record, France had included a target percentage for renewable energy of 12.5 % for 2010 in its national action plan for gross final energy consumption.

Table 1: Shares by sector (electricity, heating and cooling, and transportation) and global for energy produced from renewable sources

	2009	2010
RES- H&C <sup>1</sup> (%)	16.4 %	17.1 %
RES- E <sup>2</sup> (%)	15 %	14.7 %
RES- T <sup>3</sup> (%)	5.9 %	5.9 %
Total share of RES <sup>4</sup> (%)	12.4 %	12.8 %
<i>Share from the cooperation</i>	0	0
<i>Excess production allocated to the cooperation mechanism (%)</i>	0	0

A direct comparison shows that France is ahead by +0.3 % with respect to its target. However, these figures must take into account the winter weather conditions in 2010. A significant part of this figure is, in fact, due to the rigorous winter of 2010, since there is a strong interrelation in France between weather conditions during the winter and biomass share in final consumption. In accordance with Eurostat requirements, domestic biomass consumption is not corrected by climate.

<sup>1</sup>Share of renewable energy sources (SER) for the heating and cooling sector: gross final consumption for energy produced from renewable sources for heating and cooling [according to the definition in article 5, paragraph 1, point b) and paragraph 4 of Directive 2009/28/EEC] divided by the gross final energy consumption for heating and cooling.

<sup>2</sup> Share of renewable energy sources in electricity production: gross final consumption for electricity produced from renewable sources

[according to the definition in article 5, paragraph 1, point a) and paragraph 3 of Directive 2009/28/EEC] divided by the total gross final energy consumption of electricity.

<sup>3</sup> Share of renewable energy sources in transportation: final energy share from renewable sources consumed by the

transport sector [according to the definition in article 5, paragraph 1, point c) and paragraph 5 of Directive 2009/28/EEC] divided by consumption in the transport sector of 1) petrol, 2) diesel, 3) biofuel used in road and rail transport, and 4) electricity in land transport (see line 3 in table 1).

<sup>4</sup> Share of renewable energy sources in gross energy final consumption.

Moreover, it should be noted that, contrary to the figures submitted annually to Eurostat, the data contained in this report regard the whole of French territory, and are limited to metropolitan France.

Table 1a: Calculation table for the contribution of renewable energy sources for each sector in final energy consumption (ktep)

	2009	2010
(A) Gross final consumption of RES for heating and cooling	10903	12356
(B) Gross final consumption of electricity produced from RES	6748	6928
(C) Final energy consumption produced from RES in the transport sector	2620	2635
(D) Total gross consumption of RES <sup>5</sup>	20114	21763
(E) Transfer of RES <u>towards</u> other member countries	0	0
(F) Transfer of RES <u>from</u> other member countries and non-member countries	0	0
(G) Consumption of RES corrected for target (D)-(E)+(F)	20114	21763

<sup>5</sup> Under article 5, paragraph 1 of Directive 2009/28/EEC, gas, electricity and hydrogen from renewable energy sources must be taken into consideration only once.

Table 1.b: Total actual contribution (installed capacity, gross electricity production) for each technology from renewable energy sources in France in the electricity sector

	2009		2010	
	MW	GWh	MW	GWh
Hydropower <sup>6</sup>	25449	69597	25449	68643
without pumping	18464	61135	18464	60427
< 1MW	446	1651	446	1601
1MW-10 MW	1655	5754	1655	5640
>10MW	16363	53730	16363	53186
with pumping	1808	4923	1808	4759
mixed <sup>7</sup>	5177	3539	5177	3457
Geothermal power	15	50	15	15
Solar power:	348	220	1072	676
Photovoltaic	38	20	1072	66
concentrated solar power	0	0	0	0
Hydrokinetic / wave / tidal power	240	448	240	476
Wind power	4621	8087	5729	10499
onshore facilities	4621	8087	5729	10499
offshore installations	0	0	0	0
Biomass:	914	4539	949	4876
Solid biomass	73	3654	74	3863
Biogas	161	88	15	1013
bioliquids	0	0	0	0
<b>TOTAL<sup>8</sup></b>	<b>31587</b>	<b>82941</b>	<b>33454</b>	<b>85185</b>
of which in cogeneration	38	2283	18	18

## Notes:

- Power outputs from biomass plants with mixed equipment have been calculated in proportion to the fuel used;
- In accordance with Eurostat methodology, hydroelectric power production using pumps is not considered a renewable production. For the "mixed" line, the figure indicated corresponds to the share of renewable hydropower (i.e. without pumping) from mixed power plants. The figure indicated for total hydropower production is equal to the sum of renewable hydraulic production and non-renewable hydraulic production.

<sup>6</sup> Standardised in accordance with Directive 2009/28/EEC and Eurostat methodology.

<sup>7</sup> In accordance with the new Eurostat methodology.

<sup>8</sup> N.B. to obtain the total renewable production, deduct hydroelectric production with pumping from this value.

<sup>9</sup> Data marked n/a in this table and in the next table will only be available after surveys have been conducted (estimated due date: January 2012)

Table 1c: Total actual contribution (final energy consumption) for each technology from renewable energy sources in France in the heating and cooling sector (ktep)

	2009	2010
Geothermal power (except for low temperature geothermal heat in heat pump applications)	88	90
Solar power	78	89
Biomass <sup>10</sup> :	9722	10840
<i>Solid biomass</i>	<i>9604</i>	<i>10711</i>
<i>Biogas</i>	<i>118</i>	<i>129</i>
<i>Bioliquids</i>	<i>0</i>	<i>0</i>
Renewable energy from heat pumps	750	1008
- geothermal	<i>639</i>	<i>875</i>
- wind	<i>376</i>	<i>462</i>
- solar	<i>0</i>	<i>0</i>
<b>TOTAL</b>	10903	12356
<i>Urban heating<sup>11</sup></i>	<i>36</i>	<i>16</i>
<i>biomass for domestic use<sup>12</sup></i>	<i>6650</i>	<i>7581</i>

Note that the figures for biomass and heat from heat pumps (PAC) for 2010 are higher than normal due to the fact that it was a particularly cold year.

The "Renewable energy heat pumps" line also contains energy from pumps produced by intermediary geothermal installations (265 ktep in 2009 and 329 ktep in 2010): these are not domestic geothermal heat pumps.

<sup>10</sup> Only takes into consideration that which satisfies durability criteria (see article 5, paragraph 1, last sub-section of Directive 2009/28/EEC).

<sup>11</sup> Share of urban heating and/or cooling in total energy consumption for heating and cooling produced from renewable energy sources (RES-UH).

<sup>12</sup> Share of total energy consumption for heating and cooling produced from renewable energy sources.

Table 1d: Total actual contribution for each technology from renewable energy sources in France in the electricity transport sector (ktep)<sup>1314</sup>

	2009	2010
Bioethanol/bio-ETBE	406	394
<i>of which biofuel<sup>15</sup> under art. 21, par.2</i>	0	0
<i>of which imports<sup>16</sup></i>	19	10
Biodiesel	2057	2086
<i>of which biofuel<sup>17</sup> under art. 21, par.2</i>	0	63
<i>of which imports<sup>18</sup></i>	24	24
Hydrogen from renewable sources	0	0
Electricity from renewable sources	157	155
<i>of which road transport</i>	0	0
<i>of which non-road transport</i>	17	15
Others (biogas, vegetable oils, etc.) - Specify	0	0
<i>of which biofuel<sup>9</sup> under art. 21, par.2</i>		
TOTAL	2620	2635

Due to social trends in the last quarter of 2010, it has been necessary to temporarily lift the obligation to incorporate biofuel for a period of 30-days. This temporary suspension has led to a decrease in the consumption of biofuel for 2010, which does reflect the actual situation for the sector.

<sup>15</sup> Biofuel in article 21, paragraph 2 of Directive 2009/28/EEC.

<sup>16</sup> Share in the total quantity of bioethanol/bio-ETBE.

<sup>17</sup> Biofuel in article 21, paragraph 2 of Directive 2009/28/EEC.



## 2. Measures taken during the 2 past years and/or forecast at a national level for promoting renewable energy.

For the years taken in consideration, most measures have already been recalled in the national action plan promoting renewable energy sources.

Table 2: General overview of policies and measures

Name and reference of	Type of	Expected results**	Targeted group and/or activities***	Existing or planned	Dates for start and
1. Modification of administrative procedures	Regulatory	Simplification for minor electricity production or renewable heat projects; improved environmental standards for large scale projects (photovoltaic, wind, biomass)	Individuals, Investors	Existing, modification en cours	Progressive since 2001 Creation of the simplified ICPE regime in 2010
2. Income Tax Credit Sustainable Development	Financial	Increase in the number and quality of energy performance projects	Individuals	Existing	2005-2012
			Individuals	Existing	1999
3. VAT at reduced rate (projects in homes two years or older): for renewable energy production equipment in the existing residential sector.	Financial	3 million households fitted with wood heating,  2 million with heat pumps,	Individuals	Existing	1 April 2009 –  31 December 2013 for the eco zero interest rate loan
4. eco zero interest rate loan for global energy performance improvement projects in homes	Financial	4 million with thermal solar by 2020			

<b>Name and reference of</b>	<b>Type of</b>	<b>Expected results**</b>	<b>Targeted group and/or activities***</b>	<b>Existing or planned</b>	<b>Dates for start and</b>
5. ANAH support	Financial	Increase in the number and quality of thermal renovations for modest households	Individuals	Existing, currently being reinforced	2007- /
6. Renovation plan for social housing and public buildings	Financial	Thermal renovation for all of these homes by 2020	Low rent housing managers, the state and communities	In progress	2009- 2020
6. repeat of eco-loan for global energy performance improvement projects for social housing	Financial	Thermal renovation for the least efficient social housing	Low rent housing	Existing – Expired since May 2011	February 2009 – May 2011
7. Energy savings certificates	Regulatory	Increase in the number of actions allowing for energy savings or producing renewable heat, in homes and industry	Energy providers	Existing	2005 - /
8. Thermal Regulation 2012	Regulatory	Reinforcement of thermal standards in new constructions	Individuals, any owner of a building used for residential and services sectors	Existing	28 October 2011-2020 or 1 January 2013 - 2020 depending on the type of building
9. Energy Performance Diagnosis	Regulatory	More information for buyers, occupants and visitors	Individuals, real estate companies	Existing	2007- /
10. COS Bonus	Regulatory	Promotion of energy performance	Individuals	Existing	2005- /
11. Qualification/certification programmes	Regulatory - non-binding	Improved quality of thermal renovations and renewable energy production installations in buildings	Building professionals	Existing – upcoming	Reinforcement expected in 2010 -2011

