

REPORT

The French authorities

December 2013

Ministry of Ecology, Sustainable Development and Energy
www.developpement-durable.gouv.fr

Report on progress in the promotion and use of energy from renewable sources

2nd report

Pursuant to Article 22 of Directive 2009/28/EC of the European Union

TABLE OF CONTENTS

1.	Sectoral and overall shares and actual production and consumption of energy from renewable sources in 2011 and 2012	4
2.	Measures taken in the preceding two years and/or planned at national level to promote energy from renewable sources	8
2.1	Evaluating and improving administrative procedures to remove regulatory and non-regulatory barriers to the development of renewable energy	10
2.2.	Measures in ensuring the transmission and distribution of electricity produced from renewable energy sources and in improving the framework or rules for bearing and sharing of costs related to grid connections and grid reinforcements	12
3.	Description of support schemes and measures to promote energy from renewable sources and new developments from the National Action Plan	13
3.1	Information on how supported electricity is allocated to final customers for the purposes of Article 3(6) of Directive 2003/54/EC	24
4.	Information on how, where applicable, the support schemes have been structured to take into account RES applications that give additional benefits, but may also have higher costs, including biofuels made from wastes, residues, non-food cellulosic material, and ligno-cellulosic material	25
5.	Information on the functioning of the system of guarantees of origin for electricity and heating and cooling from RES, and the measures taken to ensure reliability and protection against fraud of the system	25
6.	Description of the developments in the preceding two years in the availability and use of biomass resources for energy purposes	26
7.	Information on any changes in commodity prices and land use in the preceding two years associated with increased use of biomass and other forms of energy from renewable sources	27
8.	Description of the development and share of biofuels made from wastes, residues, non-food cellulosic material, and lingo-cellulosic material	28
9.	Estimated impacts of the production of biofuels and bioliquids on biodiversity, water resources, water quality and soil quality in the preceding two years	29
10.	Estimate of the net greenhouse gas emission savings due to the use of energy from renewable sources	29

11.	Values and estimates for the excess/deficit production of energy from renewable sources compared to the indicative trajectory	33
11.1	Details of statistical transfers, joint projects and joint support scheme decision rules	34
12.	Information on how the share for biodegradable waste in waste used for producing energy has been estimated, and what steps have been taken to improve and verify such estimates	34
	Annex 1 – Table summarising purchase prices for renewable energy and purchase price for biomethane incorporated in natural gas grids	35
	Annex 2 – Review of existing measures	37

This 2nd report has been drawn up for the European Commission pursuant to Article 22(1) of Directive 2009/28/EC on the promotion of the use of energy from renewable sources and is based on the template supplied by the Commission.

Note: Some of the data given below for 2012 are estimated: these data may change when the results of the final surveys for 2012 are published.

1. Sectoral and overall shares and actual production and consumption of energy from renewable sources in 2011 and 2012

Table 1 below can be readily compared with Table 3 of the National Renewable Energy Action Plan which shows France's target trajectory for the share of renewable energy in gross final energy consumption. As a reminder, France's national action plan included a target percentage of 14% of renewable energy in gross final energy consumption for 2012.

Table 1: The sectoral (electricity, heating and cooling, and transport) and overall shares of energy from renewable sources

	2011	2012p
RES-H&C ¹ (%)	15.8%	17.2%
RES-E ² (%)	16.4%	16.7%
RES-T ³ (%)	6.9%	7.1%
Overall RES share⁴ (%)	12.7%	13.7%
<i>Of which from cooperation mechanism (%)</i>	<i>0</i>	<i>0</i>
<i>Surplus for cooperation mechanism (%)</i>	<i>0</i>	<i>0</i>

It is evident from a direct comparison that France is 0.3% behind its target. This slight failure to meet the target in 2012 should nevertheless be compared to the larger failure in 2011 (0.8%), a non-negligible proportion of which was due to the mild winter in 2011: in France, there is a strong correlation between the harshness of the winter and the share of biomass in final consumption. In accordance with Eurostat's requirements, household biomass consumption is not climate-corrected.