Name and reference of	Type of	Expected results**	Targeted group and/or activities***	Existing or planned	Dates for start and
12. Energy Info Spaces	Informative	Increase in the number and quality of thermal renovation projects 3 million households fitted with wood heating,  2 million with heat pumps,	Individuals	Existing	2000- /
13. ADEME campaigns	Informative	Awareness towards global warming and thermal renovation	Individuals	Existing	2009-2010
14. Accelerated and exceptional amortisations	Financial	Increase in the number of projects and installed capacity	Businesses – all REN technologies	Existing	Start: 1992, 2002, 2005, 2008 depending on technologies End: 31 December 2010
15. Energy Air Climate Regional Schemes	Planning	Identification and valorisation of renewable energy potential	Territorial communities	Upcoming	2010-2011
16. Heating Funds	Financial	Finance the production 5 400 ktep of heat from renewable sources	Public, services and industrial sectors	Existing	1st period from 2009 to 2013
17. VAT at reduced rate for urban heating networks using more than 50% REN	Financial	3.2 Mtep renewable heat from heat networks by 2020	Developers, investors – heating networks	Existing	2009- /
18. Classification of urban heating networks	Regulatory	3.2 Mtep renewable heat from heat networks by 2020 + development of cooling networks	Developers, end users – heating networks	Existing modification in planning phase	1997- /

Name and reference of	Type of	Expected results**	Targeted group and/or activities***	Existing or planned	Dates for start and
19. Extension of duration of grant (public service delegations)	Financial	3.2 Mtep renewable heat from heat networks by 2020	Developers, investors – heating networks	Existing	2010-/
20. Energy Performance Plan for farms	Financial	- Achieve a 30 % rate of low energy dependence farms by 2013 - Develop REN	Farms	Existing	2009-2013
21. Support for the construction or development of vegetable greenhouses and greenhouses in the ornamental horticulture and plant nursery sector	Financial	Develop REN for vegetable greenhouses and greenhouses in the ornamental horticulture and plant nursery sector	Farms	Existing	
22. Support programme for waste policies	Financial	Support the development of anaerobic waste treatment (amongst others)	Farms	Existing	2008-/
23. Buy-back rates for electricity produced from renewable energy sources	Financial	Increase the number of renewable electricity production projects	Individuals, Investors	Existing	2000-/ amended from 2006 to 2010 depending on technologies
24. Negotiable certificates	Financial	Increase the number of renewable electricity production projects	Investors	Existing	Revision of plan expected in 2010

Name and reference of	Type of	Expected results**	Targeted group and/or activities***	Existing or planned	Dates for start and
25. Tenders for renewable electricity production projects	Financial	Increase in installed capacity for de renewable electricity production (wind, offshore wind, biomass, photovoltaic, marine energy)	Investors	Existing for biomass and photovoltaic Existing for offshore wind Existing for onshore wind in Corsica and abroad Planned for marine energy Annual periodicity for biomass.	2005 - 2020
26. ADEME demonstration funds, extended by Future Investment programmes	Financial	Stimulate R&D	Investors, researchers	Existing	2009-2013
26 a. Future Investments	Financial	Stimulate R&D	Investors, researchers	Existing	2010-/-
27. ANR	Grants	Stimulate R&D	Researchers	Existing	2009-/-
28. Competitiveness areas	Grants	Stimulate R&D	Public-Private partnerships	Existing	2005-/-
29. General tax on polluting activities (TGAP)	Fiscal	Achieve biofuel incorporation	Fuel distributors	Existing	2005-/-
30. Partial exemption from the Domestic Consumption Tax (TIC)	Fiscal	Reduce additional costs for manufacturing biofuel	Fuel producers	Existing	2002-/-
31. Renovation of waterways and port installations	Infrastructures	Substitute the transportation of goods by road with non-road transportation	Transport/distribution businesses	In development	2010-/-

Name and reference of	Type of	Expected results**	Targeted group and/or activities***	Existing or planned	Dates for start and
32. Construction of 2000 km of railway lines	Infrastructures	Substitute road transportation with rail service	Rail transport companies for both passengers and goods	In development	2010-/
33. Construction of underground rapid transit in Ile de France	Infrastructures	Increase public transport	Individuals	In development	2010-/
34. Construction of 1500 km of public transport in sites outside Ile de France	Infrastructures	Increase public transport	Individuals	In development	2010-/
36. Incentives for clunkers	Fiscal	Accelerate renewal of automobiles	Individuals	Existing	2008-2010 End: 31 December 2010
37. Eco bonuses	Fiscal	Promote sales of eco-friendly cars	Individuals	Existing	2010-/
38. Creation of mandatory buyback for biomethane injected in gas networks	Regulatory	Contribute to achieving targets for heat production from biogas	Waste producers	Existing	2010-/

\* Specify whether the measure is (essentially) of a Regulatory, Financial or non-binding nature (information campaign, for example).

\*\* Does the expected result entail a change in behaviour, installed capacity (MW; t/year), energy produced (ktep)?

\*\*\* Who is targeted: Investors, end users, public authorities, planners, architects, installers, etc. or what activity/sector is targeted: biofuel production, use of manure for energy, etc.?

\*\*\*\* Does this measure replace or complete existing measures in table 5 for national action plans related to renewable energy sources?

## 2.a Evaluations and improvements for administrative procedures aimed at removing regulatory and other obstacles to the development of renewable energy sources.

For the sake of providing complete information, the measures and works started in 2011 are also presented. For the years taken into consideration, a part of the measures has naturally already been included in the national action plan promoting renewable energy sources.

### Measures related to environmental law

As part of the control and prevention of pollution and industrial risks, the legislation regarding installations classed as providing environmental protection (ICPE) constitutes a legal basis for environmental industrial policy in France (Volume V of the Environmental Code). A list of designations exists for each activity and substance (annexed to Article R511-9 of the Environmental Code), subjecting them to the requirements specified in orders issued by the Environment Ministry. Depending on the risk they represent, power plants are subject to a different ordinance regime: the authorisation, registration or declaration regime. The principle of the registration regime was created through ordinance no. 2009-663 dated 11 June 2009; this regime defines a new intermediary ICPE classification category which allows for a simplification of requirements for installations whose nature is well known.

Administrative procedures related to environmental protection are further discussed on pages 24 and 25 of the national action plan promoting renewable energy sources.

#### a. Promoting the use of methane

Among the measures adopted, we shall mention the measures promoting biogas, created in 2009 under decree no. 2009-1341 dated 29 October 2009, of section no. 2781 of the ICPE designation specific to biogas installations. Biogas plants had until then been ignored by this designation, implying a case by case process with extended deadlines.

Furthermore, a registration regime was introduced under decree no. 2010-875 dated 26 July 2010 for biogas installations of average dimensions.

#### b. Promoting the use of wind plants

In 2010, Law no. 2010-788 dated 12 July 2010 promoting a national commitment for environmental issues, the "Grenelle 2" stipulated the ICPE regime for wind plants. The decree and application orders for this measure were published in the Official Journal on the 25 and 27 August 2011 respectively.

In fact, the preliminary procedure for the installation of wind plants was essentially based on a building permit procedure. The issue of a permit by a prefect was preceded by an impact study and public inquiry for wind plants exceeding 50 metres. This procedure proved to be the source of numerous disputes – to the detriment of project promoters. The ICPE legislation thus provides a well-trying legal basis, which will notably allow for the definition of general or specific provisions of a regulatory nature for the implementation and operation of wind farms, clarifying the conditions for developing projects, while rendering authorisations delivered legally more robust.

As for other classified power generating installations, the ICPE procedure will allow for a reduction in ordinance delays to 1 year (compared to the current 2 to 4 years on average), as well as reducing the number of disputes and strengthening applications at a national level. A single contact will be designated for projects and services administered by the State.

## Measures related to zoning and planning rights

### a. Promoting the use of biogas

The construction of a biogas plant is subject to obtaining a zoning authorisation (building permit). Furthermore, regarding the choice of a site, agreement is required with local planning regulations (or the local land use plan or municipal map).

Article 59 of Law no. 2010-874 dated 27 July 2010 regarding the modernisation of the agriculture and fishing sectors, inserted in article L. 311-1 of the rural code the recognition of agricultural biogas as an agricultural activity under certain conditions specified by decree no. 2011-190 dated 16 February 2011 related to agricultural production and marketing procedures for biogas, electricity and heat produced via biogas methanisation. This decree stipulates that an installation operated by an agricultural holding using raw materials which are 50 % derived from agriculture can, by dispensation, be granted a building permit within a municipality's agricultural zone, with a planning document, or within a municipal zone that is not yet urbanised, subject to the national urban planning regulation, provided that the operator has proven that the installation is necessary for agricultural use.

The urban planning authorisation procedure is described at pages 22 and 23 of the French national action plan.

## Measures related to energy rights

Note that energy related legislative texts have been codified and are now included in the energy code.<sup>20</sup>

### a. For the production of electricity

#### ◊ *Operating authorisation*

The authorisation to operate an electrical power plant is provided by article L.311-5 of the energy code, and governed by decree no. 2000-877. It is briefly described in page 23 of the national action plan promoting renewable energy sources. In 2009, decree no. 2009-1414 dated 19 November 2009 provided an exemption from this procedure for photovoltaic installations of less than 250 kW. For power plants whose output is

<sup>20</sup> <http://www.legifrance.gouv.fr/affichCode.do?cidTexte=LEGITEXT000023983208>



comprised between 250 kW and 4.5 MW, electronic filing software allows the installation to be declared via the internet.

In 2010, the Grenelle 2 law provided for the possibility of a threshold beyond which installations are mandatorily authorised, for electrical power plants using renewable energy sources. As of 2012, installations using renewable energy sources whose output is below 12 MW will be allowed to operate automatically. This mandatory authorisation regime will be extended to 30 MW for wind farms.

◇ *The certificate granting buyback obligation rights (CODOA)*

CODOA is a document stipulated under decree no. 2001-410 dated 10 May 2001, for which a request is filed with a prefect, and whose ordinance is submitted to the regional DREAL. This ordinance partly verifies the requirements applied to producers allowing them to benefit from a buyback obligation. In 2009, decree no. 2009-252 dated 4 March 2009 exempted all photovoltaic installations under 250 kW from this procedure.

◇ *The purchase contract request*

The purchase contract request is filed with the obligated buyer, in order to sign a contract for the buyback of electricity at a fixed rate regulated for the sector. Strictly speaking, this is not an administrative procedure. However, in January 2010, for the purpose of simplification, this step was merged with the grid connection request for photovoltaic installations. In fact, the power grid provider was requested to submit the file directly to the buyer, without the producer having to do so.

## **b. For the production of heat**

◇ *Injection of biomethane (purified biogas) in natural gas networks*

Articles L. 446-2 et seq. of the energy code (from Article 92 of the law dated 12 July 2010 on a national commitment to the environment) establish a new sector for the valorisation of biogas from biomethane injection (purified biogas) in natural gas networks. The decrees accompanying the application of these articles and ordinances define their regulatory framework: the definition of a guaranteed purchase rate; establishing conditions for obtaining a rate for biomethane producers; providing regulations applicable to relations between producers and suppliers of natural gas who will purchase biomethane; defining a system guaranteeing the origin of the product.

The decrees and orders have been drafted in close consultation with all stakeholders in this new sector, and published in the Official Journal on 22 and 24 November 2011.

## **c. For the transport sector**

The Finance Law for 2005 instituted a taxation system for fuels aimed at promoting the incorporation of biofuel as stipulated by article L641-6 of the energy code. Its article 32 introduced a tax (TGAP) to the customs code (article 266-15) on the consumption of gasoline on the one hand and of diesel on the other, based on the sales price excluding VAT.

The rate for this tax has grown each year, from 1.2 % in 2005 to 7 % in 2010 (compared to 6.25% in 2009); this rate has been maintained at 7% in 2011. It has diminished for the share of biofuel placed on the market in energy % (lower heating power - lhp) for premium gasoline on the one hand and diesel on the other.

This measure encourages operators to incorporate and distribute biofuels, penalising those who include a proportion of biofuel lower than the fixed threshold.

## **2.b Measures aimed at ensuring the transmission and distribution of renewable electricity and improving the regulatory framework concerning the management and sharing of grid connection and consolidation costs.**

It should be recalled that all producers have a legal right to access the power grid. A refusal of access by the grid manager can be penalised by the regulator if it is not backed by objective, non-discriminatory and public criteria. These criteria can be based solely on imperatives related to the fulfilment of public tasks and technical motivations concerning the safety and security of power grids, as well as the quality of their operation. Power producers have a right to obtain a technical and financial proposal (TFP) for their grid connection as stipulated by the conditions outlined in the grid manager's technical documentation (see pages 38 to 40 of the national action plan).

In 2010, Law no. 2010-788 dated 12 July 2010 for a nationwide commitment to the environment (the so-called Grenelle 2) included two provisions with the aim of improving the coordination of and accelerating connection procedures to power grids for renewable energy sources.

The first provision describes the implementation of regional connection outlines to renewable energy source networks. These outlines will define the need for new infrastructures and networks for each region in France, in a coherent manner and in accordance with planned developments for production means from renewable energy sources. These outlines will also allow for an improved coordination between grid development forecasts and the development of production means, and provide for a reserved capacity of 10 years for production from renewable energy sources.

The second provision allows for a grid connection cost sharing plan. The grid transmission manager must then proportion the connection infrastructure into one grid point so as to pre-empt future connections at that point. To avoid a situation in which the first installation connected to the grid does not bear all costs for an infrastructure that will also benefit future installations, infrastructure costs must be shared between the various producers connected to the grid.

3. Description of support schemes and promotional measures for renewable energy sources, and new elements introduced related to the national action plan.

### **Support schemes for the production of renewable heat**

Support schemes for the production of renewable heat are described in the French national action plan from pages 66 to 75. The paragraphs below mostly describe only the developments observed since the transmission of the action plan.

## a. The heat fund

The heat fund provision is described in detail at pages 67 to 70 of the national action plan.

The heat fund has been extended through 2013, with a total allocation of 1.2 billion euros for the period 2009-2013. The balance of the heat fund for the year 2010 is outlined in annex 2.

In order to better adapt to the development of the sectors supported, and most notably due to the wide-ranging success of the provision in a strained budgetary context, various developments have occurred or are being prepared, in collaboration with the different stakeholders.

### ◊ *Community framework for state aid*

The exempted framework/scheme X63/2008 (based on the general exemption regulation by category<sup>21</sup>) and regulation no. 1857/2006 of the European Commission dated 15 December 2006, have been added to the legal bases founding the ADEME aid system for renewable energy sources, and the heat fund in particular.

### ◊ *Eligibility of projects*

Under the BCIAT 2011 call for projects, air quality requirements have been strengthened with respect to the 2009 and 2010 calls for projects; the following thresholds must be respected in accordance with the combustion plant's maximum thermal power:

Maximum thermal power of combustion plant	Dust emission limit stipulated by BCIAT 2011
< 20 <sup>MW</sup>	30 mg/Nm <sup>3</sup> at 11% O <sub>2</sub> (i.e. 45 mg/Nm <sup>3</sup> at 6% O <sub>2</sub> ) Specific case*: 20 mg/Nm <sup>3</sup> at 11% O <sub>2</sub> (i.e. 30 mg/Nm <sup>3</sup> at 6% O <sub>2</sub> )
20 to 50 MW	20 mg/Nm <sup>3</sup> at 11% O <sub>2</sub> (i.e. 30 mg/Nm <sup>3</sup> at 6% O <sub>2</sub> )
> 50 MW	13.3 mg/Nm <sup>3</sup> at 11% O <sub>2</sub> (i.e. 20 mg/Nm <sup>3</sup> at 6% O <sub>2</sub> )

\* the specific case applies when the project's implementation is planned:

- in an area where a probability of exceeding the daily or annual regulatory threshold for PM10 (particles whose size is less than 10 µm) in the ambient air has been recorded for the past 3 years, in accordance with Directive 2008/50/EEC concerning the ambient air quality and cleaner air for Europe;
- or in an area affected by a Atmospheric Protection Plan (APP);
- and eventually, in sensitive areas as defined by the enforcement decree of the Grenelle 2 Law implementing the Regional Climate Air Energy Outlines.

All non-heat network projects must take into account the effectiveness of the use of energy produced, conducting an energy audit of the buildings or industrial processes powered by the renewable heat production project.

<sup>21</sup> RGE no. 800/2008 dated 6 August 2008, JOUE of 9.8.2008

For plants subject to the EU emission trading scheme allowance, an economic analysis of financial gains linked to the release of emission allowances by the renewable heat production project is currently under study.

Moreover, calls for regional projects by ADEME regional administrations are also currently under study, with the aim of improving the reputation of the heat fund, as well as organising the arrival of requests for support and optimising the allocation of public support within a limited budgetary context.

Finally, in an effort to adapt the support system to the development of markets, a change in eligibility criteria for projects is under consideration, most notably the lowering of maximum amounts of support or eligibility, in relation to the sector concerned.

## **b. The Sustainable Development Tax Credit**

The sustainable development tax credit provision is described in detail at pages 57 to 59 of the national action plan. Changes are made regularly to adapt to market developments and improve the provision's effectiveness.

### *◇ Recent changes in tax credits concerning energy production installations from renewable sources*

The aim of the tax credit is to promote the installation of high performance systems for which the market has not yet reached maturity.

In this context, the following primary changes were in effect for the fiscal provision as of 1 January 2009:

- air/air heat pumps were excluded from the tax credit;
- the tax credit rate was reduced from 50 to 40 % for heat pumps other than air/air, boilers and wood-burning heating systems or other biomass systems.

Installation expenses for thermal insulation materials for opaque walls are now included in the tax credit.

The following primary changes were in effect for the fiscal provision as of 1 January 2010:

- the tax credit rate was reduced from 40 to 25 % for aerothermal heat pumps other than air/air, and wood-burning heating systems, considering the maturity of these sectors;
- the tax credit rate was raised from 25 % to 40 % for the replacement of a wood boiler or other biomass or heating system, or independent wood burning hot water production system or other biomass system using an equivalent material, in an effort to reduce polluting emissions;
- the tax credit rate was fixed at 40 % for geothermal heat pumps, with installation expenses for the underground heat exchanger now included in the tax credit, in an effort to kick start this stagnating market;
- heat transfer hot water systems were included in the tax credit (40 %).

The following primary changes were in effect for the fiscal provision as of 1 January 2011:

- a 10 % decrease for all tax credit rates under a similar reduction of certain tax benefits ("flat rate");
- the applicable rate for photovoltaic systems, fixed at 50 %, has been brought down to 25 % for expenses paid as of 29 September 2010, and subsequently, as a result of the similar aforementioned 10 % reduction, to 22 % for expenses paid as of 1 January 2011;
- a limit for expenses has been applied for thermal insulation materials for opaque walls.

### c. The zero interest eco-loan

The zero interest eco-loan provision is described in detail at page 59 of the national action plan.

Since June 2011, a repository of works specifically adapted to overseas climates has applied to eco-loans distributed to overseas departments [Overseas Departments].

### d. Thermal Regulation for 2012

The thermal regulation for 2012, outlined at pages 29 to 32 of the national action plan, plays an important role in promoting the use of renewable energy sources in buildings.

It should be noted that the RT 2012 will almost systematically require the implementation of systems making use of renewable energy sources for houses. One of the following solutions must be implemented:

- Producing hot water from a thermal solar water boiler;
- Being connected to a heating network that is more than 50% powered by a renewable energy and recovery source;
- Demonstrating that the building's energy consumption comprises a minimum of 5kWh/(m<sup>2</sup>.an) primary energy produced from a individual renewable energy source;
- Producing hot water from a heat transfer water boiler;
- Producing heating and/or hot water from a micro combined heat and power boiler. Other tax exemptions and exceptional or depreciation schemes.

The exceptional or depreciation scheme outlined at page 66 of the national action plan expired on 1 January 2011.

### e. Energy saving certificates

The energy saving certificates (ESC) provision and its links with the development of renewable heat are described in the French national action plan (pages 72 to 74) under renewable energy.

Since the plan's transmission in mid-2010, in light of the very positive results for the first period (from 1 July 2006 to 30 June 2009), the Grenelle 2 Law has extended the ESC provision for a second three-year period<sup>22</sup> (from 1 January 2011 to 31 December 2013). The provision extends energy savings obligations

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<sup>22</sup> Articles 14 to 17 of Law no. 2005-781 dated 13 July 2005 for the programme establishing energy policies, amended by Law no. 2010-788 of 12 July 2010 on a national environmental commitment (articles L.221-1 to L.222-9 of the energy code); decree no. 2010- 1663 of 29 December 2010 related to energy conservation obligations under the energy saving certificates provision; decree

to dealers for fuel consumption on automobiles, if their annual sales exceed a certain limit. The scope of potential applicants for certificates has also been restricted to those parties which are bound, including public institutions, the ANAH and social landlords. Lastly, the contribution to energy consumption reduction programmes for the most disadvantaged households, or information, training and innovation programmes for controlling energy demand, notably those promoting the development of vehicles with low carbon dioxide emissions, can now result in the issuance of ESC.

The level of obligations for the second period are 255 TWh<sub>cumac</sub> for all providers of electricity, gas, heating oil, liquefied petroleum gas, and hot or cold networks; and 90 TWh<sub>cumac</sub> for dealers for fuel consumption on automobiles.

The table included in Annex 2 updates the table presented in the national action plan (Annex 2); for the production of renewable heat subject to standardised operation files, it specifies the volume of kWh<sub>cumac</sub> of energy saved, between 1 July 2006 and 31 May 2011. This volume rises to 44.3 TWh, that is, 22.4% of the total volume of energy saving certificates issued.

#### **f. The injection of biomethane**

As indicated above, buyback rates for biomethane injected into natural gas networks have been published, together with other regulatory texts defining the support measures, on 24 November 2011: they are defined in the ordinance of 23 November 2011 establishing buyback conditions for biomethane injected into natural gas networks. The specific level of buyback rates is provided at the end of Annex 1.

### **Support measures for the production of renewable electricity**

Recalling the national action plan on electricity production, support measures essentially pass through a buyback obligation and tenders (see pp. 52 to 57 of the national action plan). In spite of being different, these measures remain very similar: they are open to everyone and possess exactly the same financing mechanism. These two provisions allow operators of renewable electricity installations to benefit from a buyback contract at a guaranteed rate for an extended time period (generally 15 or 20 years). The main difference comes from the fact that, in a tender, the sales price for electricity is a primary component in the candidates' bids.