It should also be stressed that, unlike the figures submitted annually to Eurostat, the data contained in this report cover the whole of French territory and are not limited to metropolitan France.

¹ Share of renewable energy (RES) in heating and cooling: gross final consumption of energy from renewable sources for heating and cooling (as defined in Articles 5(1)(b) and 5(4) of Directive 2009/28/EC) divided by gross final consumption of energy for heating and cooling.

² Share of renewable energy in electricity: gross final consumption of electricity from renewable sources (as defined in Articles 5(1)(a) and 5(3) of Directive 2009/28/EC) divided by total gross final consumption of electricity.

³ Share of renewable energy in transport: final energy from renewable sources consumed in transport (cf. Articles 5(1)(c) and 5(5) of Directive 2009/28/EC) divided by the consumption in transport of 1) petrol; 2) diesel; 3) biofuels used in road and rail transport and 4) electricity in land transport (as reflected in row 3 of Table 1). The methodology used in Table 3 of the NREAPs is also used here.

⁴ Share of renewable energy in gross final energy consumption.

Table 1a: Calculation table for the renewable energy contribution of each sector to final energy consumption (ktoe)

	2011	2012p
(A) Gross final consumption of RES for heating and cooling	10 173	11 763
(B) Gross final consumption of electricity from RES	7 200	7 541
(C) Gross final consumption of energy from RES in transport	2 981	3 053
(D) Gross total RES consumption ⁵	19 800	22 021
(E) Transfer of RES <u>to</u> other Member States	0	0
(F) Transfer of RES <u>from</u> other Member States and 3rd countries	0	0
(G) RES consumption adjusted for target (D)-(E)+(F)	19 800	22 021

Table 1b: Total actual contribution (installed capacity, gross electricity generation) from each renewable energy technology in France in electricity

	2011		2012p	
	MW	GWh	MW	GWh
Hydro ⁶ :	25 617	68 369	25 654	67 659
non pumped ⁷	18 632	59 958	18 669	59 485
<1MW	435	1 542	431	1 509
1MW–10 MW	1 610	5 722	1 611	5 592
>10MW	16 587	52 723	16 627	52 409
pumped	1 808	5 018	1 808	4 826
mixed ⁸	5 177	3 393	5 177	3 348
Geothermal	16	56	16	51
Solar:	2 942	2 358	4 056	4 446
<i>Photovoltaic</i>	2 942	2 358	4 056	4 446
<i>Concentrated solar power</i>	0	0	0	0
Tide, wave, ocean	240	477	240	458
Wind:	6 808	12 531	7 623	14 186
<i>Onshore</i>	6 808	12 531	7 623	14 186
<i>Offshore</i>	0	0	0	0
Biomass:	993	5 513	1 090	5 708
<i>Solid biomass</i>	787	4 306	843	4 424
<i>Biogas</i>	208	1 207	247	1 284
<i>Bioliquids</i>	0	0	0	0
TOTAL⁹	36 616	89 304	38 679	92 508
<i>of which in CHP</i>	592	2 950	713	3 248

⁵ According to Article 5(1) of Directive 2009/28/EC, gas, electricity and hydrogen from renewable energy sources shall be considered only once.

⁶ Normalised in accordance with Directive 2009/28/EC and Eurostat methodology.

⁷ By construction, total normalised production by sector is not equal to total normalised production.

⁸ Production means normalised renewable production, in accordance with the new Eurostat methodology.

⁹ NB: to obtain total renewable production, pumped hydro production should be subtracted from this figure.

Notes:

- The 2012 data and in particular those from the electricity production survey are currently being consolidated.
- The powers of biomass facilities having mixed equipment have been calculated pro rata to the fuels used.
- In accordance with the Eurostat methodology, pumped hydro production is not considered to be renewable production hereafter. In the 'mixed' row, the figure given indicates the share of renewable hydro (i.e. non-pumped) from mixed power stations. The figure given for total hydro production is the total of renewable hydro production and non-renewable hydro production.