Annex 1 of this document provides a list of all existing buyback rates.

#### **a. Photovoltaic electricity**

Concerning the production of electricity from solar power, given the high number of projects presented in 2010, and in spite of a further drop in tariffs on 1 September 2010, the government was forced to temporarily suspend the buyback obligation from December 2010 to March 2011 for projects presenting their application during this period.

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no. 2010-1664 of 29 December 2010 on energy saving certificates

During this suspension, consultation was conducted with all stakeholders involved to define a new support framework for the industry. This new provision is centred around an annual target of 500 MW, and comprises three distinct mechanisms depending on the size of the installations:

- A buyback rate mechanism adjusted each quarter for installations of less than 100 kW: the level of adjustment at the end of the quarter is determined in relation to the quantity of projects presented during the quarter. For residential installations, the average quarterly output requested is 25 MW; for other installations smaller than 100 kW, the average quarterly output requested is also 25 MW. For proposals exceeding these outputs, the maximum quarterly depreciation is 9.5%.
- A simplified tender mechanism for building projects with a power output ranging between 100 and 250 kW. This system essentially works like a reverse auction, selecting projects based on the electricity buyback rate requested by the applicant, until the proposed power output envelope has been saturated. The first tender was launched on 1 August 2011 and will run through to mid-2013, for a total capacity of 300 MW. It is divided into 7 independent application periods.
- An ordinary tender mechanism for installations exceeding 250 kW. These are multi-criteria tenders (price, respect for the environment, innovation and completion deadline) which aim to select the projects which present the best balance between industrial innovation, proposed price and environmental impact. The first tender was launched on 15 September 2011, for a total capacity of 450 MW. It is divided into 3 families and 7 sub-families as follows:
  - Family 1: building installations
    - ✓ Lot 1: photovoltaic installations on buildings (not including shaded parking structures) with a power output of less than 4.5 MW. The total power output for the sub-family is 50 MW.
  - Family 2: ground installations using innovative technologies
    - ✓ Lot 2: thermodynamic solar installations with a total power output of 37.5 MW.
    - ✓ Lot 3: installations entirely or partly using concentrated photovoltaic technology, for a total power output of 50 MW.
    - ✓ Lot 4: ground photovoltaic installations following the sun's path, for a total power output of 100 MW.
    - ✓ Lot 5: any installation with storage in the Overseas Departments-TOM and in Corsica, for a total power output of 50 MW.
  - Family 3: ground installations using mature technologies
    - ✓ Lot 6: any type of ground installation or on shaded parking structures, with a power output of between 4.5 MW and 40 MW, for a total power output of 125 MW.
    - ✓ Lot 7: any type of ground installation or on shaded parking structures, with a power output of less than 4.5 MW, for a total power output of 37.5 MW.

Note that a default buyback tariff of 12 c€/kWh has been established for all installations with a power output of less than 12 MW. This tariff is automatically lowered by 2.6% each quarter.

Industrial and environmental quality requirements are thus reinforced.

A revision clause has been announced by the government for mid 2012. Following the implementation rate for the 3400 MW of current projects on the waiting list, and which have not been suspended by the December 2010 to March 2011 moratorium, the support measures can be recalibrated at this date, possibly for a target of 800 MW/year.



## **b. Electricity from wind (on & offshore)**

In addition to the support measures provided by the buyback obligation described in paragraph 4.3.2 of the national action plan promoting renewable energy sources, two calls for tender were launched.

A call for tender for the installation of onshore wind farms in overseas territories and in Corsica was launched in November 2010 for a maximum capacity of 95 MW. The particularity of this call for tender is that it sets electricity production guarantees based on production forecasts and a means of electricity storage. It aims to promote the emergence of technologies allowing for the enhancement of intermittent renewable energy in non-interconnected areas, while preserving the safety of power grids. Bids are currently being examined.

A call for tender for the installation of offshore wind farms for a maximum capacity of 3000 MW was launched on 11 July 2011. This call for tender pertains to five areas determined by collaborative planning, aimed at providing solutions for usage conflicts. The call for tender procedure allows for the best adaptation of support to implementation and operating conditions that differ greatly from one site to another.

## **c. Electricity generated from biomass**

In accordance with the legislation, the buyback obligation is limited to biomass installations under 12 MW. Consequently, since 1 January 2010, the following support policy has been adopted for the "electrical" biomass sector:

- for installations exceeding 12 MW, a multi-year call for tender is held comprising 4 sections, for an accumulated power output of 800 MW;
- for average sized cogeneration installations, attractive buyback rates have been in force since 1 January 2010;
- for small sized installations, the simple production of heat is favoured.

Since the national action plan:

- The 1<sup>st</sup> section multi-year call for tender was launched on 27 July 2010 for a power output of 200 MW, and the results were communicated through the press in the autumn;
- Buyback rates revalued at 1 January 2010, which had until then been reserved for installations over 5 MW<sup>23</sup>, were opened to sawmills installing a cogeneration plant to dry their sawn timber, through the ordinance of 27 January 2011. For installations between 1 and 5 MW, strict emission limits for dust were added as conditions in order to be able to benefit from the revalued buyback rates.

## **d. Electricity generated from biogas**

Buyback rates for electricity produced from biogas were revalued through the ordinance of 19 May 2011 (see Annex 1).

The main advanced points of the new rate are:

- an improved account of additional costs for low power outputs;

<sup>23</sup> Above 5 MW, a biomass plant must respect stricter threshold values for emissions of air pollutants, with enhanced controls.



- the creation of a premium for the treatment of livestock effluents to compensate for their low methane production capacity.

#### e. Geothermal electricity

The primary support measure is the buyback obligation. The purchase tariff was revalued through the ordinance of 23 July 2010 in order to enhance the prospect of geothermal power in overseas departments where the geological context is favourable to its development, and in cities, in an attempt to develop EGS geothermal production (see Annex 1).

#### f. The sustainable development tax credit

Refer to paragraph b) of the section "Support measure for the production of renewable heat".

#### g. The zero interest eco-loan

Refer to paragraph c) of the section "Support measure for the production of renewable heat".

#### h. 2012 thermal regulation

Refer to paragraph d) of the section "Support measure for the production of renewable heat".

#### i. Other tax exemptions and exceptional or depreciation schemes

The exceptional or depreciation scheme outlined at page 66 of the national action plan expired on 1 January 2011.

### Support measures for the transportation sector

The partial exemption of the interior consumption tax (ITC) allows for a reduction in extra cost of manufacturing biofuels compared to fossil fuels.

The amount is fixed each year in finance law for the following year. Only biofuels from licensed units can benefit from this tax exemption, within the limit of quantities fixed during the approval process. The finance law for 2011 has established the following tax exemption rates until 2013.

€/hl	2007	2008	2009	2010	2011	2012	2013
ETBE	33	27	21	18	14	14	14
Ethanol	33	27	21	18	14	14	14
EMHV	25	22	15	11	8	8	8
EEHV	30	27	21	18	14	14	14
AOME and UOME	25	22	15	11	8	8	8
Biodiesel synthesis	25	22	15	11	8	8	8

The “obligation” to include biofuel in fuels fixed at 7 % in energy percentage for 2010 within the TGAP framework (General Tax on Polluting Activities) has not been amended. This 7 % rate has thus been maintained.

## Research and innovation

### a. Investments for the Future

#### ◇ *General presentation*

On 14 December 2009, the President of the Republic launched the “**Investments for the Future**” programme. This programme of Investments for the Future, with a global envelope of 35 billion euros, has a mandate to enable the financing of profitable assets and research and innovation infrastructures for economic development in France.

Five strategic axes have been identified as “priority” (higher education and training, research, industrial sectors and SMEs, sustainable development, SMEs), allowing France to enhance its potential for growth.

Of the 35 billion euros in allocated financing, funding for 2010 for the Investments for the Future programme will be provided for the following:

- 1 billion euros for the “Thematic institutes of excellence in low-carbon energy sources” programme, managed by the National Research Agency (ANR);
- 2.8 billion euros divided between several programmes managed by ADEME, for demonstrators and experimentation platforms, the transportation sector (1 billion euros), the circular economy (250 million euros), renewable energy sources and green chemistry (1.35 billion euros), and intelligent energy grids (250 million euros);
- 1.5 billion euros for the theme “Urban planning and housing”, divided into 1 billion euros for the “City of tomorrow” programme managed by the *Caisse des dépôts and consignations* (CDC), and 500 million euros for the “Thermal renovation for housing” programme (“Better living”) managed by the National Housing Agency (ANAH).

The main goal of the programmes<sup>24</sup> relating to “Thematic institutes of excellence in low-carbon energy sources”, “Demonstrators and technology platforms for renewable and low-carbon energy sources and green chemistry”, “Vehicle of the future”, “Research in the aeronautics sector”, “Nuclear of tomorrow” and “Intelligent electricity grids (digital economy)”, is to accelerate the development of low-carbon technologies (renewable energy sources, channelling and storage of CO<sub>2</sub>, green chemistry, recycling) and different means of transportation of the future (road, rail, maritime and aeronautic), in order to respond to the challenges of reducing greenhouse gas emissions and the depletion of natural resources coming from oil. The involvement of businesses is sought on all of these actions.

#### ◇ *Thematic institutes of excellence in low-carbon energy sources*

<sup>24</sup> These programmes are presented in corresponding sector areas. I

The “Thematic institutes of excellence in low-carbon energy sources” programme for the Investments for the Future aims to create a globally ranked technology innovation campus in the renewable energy sources, new energy technologies and energy efficiency sectors. Entrusted with €1 billion, the goal will be to support the constitution of five to ten institutes coherently with the logic of competitive clusters, encompassing the priorities of the Grenelle environmental legislation for energy research. The first call for projects was published on 19 November 2010, with a closing date set for 18 February 2011. Projects are currently going through the selection process, and a second call for projects, which closed on 30 November 2011 and targeted 5 special themes (solar energy, renewable marine energy, energy efficiency in transport materials, energy efficiency in buildings and urban design, and sub-soil technologies for applications in the low-carbon energy sector and the fight against climate change) will lead to a new wave of selections in 2012.

◇ *Demonstrators (action entrusted to ADEME)*

Launched in 2008 and initially endowed with a budget of €325 million for the period 2008-2012, the aim of this research **demonstrator** fund was to finance research demonstrators in new energy technology sectors (NET): transport vehicles with low carbon emissions, renewable energy sources, positive energy buildings, intelligent electrical grids, energy storage, 2nd generation biofuel, etc. The research demonstrators are a step in the research-development-industrialisation process for technologies situated just before the industrialisation phase, and can lead to relaunching research projects applied at the conclusion of the demonstrator experimentation phase, to optimise technologies or lift certain economic and social deadlocks. The projects have been or will be ordered into the different calls for interest launched by ADEME, for low emission road vehicles, geological channelling and storage of CO<sub>2</sub>, marine renewable energy sources or intelligent electricity grids and systems integrating renewable energy sources.

The implementation of Investments for the Future programmes, for which ADEME operates, has allowed for an enlargement of the research demonstrator fund to mid-2010. The research demonstrator fund covers 24 projects which are financed for an overall sum of €167 million in support, under the guise of grants within the framework of the Calls for Expressions of Interest (CEI) relating to vehicles, 2nd generation biofuel, and the channelling and storage of CO<sub>2</sub>.

Following the continuity of the research demonstrator fund orientations, in 2010 ADEME was awarded the management of three Investments for the Future programmes. Funds are allocated for the development of innovative technologies and organisations, serving to support demonstrator research projects, large scale pre-production experiments, and technology platforms.

Aside from the limited scope of the grants, the methods of intervention integrate new modes of financing, such as repayable advances and equity investments. Law no. 2010- 237 dated 9 March 2010 for funding from 2010 relative to the Investments for the Future programme foresees a budget of 2.85 billion euros entrusted by the state to ADEME via three programmes:

- **“developing the digital economy” programme:** the “Intelligent electricity grids (**digital economy**)” action, endowed with €250 million, aims to support industrial research and the experimentation of technologies for intelligent grids for electricity distribution and consumption, and the integration of renewable energy sources.

- **"vehicle of the future" programme;**
- **"demonstrators and technology platforms for renewable and low-carbon energy sources and green chemistry" programme:** this programme focuses on innovation and the deployment of green technologies in the energy and chemistry sectors, taking over from the support fund for research demonstrators managed by ADEME. Innovative research demonstrator projects can thus be supported, as well as technology platforms involving both private and public stakeholders. This programme is endowed with 1.6 billion euros, divided into two actions: renewable energy and green chemistry demonstrations (€1.35 billion); and the sorting and recycling of waste, cleanups, and eco-design products (€250 million).

Projects are selected from calls for expressions of interest based on roadmaps established by representative experts for private and public stakeholders involved.

In the area of green chemistry and renewable energy sources, 11 calls for expressions of interest have been launched since the end of 2010, on the following themes:

- Marine energy sources
- Photovoltaic
- Solar
- Large scale wind
- Geothermal
- Advanced biofuel
- Green Chemistry, Plant Chemistry
- Positive energy buildings and islets and minimal carbon footprint
- Energy storage
- Fuel cells and H2 vector
- Collection, storage and recovery of CO2

In the transport sector, calls for expressions of interest launched focus on the daily commuting of goods and people, experiments linked to electric vehicle recharging infrastructures, the deployment of electric vehicle recharging infrastructures, and the thermal and auxiliary traction chain. In the intelligent grids and recycling sector, calls for expressions of interest were launched in early 2011, and the first applications, in the basic equipment technology sector, are in the final phases.

## **b. The support of the National Research Agency**

In the area of new energy technologies and energy efficiency, the targeted action of the **National Research Agency (ANR)** has allowed nearly €70 million to be committed annually since the agency's creation. In 2009, the eight targeted programmes<sup>25</sup> on these themes allowed for the financing of 88 projects through calls for projects, for a total budget of nearly €75 million. These eight programmes, continued through 2010, were merged in 2011 into five programmes, which will be the subject of calls for projects:

- Efficient Low-Carbon Energy Systems (SEED);
- Sustainable Land Transportation;
- Sustainable Buildings and Cities;
- Sustainable Production and Environmental Technologies Programme (ECOTECH);

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<sup>25</sup> Bioenergy, Hydrogen and Fuel Cells, Land Transportation Vehicles, Energy efficiency and reduction of CO2 emissions in industrial systems, Intelligent Homes and Photovoltaic Solar, Innovative energy storage, Sustainable Cities and Sustainable Production

- Renewable Production and Management of Electricity (PROGELEC).

## Expenditures for the promotion of renewable energy sources

*For reasons of consistency with the reality of support measures and their financing in particular, we have decided to move away from the table suggested by the model transmitted by the Commission while providing a maximum of economic data on the cost of support measures, despite the fact that the costs provided do not represent an exhaustive list.*

### a. For the production of electricity

◇ *Important notes for the evaluation of electricity costs*

*Financing of the buyback obligation and calls for tender pass through the collection of a contribution received on end user invoices: the **Public Service Electricity Contribution (PSEC)**.*

*The PSEC is the collection vehicle for the compensation owed to electricity providers for the application of their public service obligations (art. L121-6 of the energy code). Compensation for extra costs tied to buyback contracts stipulated under articles L. 311-10 and L. 314-1 of the energy code (tariffs and calls for tender) represent only a part of the compensated costs. The PSEC also compensates extra costs for production in areas which are not inter-connected (i.e. island production) to the metropolitan grid, so as to ensure an electricity supply tariff that is constant for the entire territory, as well as compensating costs sustained by providers for the application of specific social tariffs to people in need.*

*Compensation due for the application of obligation buyback contracts (tariffs and calls for tender) appreciate against the costs avoided by the buyer, defined in reference to the market price for electricity. **The amount of compensation for a given year thus depends largely on market prices encountered for the same year.***

*Each year, the Energy Regulation Commission (ERC) records the costs sustained by providers in applying buyback rates with respect to the previous year, while providing a forecast for the following year, so that the ministry can stop the level of PSEC it is required to collect.*

*The costs avoided to the buyer are determined by sector. For each sector, the ERC distinguishes production considered "almost certain"<sup>26</sup> from "chance" production. The avoided cost of almost certain production is calculated in reference to the futures price, whereas the cost of chance production is calculated in reference to the future spot price. In the forecasts for **2011**, avoided costs for each sector are thus between **50 and 60 €/MWh**<sup>27</sup>, taking into consideration on the one hand the spread observed in that year between the spot price and the futures price, and on the other hand the relative importance for each sector of a "certain" production and "chance" production.*

<sup>26</sup> Almost certain power output is the power output available at any time for the time period considered, with a probability in the order of 90 %.

<sup>27</sup> Details for costs and avoided expenses are provided in the ERC deliberation available at this address: <http://www.cre.fr/fr/espaceopérateurs/servicepublicdelelectricitecspe/montant>; the calculation method for avoided costs to required buyers is provided at this address:

<http://www.cre.fr/fr/content/download/8733/154052/file/090625Evolutioncalculcoutelectriciteobligationachat.pdf>.

**Here, for the electricity sector, support provided for a sector for a given period of time is absorbed by the amount of the compensation due to required buyers for the application of buyback contracts linked to this sector during this same time period. In actual fact, these amounts are added to the grants eventually received.**

At the time of compilation of this report, costs recorded for 2010 and provisional costs for 2012 were available. For the year 2011, the data provided are from provisional costs estimated by the ERC in its deliberation of 7 October 2010. For the year 2012, the data provided are from provisional costs estimated by the ERC in its deliberation of 13 October 2011.

Table 3a: Support measures for renewable energy sources and cogeneration (electricity only)

	Cost of support as observed by ERC for 2009	Cost of support as observed by ERC for 2010	ERC support cost forecasts for 2011 <sup>28</sup>	ERC support cost forecasts for 2012 <sup>29</sup>
<b>Gas cogeneration</b>	<b>€950,000,000</b>	<b>€820,000,000</b>	<b>€700,000,000</b>	<b>€700,000,000</b>
<b>Renewable electricity</b>	<b>€582,200,000</b>	<b>€750,000,000</b>	<b>€1,600,000,000</b>	<b>€2,200,000,000</b>
Photovoltaic	€66,100,000	€250,000,000	€1,000,000,000	€1,500,000,000
Wind	€323,900,000	€350,000,000	€410,000,000	€500,000,000
Hydraulic	€117,700,000	€83,000,000	€68,000,000	€65,000,000
Biomass	€20,900,000	€30,000,000	€53,000,000	€83,000,000
Biogas	€25,600,000	€31,000,000	€33,000,000	€42,000,000
Geothermal	€1,600,000	€300,000	€6,600,000	€6,400,000
Incineration of	- €26,500,000	- €14,000,000	- €4,900,000	- €1,500,000

For the year 2009, the average unit support cost recorded by the ERC is around 440 €/MWh for the photovoltaic sector, 42 €/MWh for the wind sector, 20€/MWh for the hydraulic sector, 51 €/MWh for biomass, 41€/MWh for biogas, 32 €/MWh for the geothermal sector, and 10 €/MWh for incineration. Note that, for the biomass, biogas and photovoltaic sectors, this unit support cost does not represent the unit support cost for new plants; in fact, the buyback tariffs have evolved considerably since the start of 2009 (see Annex 1). Moreover, for biogas, the figure essentially refers to landfill biogas plants which naturally benefit from a lower buyback tariff than methanisation units.

Furthermore, the following general note should be made: for 2009, observed market prices were especially weak due to the economic context, resulting in a considerably overblown unit support cost for the various renewable energy sectors.

<sup>28</sup> Rounded up to two significant figures

<sup>29</sup> Idem

## b. For the production of heating

The figures provided in the table below correspond to expenses for 2010. This list is not exhaustive, in that a part of the cross-platform support measures listed at point d) are used in the end to sustain the production of renewable heat.

Table 3b: Support measures for renewable energy sources (heating only)

		2010	
<b>Geothermal/hydrothermal</b>			
	Investment grants: heating fund	1 624 €/tep	20.9 M€
<b>Biomass (non-biogas)</b>			
	Investment grants: heating fund	496 €/tep	140.6 M€
<b>Solar thermal</b>			
	Investment grants: heating fund	11 726 €/tep	19.7 M€
<b>Biogas</b>			
	Investment grants: heating fund	337 €/tep	0.5 M€
<b>Heat networks more than 50% powered by renewable energy or recovery source</b>			
	Investment grants: heating fund	403 €/ml	75.8 M€
	Fiscal exemption/tax credit: VAT at reduced rate on heat delivery		25 <sup>30</sup> M€

## c. For the transport sector

Despite the regular decrease in tax exemption rates applied to biofuels, heightened incorporation rates led to a regular increase in the global cost of tax exemptions until 2008. This trend was then reversed. For 2010, the cost of tax exemptions is estimated at €425 million.

The overall amounts of tax exemptions are listed in Table 3c.

Table 3c: Support measures for renewable energy sources (transport only)

Year	2007	2008	2009	2010
Total amount of "biofuel" Tax exemption	€500 million	€720 million	€521 million	€425 million

<sup>30</sup> Source: Cross-cutting policy document – Fight against climate change, 2011 Finance Law.

#### **d. Cross-cutting support**

Among the cross-cutting support measures that have had a positive impact on the development of renewable energy sources but cannot be broken down by major production sectors, the following costs can be provided:

- Sustainable development tax credit<sup>31</sup> 2010 (on expenditures incurred by households in 2009): €2,600,000,000.
- Zero interest eco-loan (expenditures incurred in 2011 extended over five years starting in 2012): €166,000,000.
- The "Waste Fund": €5,800,000 in 2009 and €6,600,000 in 2010 for methanisation. This fund, which is managed by ADEME, provides grants to new waste treatment processes. In this case, it supports the "digestion" part of methanisation units without distinction on the valorisation of biogas.

### **3.1. Information on the mode of distribution between end-users of electricity benefiting from support in accordance with article 3, paragraph 6 of Directive 2003/54/EEC**

As indicated in paragraph 5, the required buyer is subrogated to the producer in its right to receive guarantees of origin for a given quantity of renewable energy. When these guarantees are not requested by the required buyer who holds them, the corresponding renewable electricity is then automatically integrated in its residual mix.

Inversely, when a guarantee of origin is issued to be sold, the corresponding renewable production is then deducted from the buyer's residual mix and added to the buyer of the guarantee of origin.

In light of the current weak market development for guarantees of origin, we can affirm that almost all electricity production benefiting from a support measure is integrated in the energy mix of consumers supplied by one of the required buyers (Electricité de France or non-nationalised distributors).

### **4. Information on the manner in which support schemes are structured, where appropriate, for integrating RES applications presenting additional advantages but which can entail higher costs, notably biofuels produced from waste, residue, non-food cellulose material and lignocellulose material.**

Regarding electricity production, extra costs due to advantageous environmental performances can only be taken into consideration by the creation of a specific buyback tariff or specific power bracket in a tender. This method has seen little use until now, but will be used increasingly, especially for photovoltaic tenders called up in §3.

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<sup>31</sup> Fiscal data do not allow for a breakdown by sector.



Concerning the renewable production of heating and cooling, support schemes are calibrated by sector, so as to support all technologies, including those presenting additional advantages but higher costs.

Regarding the transportation sector, in parallel with tax exemptions (see §3), which constitute a support measure for biofuels, the GTPA regime (General Tax on Polluting Activities) was amended in 2010. Article 266–15 of the customs code was amended by the Finance Law for 2010. This article stipulates that methyl esters from animal oils (AOME) or used oils (UOME) incorporated in diesel fuel or heating fuel are taken into consideration for double their actual value in lower heating power (lhp).

## **5. Information on the guarantees of origin mechanism for electricity, heating and cooling from RES, and measures taken to ensure the system's reliability and protection against fraud**

France considered it inappropriate to establish a system of guarantees of origin for heating and cooling from RES which was not part of an EU obligation.

The guarantees of origin mechanism established in conformity with the provisions under Directive 2001/77/EC on the promotion of electricity produced from renewable energy sources in the internal electricity market is described in the national action plan.

An ordinance organising the conformity of the system of guarantees of origin to Directive 2009/28/EC, which imposes conditions on changes brought to guarantees of origin mechanisms for electricity from renewable sources, was published on 16 September 2011. This ordinance stipulates that guarantees of origin are the sole certification elements for characterising the renewable nature of electricity production, and that they will be issued by a body designated by decree.

Concerning the system's correspondence with the buyback support scheme, when a producer wishes to benefit from this right, the required buyer becomes subrogated to the producer in its rights to receive guarantees of origin. This subrogation was imposed in order to avoid a "double payment" for the renewable part of electricity by consumers. In fact, the economic valorisation of a guarantee of origin by a required buyer is systematically deducted from the overall amount of the compensation it must receive via taxation.

The subrogation of the buyer to the producer already existed in the guarantee of origin mechanism in force.

## 6. Description of changes brought over the 2 previous years on the availability and use of biomass resources for energy purposes.

The methodology for calculating biomass quantities valorised as energy and quantities of energy produced has changed since the submission of the national action plan promoting renewable energy sources in 2010. This evolution is motivated by the absence of a robust statistical evaluation method and a specific inquiry regarding quantities of imported raw material for energy valorisation, and quantities of energy produced from imported biomass. It does not lead to a change in course.

Since the absence of an inquiry results in an absence of data, the table below is thus in part incomplete. Unavailable data are marked by a hyphen (-).

All raw materials are listed in the columns "Quantities of domestic raw materials" in Table 4. This data set is obtained from the declarations of biomass energy producers (electricity and heating). The corresponding quantity of domestic biomass has been calculated using the conversion factors in the 2010 national action plan promoting renewable energy sources.

Since the data refers to the supplying of biomass for the transportation sector (large common crops for the production of biofuel), the gathering of data by customs officials as part of the payment of the general tax on polluting activities provides information on the consumption of biofuel products in France from domestic biomass and imported biomass.

Table 4: Supply of biomass for energy purposes

	Quantities of domestic raw materials (in m <sup>3</sup> unless stated otherwise)		Primary energy from domestic raw materials (ktep)		Quantity of imported raw materials (in m <sup>3</sup> unless stated otherwise)		Primary energy from imported raw materials (ktep)	
	2009	2009	2009	2010	2009	2010	2009	2010
Supply of biomass for heating and electricity production								
Direct supply of woody biomass from forests or other wooded areas for energy production (logging, etc.)**	30 309 370	34 552 682	6650	7581				
Indirect supply of woody biomass (residue and sub-products from the wood industry, etc.)**	15 048 332	16 176 316	2348	2524				
Energy crops (herbaceous plants, etc.) and short rotation forestry planting <sup>32</sup>	21446 tons of dry material		8.7					
Sub-products of agriculture/residue transformed by agriculture and sub-products from fishing**								
Biomass from waste (urban, industrial, etc.)**								
Supply of biomass for the transport sector								
Large common crops for the production of biofuels			2050	2345			413	363
Energy crops (herbaceous plants, etc.) and short rotation forestry planting for the production of biofuels								

\*\* This biomass category must be defined in conformity with Table 7 of section 4.6.1 of the decision C (2009) 5174 by the Commission establishing a model for national action plans in matters related to renewable energy sources, in accordance with Directive 2009/28/EEC

<sup>32</sup> 1103 ha of CRT (as a hypothesis for calculations, CRT from poplars) 744 ha of miscanthus

Table 4a. National agricultural land use for crops grown specifically for energy production (ha)

Land use	Surface area (ha)	
	2010	2009
1. Agricultural land used for large common crops (wheat, sugar beets, etc.) and oleaginous crops (rapeseed, sunflowers, etc.)	To achieve an incorporation rate of 7%, the following surface areas are estimated:  - wheat - corn: 223,000 ha - sugar beets: 40,000 ha - oleaginous crops (rapeseed, sunflowers):	Assisted surface areas for energy crops:  - wheat: 84,689 ha - sugar beets: 6,800 ha - rapeseed: 530,738 ha
2. Agricultural land used for short rotation forestry planting (willows, poplars) Main types: Poplars, eucalyptus and willows logged before 20 years and rejecting stumps, pines excluded	3362 ha	1103 ha
3. Agricultural land used for other energy cultures such as herbaceous plants (false canary reed, switchgrass, miscanthus), sorghum		Assisted surface areas for miscanthus: 744 ha

Up until 2009, industrial land in fallow and assisted surface areas with energy crops were also counted. These data allowed for an evaluation of surface areas dedicated to energy crops. With the disappearance of fallow obligations in 2009, only assisted surface areas with energy crops are known for this year and listed at lines 1 and 3. These data stop at 2010.

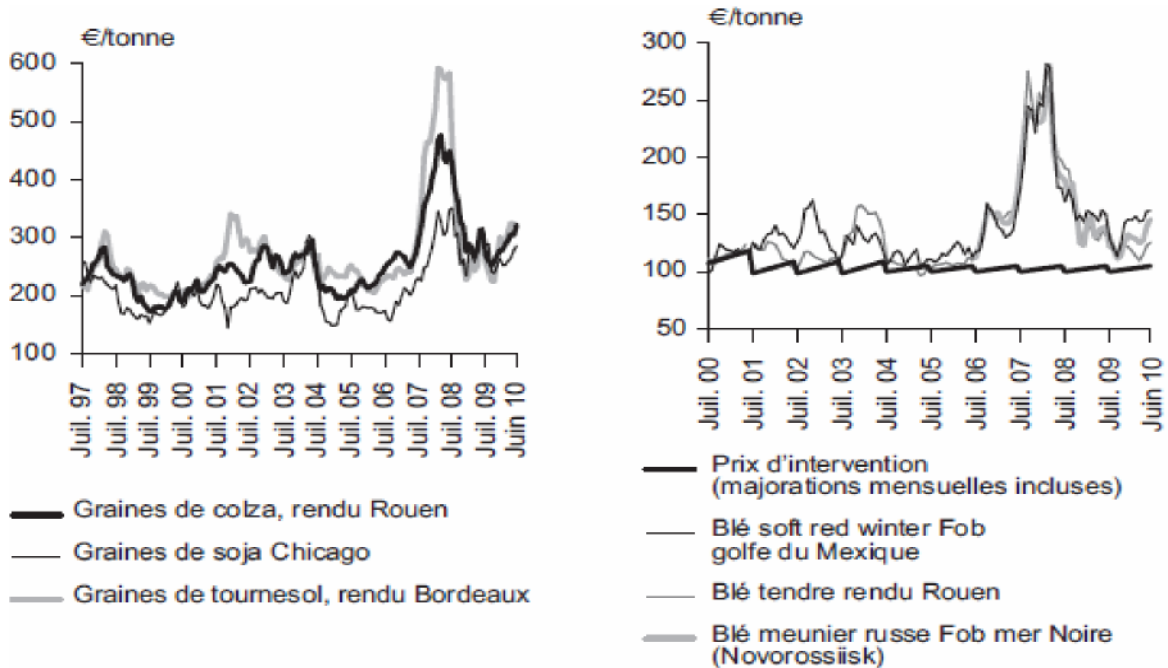
The data shown in the table below thus only regard assisted surface areas with energy crops. They are completed by the results of the study "Biofuel 2010: what use is made of the land in France?" compiled by the National Inter-Professional Office of Field Crops in 2007.

The data listed at line 2 are drawn from the declarations of farmers; they do not integrate surface areas planted by industry or the forestry sector.

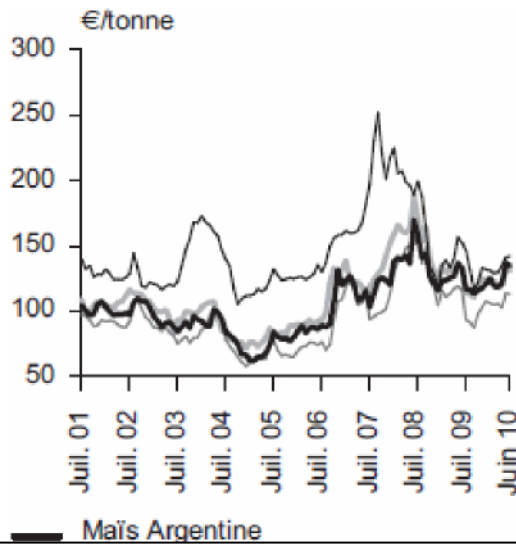
## 7. Changes to the prices of basic products and land use for the past 2 years in relation to the increased use of biomass and other forms of renewable energy.

Studies are currently being conducted for wood-energy. The Centre for Economic Studies for Wood (CEEB) is conducting a study commissioned by the statistics and perspective service (SSP) of the Ministry of Agriculture for wood-energy originating from forests, and by the Ministry of Finances for other types of wood-energy. To monitor the prices of forestry products, the SSP must establish during the first quarter of 2012 aggregate indices for the prices of wood log and wood chips, taken from the results of the study conducted by the CEEB.

Regarding biofuels, prices for raw materials used in their production dropped sharply from 2008 to 2009. A slight increase was noted in 2010, as shown in the diagrams below. No **indicators allow us to link**



these changes with an increased use of biomass fuels.



July 1997 through to June 2010 Rapeseed, delivered in Rouen	July 2000 through to June 2010 Price interventions (including monthly increases)
Soybeans, Chicago	Red winter soft wheat Fob Gulf of Mexico
Sunflower seeds, delivered in Bordeaux	Russian milling wheat Fob Black Sea (Novorossiik)

Source: Agreste

## 8. Evolution in the share of biofuels produced from waste, residue, non-food cellulose material and lignocellulose material

Table 5: Production and consumption of biofuel under art. 21, par. 2 (ktep)

<b>Biofuel under article 21, par. 2<sup>33</sup></b>	<b>2009</b>	<b>2010</b>
Production – AOME (animal oils) & UOME (used oils)	0	63
Total biofuel production under art. 21, par. 2	0	63
Total biofuel consumption under art 21, par. 2	0	63
% of biofuel under art. 21, par. 2, within the total consumption of RES for the transport sector	0 %	2.4 %

## 9. Estimated incidence of biofuel production from bioliquids on biodiversity, water resources, water quality and soil quality over the past 2 years

No evaluation has been conducted on the impact of biofuel production on natural resources for the past two years. France focuses primarily on the implementation of the system of sustainability criteria for biofuel, as stipulated by Directive 2009/28/EEC.

## 10. Estimated net reductions of greenhouse gas emissions achieved thanks to the use of renewable energy sources

Table 6: Estimated reductions in GGE attributable to the use of renewable energy sources (equivalent tons of CO<sub>2</sub>)

Environmental aspects	<b>2009</b>	<b>2010</b>
<b>Total estimated net reductions of GG emissions attributable to the use of renewable energy</b>	<b>41.77 MteqCO<sub>2</sub></b>	<b>45.42 MteqCO<sub>2</sub></b>
- Estimated net reduction of GG emissions attributable to the use of electricity produced from renewable energy sources	5.9 MteqCO <sub>2</sub>	6.0 MteqCO <sub>2</sub>
- Estimated net reduction of GG emissions attributable to the use of heating and cooling produced from renewable energy sources	29.6 MteqCO <sub>2</sub>	33.5 MteqCO <sub>2</sub>
- Estimated net reduction of GG emissions attributable to the use of renewable energy in the transportation sector	6.27 MteqCO <sub>2</sub>	5.92 MteqCO <sub>2</sub>

**Important notes:** Gains in CO<sub>2</sub> displayed under the lines "electricity" and "heating and cooling" in the table above are calculated by comparing a scenario in which no renewable energy systems are installed in France, whether for the production of electricity or the production of heating. This explains the importance of avoided emissions.

<sup>33</sup> Biofuel produced from waste, residue, non-food cellulose material and lignocellulose material.

The drop for the transport sector is linked to social trends for the last quarter of 2010, for which it was necessary to temporarily lift the biofuel incorporation requirement for a 30-day time period. This temporary suspension in turn led to a drop in biofuel consumption for 2010, which led to slight increase in GG emissions.

## Methodology

### a. Estimated net reduction in GG emissions attributable to the use of electricity produced from renewable energy sources

Calculated based on the results in Table 1.b and an emission factor.

In fact, this table indicates that the total real production of electricity from renewable energy for 2009 and 2010 is respectively 78,018 GWh and 80,543 GWh. However, in the absence of such renewable energy production facilities, corresponding electricity requirements for 2009 and 2010 would have been provided by non-ENR production systems. A study conducted by ADEME and RTE in 2005<sup>34</sup> demonstrates that the emission factor for the production of electricity in France is on average 75 gCO<sub>2</sub>/kWh.

Applying this factor to the 78 and 80 TWh of electricity from renewable energy consumed in 2009 and 2010, allows us to estimate 5.9 and 6.0 MtCO<sub>2</sub> as avoided emissions respectively.

### b. Estimated net reduction in GG emissions attributable to the use of heating and cooling produced from renewable energy sources

Calculated based on the results in Table 1.c and several emissions factors.

Table 1.c indicates that the total real production for heating and cooling from renewable energy is, by sector:

- Thermal solar power: 78 ktep in 2009 and 89 ktep in 2010, i.e. respectively 983 GWh and 1122 GWh
- Biomass: 9722 ktep in 2009 and 10,840 ktep in 2010, i.e. respectively 122 517 GWh and 136,606 GWh
- Heat pumps: 750 ktep in 2009 and 1008 ktep in 2010, i.e. respectively 9 452 GWh and 12,703 GWh

The following hypotheses are considered for the substitution of heating systems:

- Thermal solar power: by replacing ECS heating systems running on electricity and gas as a proportion of market shares of these two types of energy. Thermal solar power can also be used for heating, with combined solar systems, but its use is marginal; we are thus interested here solely in hot water production systems (CESI). With ECS market shares for gas and electricity, and respective emissions factors of 205 gCO<sub>2</sub>/kWh and 40 gCO<sub>2</sub>/kWh, we can thus deduce the average emission factor: 106 gCO<sub>2</sub>/kWh.

<sup>34</sup> "CO<sub>2</sub> content in kWh of electricity: Comparative advantages of marginal content and content by use based on historic data."

- Biomass: by replacing heating systems running on gas, heating oil and electricity, as a proportion of respective market shares. With market shares for gas, heating oil and electrical heating systems, and respective emissions factors of 205 gCO<sub>2</sub>/kWh, 271 gCO<sub>2</sub>/kWh and 40 gCO<sub>2</sub>/kWh, we can thus deduce the average emission factor: 223 gCO<sub>2</sub>/kWh.
- Heat pumps: by replacing heating systems running on gas, heating oil and electricity, as a proportion of respective market shares. With the elements in the previous paragraph, we can thus deduce the average emission factor: 232 gCO<sub>2</sub>/kWh.

The implementation of heating systems or ECS production using thermal solar power, biomass and heat pumps, thus allowed for savings of respectively 0.1 MtCO<sub>2</sub>, 27.3 MtCO<sub>2</sub> and 2,2 MtCO<sub>2</sub> in 2009 (29.6 MtCO<sub>2</sub> in total), and 0.1MtCO<sub>2</sub>, 30.5 MtCO<sub>2</sub> and 2.9 MtCO<sub>2</sub> in 2010 (33.5 MtCO<sub>2</sub> in total).





Sector	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Solar power	n.a.	- 41	0	0	0	0	0	0	0	0	0	0
Biomass:	n.a.	+ 887	0	0	0	0	0	0	0	0	0	0
<i>Solid biomass</i>	<i>n.a.</i>	<i>+ 841</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>Biogas</i>	<i>n.a.</i>	<i>+ 46</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Energy renewable from heat pumps:	n.a.	+ 451	0	0	0	0	0	0	0	0	0	0
<i>of which aerothermal:</i>	<i>n.a.</i>	<i>+ 211</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>of which geothermal:</i>	<i>n.a.</i>	<i>+240</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
TOTAL Heating and cooling (II)	n.a.	+ 1235	0	0	0	0	0	0	0	0	0	0
Transport												
Bioethanol/bio-ETBE	n.a.	-158.0	0	0	0	0	0	0	0	0	0	0
Biodiesel	n.a.	-79.0	0	0	0	0	0	0	0	0	0	0
Hydrogen from renewable sources	n.a.	0	0	0	0	0	0	0	0	0	0	0
Electricity from renewable sources	n.a.	-28.0	0	0	0	0	0	0	0	0	0	0
<i>of which road transport</i>	<i>n.a.</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>of which non-road transport</i>	<i>n.a.</i>	<i>-28.0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
TOTAL Transport (III)	n.a.	-263.0	0	0	0	0	0	0	0	0	0	0
<b>TOTAL (I + II + III)</b>	<b>n.a.</b>	<b>+ 784.2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

### **11.1. Detailed statistical transfers, joint projects and decision-making arrangements for joint support schemes.**

No statistical transfers or joint projects are planned for the moment, although France does not exclude the use of such measures in the future.

### **12. Information on how to assess the share of biodegradable waste in all waste used for energy production, including measures adopted with a view to improving and verifying these estimates**

The share of biodegradable waste in all waste used for energy production is fixed at 50%, as suggested by Eurostat. No measures have thus been taken towards improving the estimation of this proportion.

### **13. Specific points for the 1st progress report [article 22, paragraph 3, points a) to c)]**

a) To date, there are no plans to establish a single administrative body for processing all administrative requests under environmental law, urban planning law and energy law for renewable energy producers.

b) With the exception of the cases specified under R.424-2 of the urban planning code (notably if an installation requires a public inquiry), French common law on matters related to urban planning authorisations implies that the absence of a response within the established timeframe is a tacit authorisation.

c) Regarding the regional climate, air and energy schemes mentioned at point "4.2.1.1. National measures" of the action plan, developmental steps are currently under way in all regions. They are being conducted jointly in each region by State and Regional coordinators, together with all stakeholders involved, for the three issues analysed in the schemes.

## Annex 1 – Summary table of buyback rates for electricity produced from renewable sources, and buyback rates for biomethane injected into natural gas networks

Sector	Ordinances governing the purchase of electricity	Duration of contracts	Example of tariffs for installations in operation on the release date of the ordinances
Hydraulic	1 March 2007 (applicable)	20 years	- <b>6.07 c€/kWh</b> + premium of between <b>0.5 and 2.5 c€/kWh for small</b> installations + premium of between <b>0 and 1.68 c€/kWh during the winter depending on</b> production regularity  <del>15 c€/kWh for hydraulic offshore energy (waves, tides or hydrokinetic)</del>
	25 June 2001 (repealed)	20 years	5,49 à 6,1 c€/kWh (36 à 40 cF/kWh) depending on the power output + premium of between 0 and 1.52 c€/kWh (10 cF/kWh) <b>during the winter depending on</b> production regularity
Geothermal	23 July 2010 (applicable)	15 years	- <b>Metropolitan:</b> 20 c€/kWh , + energy efficiency premium between 0 and 8 c€/kWh - Overseas Departments: 13 c€/kWh , + energy efficiency premium between 0 and 3 c€/kWh
	10 July 2006 (repealed)	15 years	- <b>Metropolitan:</b> 12 c€/kWh + energy efficiency premium between <b>0 and 3 c€/kWh</b> - Overseas Departments: 10 c€/kWh + energy efficiency premium between <b>0 and 3</b>
	13 March 2002	15 years	7.62 c€/kWh (50 cF/kWh) + energy efficiency premium between 0 and 0.3 c€/kWh (2 cF/kWh)
	(repealed)		

Sector	Ordinances governing the purchase of electricity	Duration of contracts	Example of tariffs for installations in operation on the release date of the ordinances
Wind power	17 November 2008 (applicable)	15 years (onshore) 20 years (offshore)	- onshore wind: <b>8.2 c€/kWh</b> for 10 years, then between <b>2.8 and 8.2 c€/kWh</b> for 5 years depending on the location. - offshore wind: <b>13 c€/kWh</b> for 10 years, then between <b>3 and 13 c€/kWh</b> for 10
	10 July 2006 (repealed)	15 years (onshore) 20 years (offshore)	- onshore wind: 8.2 c€/kWh for 10 years, then between 2.8 and 8.2 c€/kWh for 5 years depending on the location. - offshore wind: 13 c€/kWh for 10 years, then between 3 and 13 c€/kWh for 10 years depending on the location.
	8 June 2001 (repealed)	15 years	8.38 c€/kWh (55 cF/kWh) for 5 years, then from 3.05 to 8.38 c€/kWh (20 to 55 cF/kWh) for 10 years depending on the location.

Sector	Ordinances governing the purchase of electricity	Duration of contracts	Example of tariffs for installations in operation on the release date of the ordinances	
Photovoltaic	4 March 2011 (applicable)	20 years	Tariff applicable to projects for which a connection request has been submitted before 1 July 2011:  - <b>building integrated installations: 46 c€/kWh, 40,6 c€/kWh, 40,25 c€/kWh or 35.2 c€/kWh</b> depending on the use of the building and power output of the installation  - <b>simplified building integrated installations: 30.35 or 28.85 c€/kWh</b>  - other installations: <b>12 c€/kWh</b>	
	31 August 2010 (repealed)	20 years	- <b>building integrated installations: 58 c€/kWh, 51 c€/kWh or 44 c€/kWh</b> depending on the use of the building and power output of the installation  - <b>simplified building integrated installations: 37 c€/kWh</b>  - other installations: <b>Overseas Departments, Mayotte: 35.2 c€/kWh; Metropolitan: 37.6 c€/kWh</b> (adjusted by 0% to +20% depending on the power output of the installation)	
	12 January 2010 and reform of 15 January 2010 (repealed)	20 years	- <b>building integrated installations: 58 c€/kWh or 50 c€/kWh</b> depending on the use of the building  - <b>simplified building integrated installations: 42 c€/kWh.</b>  - other installations: <b>Overseas Departments, Mayotte: 40 c€/kWh; Metropolitan: 40 c€/kWh</b>	
	10 July 2006 (repealed)	20 years	- Metropolitan: 30 c€/kWh , + premium for building integration of 25 c€/kWh  - Corsica, Overseas Departments, Mayotte: 40 c€/kWh , + premium for building integration of 15 c€/kWh	
	13 March 2002 (repealed)	20 years	15.25 c€/kWh in continental France and 30.5 in Corsica and Overseas Departments (1F/kWh and 2F/kWh)	
Cogeneration	31 July 2001 (applicable)	12 years	<b>6.1 to 9.15 c€/kWh</b> (40 and 60 cF/kWh) roughly depending on the price of gas, duration of operation and power output	
Household waste except biogas	2 October 2001 (applicable)	15 years	<b>4.5 to 5 c€/kWh</b> (29.5 to 32.8 cF/kWh) + energy efficiency premium between 0 and 0.3 c€/kWh (2 cF/kWh)	

Sector	Ordinances governing the purchase of electricity	Duration of contracts	Example of tariffs for installations in operation on the release date of the ordinances
<b>Combustion of non-fossil vegetable materials (biomass)</b>	27 January 2011 (applicable)	20 years	<b>4.34 c€/kWh</b> + optional premium between <b>7.71 and 12.53 c€/kWh</b> attributed in relation to power output, resources used and the efficiency and adjustment in relation to the latter
	28 December 2009 (repealed)	20 years	4.5 <b>c€/kWh</b> + optional premium between 8 and 13 c€/kWh attributed in relation to power output, resources used and the efficiency and adjustment in relation to the latter
	16 April 2002 (repealed)	15 years	<b>4.9 c€/kWh</b> (32.1 cF/kWh) + energy efficiency premium between 0 and de 1.2 c€/kWh (7.8 cF/kWh)
<b>Raw or processed animal waste (animal feed)</b>	27 January 2011 (applicable)	20 years	<b>4.34 c€/kWh</b> + optional premium between <b>7.71 and 12.53 c€/kWh</b> attributed in relation to power output, resources used and the efficiency and adjustment in relation to the latter
	28 December 2009 (repealed)	20 years	4.5 <b>c€/kWh</b> + optional premium between 8 and 13 c€/kWh attributed in relation to power output, resources used and the efficiency and adjustment in relation to the latter
	13 March 2002 (repealed)	15 years	<b>4.5 to 5 c€/kWh</b> (29.5 to 32.8 cF/kWh) energy efficiency premium comprised between 0 and 0.3 c€/kWh
<b>Biogas</b>	19 May 2011 (applicable)	15 years	<b>Between 8.121 and 9.745 c€/kWh</b> depending on the power output, + energy efficiency premium between 0 and 4 c€/kWh
	10 July 2006 (repealed)	15 years	<b>Between 7.5 and 9 c€/kWh</b> depending on the power output, + energy efficiency premium between 0 and 3 c€/kWh
	3 October 2001 (landfill biogas only) (repealed)	15 years	4.5 to 5.72 c€/kWh (29.5 to 37.5 cF/kWh) depending on the power output + energy efficiency premium between 0 and 0.3 c€/kWh (2 cF/kWh)

Sector	Ordinances governing the purchase of electricity	Duration of contracts	Example of tariffs for installations in operation on the release date of the ordinances
Methanisation	19 May 2011 (applicable)	15 years	<b>between 11.19 and 13.37 c€/kWh</b> depending on the power output, to which an energy efficiency premium may be added of between <b>0 and 4 c€/kWh</b> and a premium for the processing of livestock manure of between <b>0 and 2.6 c€/kWh</b>
	10 July 2006 (repealed)	15 years	between <b>7.5 and 9 c€/kWh</b> depending on the power output, + energy efficiency premium between <b>0 and 3 c€/kWh</b> + a methanisation premium of <b>2c€/kWh</b> .
	16 April 2002 (repealed)	15 years	<b>4.6 c€/kWh</b> (30,2 cF/kWh) + energy efficiency premium between 0 and 1.2 c€/kWh (7.8 cF/kWh)
	13 March 2002 (applicable)	15 years	<b>7.87 to 9.60 c€/kWh</b> (51.6 to 63 cF/kWh) from the "blue" tariff for domestic customers
	Other installations with a power output of less than 36kVA		

### **Buyback rates for injected biomethane:**

For non-dangerous waste storage facilities, the buyback tariffs for injected biomethane are comprised between 4.5 and 9.5 c€/kWh(PCS) depending on the size of the installation.

For other methanisation units, buyback tariffs for injected biomethane include a basic rate comprised between 6.4 and 9.5 c€/kWh(PCS) depending on the size of the installation, to which a premium can be added, calculated in relation to the nature of the materials processed for methanisation ("inputs"). This premium comprises between 2 and 3 c€/kWh if the inputs are composed solely of waste or products from agriculture or the agro-industry. The premium is 0.5 c€/kWh if the inputs are composed solely of household waste. When the inputs are "mixed" (codigestion), the premium is weighted, and calculated in proportion to the quantities of inputs used by the installation.



## Annex 2: Review of measures implemented

### Assessment of heating fund for 2010

In 2010 the heating fund confirmed its resounding success.

The second BCIAT call for projects was launched in October 2009, with an indicative target of 175,000 tep. Nearly twice as many projects were submitted for the first call for projects alone, thereby confirming the interest of businesses for producing heat from biomass.

37 projects were retained out of the 61 projects submitted, for an annual energy production from biomass of around 226,000 tep, well beyond the pre-fixed target. Thanks to the replacement of energy from fossil fuels, the projects implemented allow for avoided emissions of over 650,000 tons of CO<sub>2</sub> each year.

#### Key figures:

Total investments: €200 million

Total support budget: €91 million, i.e. 45% of investments

Total thermal production: nearly 226,000tep/year

Total biomass power: 368 MW

#### b. Assessment of regional support measures

The two tables below provide a summary of key figures for the heating fund and the division of support measures by sector in 2009 and 2010.

<b>Key figures for 2009-2010</b>	2009	2010	total
Number of projects supported	330	662	992
Total eligible investments	€393 million	€374 million	€767 million
Total support budget	€97 million	€166 million	€263 million
Total thermal production	48 ktep/yr	108 ktep/ yr	156 ktep/ yr

<b>Indicative division of regional support measures (non-BCIAT)</b>	2009	2010
Heat networks	47% - nearly 114 km of	46% - nearly 191 km of

	networks supported	networks supported
Biomass – wood-energy, biogas	36%	30%
Thermal solar	13% - over 20,000 m <sup>2</sup> of solar collectors supported	11% - over 32,000 m <sup>2</sup> of solar collectors supported
Geothermal	4%	13%

## Energy saving certificates

**Table of standardised files for energy saving certificates related to renewable energy sources**

Sector	Standardised operation number	File title	Volume of energy savings certified as of 31 May	Proportion
<i>Residential</i>	BAR-TH-01	Individual solar water heater (metropolitan France)	764 618 805	1.72 %
	BAR-TH-02	Collective solar water heater (metropolitan France)	27 974 487	0.06 %
	BAR-TH-03	Water/water type heat pump	1 659 472 400	3.74 %
	BAR-TH-04	Air/water type heat pump	10 563 944 620	23.82 %
	BAR-TH-12	Independent wood heating unit	11 284 757 700	25.45 %
	BAR-TH-13	Individual biomass boiler	3 001 558 000	6.77 %
	BAR-TH-14	Biomass boiler	205 440 925	0.46 %
	BAR-TH-14-SE	Biomass boiler with maintenance service contract ensuring energy yields	134 015 170	0.30 %
	BAR-TH-24	Individual solar water heater (Overseas departments)	2 380 819 392	5.37 %
	BAR-TH-29	Air/air type heat pump	7 596 060 240	17.13 %
	BAR-TH-35	Collective solar water heater (Overseas departments)	3 328 472	0.01 %
	BAR-TH-37	Residential building connection to a heat network powered by renewable energy or recovery sources	1 644 004 798	3.71 %
	BAR-TH-38	Mini-cogeneration without required buyback scheme	0	0.00 %
	BAR-TH-43	Combined solar system	0	0.00 %
BAR-TH-46	Hot water production system - collective heat pump type on an unglazed solar collector	0	0.00 %	
<i>Services</i>	BAT-TH-07	Biomass boiler	107 879 336	0.24 %
	BAT-TH-11	Collective solar water heater	11 646 745	0.03 %
	BAT-TH-13	Water/water type heat pump	26 926 836	0.06 %

Sector	Standardised operation file number	File title	Volume of energy savings certified as of 31 May	Proportion
	BAT-TH-13-GT	Water/water type heat pump in a large building	0	0.00 %
	BAT-TH-14	Air/water type heat pump	170 496 006	0.38 %
	BAT-TH-14-GT	Air/water type heat pump in a large building	55 776 738	0.13 %
	BAT-TH-21	Collective solar water heater (Overseas departments)	182 894	0.00 %
	BAT-TH-27	Services building connection to a heat network powered by renewable energy or recovery sources	918 008 739	2.07 %
<i>Networks</i>	RES-CH-01	Network renewable heat production	3 787 836 089	8.54 %
Total			44 344 748 392	100 %
Total volume of energy savings certified as of 31 May 2011:			197 850 888 426	
Proportion of energy savings achieved through the development of renewable energy sources:			22.4%	