Table 1c: Total actual contribution (final energy consumption) from each renewable energy technology in France in heating and cooling (ktoe)

	2011	2012p
Geothermal (excluding low temperature geothermal heat in heat pump applications)	89	94
Solar	121	133
Biomass ¹⁰ :	9 017	10 309
<i>Solid biomass</i>	8 881	10 158
<i>Biogas</i>	136	151
<i>Bioliquids</i>	0	0
Renewable energy from heat pumps:	945	1 227
- of which <i>aerothermal</i>	819	1 076
- of which <i>geothermal</i> ¹¹	126	151
- of which <i>hydrothermal</i>	-	-
TOTAL	10 173	11 763
<i>Of which DH</i> ¹²	480	n/a ¹³
<i>Of which biomass in households</i> ¹⁴	6 180	7 155

After a particularly cold 2010, 2011 was particularly mild and that had an impact on household wood consumption and heating generated by heat pumps. Methodological work on heat pumps is under way and may mean that the figures are substantially revised, especially for aerothermal heat pumps.

¹⁰ Takes into account only those complying with applicable sustainability criteria, cf. Article 5(1), last subparagraph, of Directive 2009/28/EC.

¹¹ Hydrothermal heat pumps are grouped with geothermal heat pumps.

¹² Heat production by heating and/or cooling networks from renewable energy sources.

¹³ The data marked as n/a in this table and the following table will not be available until the surveys have been processed (scheduled for January 2014).

¹⁴ Share in total renewable heating and cooling energy consumption.

Table 1d: Total actual contribution from each renewable energy technology in France in the transport sector (ktoe)

	2011	2012p
Bioethanol / bio-ETBE	392	418
<i>Of which Biofuels¹⁵ Article 21.2</i>	0	0
<i>Of which imported¹⁶</i>	84	77
Biodiesel	2 393	2 424
<i>Of which Biofuels¹⁷ Article 21.2</i>	358	125
<i>Of which imported¹⁸</i>	444	359
Hydrogen from renewable sources	0	0
Renewable electricity	196	209
<i>Of which road transport</i>	0	1
<i>Of which non-road transport</i>	196	209
Others (biogas, vegetable oils, etc.) – please specify	0	0
<i>Of which Biofuels¹⁹ Article 21.2</i>	0	0
TOTAL	2 981	3 051

Note:

Directive 2009/28/EC makes provision for concessions for second-generation biofuels and renewable energy consumed by electric vehicles in transport. They are included in the above table.

¹⁵ Biofuels that are included in Article 21(2) of Directive 2009/28/EC.

¹⁶ This is the share of ethanol in imports of ETBE. No data on imports of pure bio-ethanol are available.

¹⁷ Biofuels that are included in Article 21(2) of Directive 2009/28/EC.

¹⁸ From the whole amount of biodiesel.

¹⁹ Biofuels that are included in Article 21(2) of Directive 2009/28/EC.

2. Measures taken in the preceding two years and/or planned at national level to promote energy from renewable sources

Name and reference of the measure	Type of measure	Expected result	Targeted group and or activity	Existing or planned	Start and end dates of the measure
1. Revision of administrative procedures	Regulatory	Simplification for small renewable electricity or heating projects; better account to be taken of the environment in large projects (photovoltaic, wind, biomass)	Individuals, investors	Existing, revision under way	2001-/-
2. Sustainable development income tax credit	Fiscal		Individuals	Existing	2005-2015
3. Lower VAT rate (works in housing over two years old): for renewable energy production equipment in the existing residential sector	Fiscal	Increase in the number and quality of energy performance works: wood-fired heating installed in 3 million dwellings, heat pumps in 2 million dwellings and thermal solar in 4 million dwellings by 2020	Individuals	Existing	1 April 2009 – 31 December 2013 for the zero-rated eco-loan
4. Zero-rated eco-loan for works to improve the overall energy performance of housing	Financial		Individuals	Existing	
5. ANAH aid	Grants	Increase in the number and quality of heating renovations in low-income households	Individuals	Existing, being stepped up	2007-/-
6. Social housing and public buildings renovation plan	Financial	Thermal renovation of all such buildings by 2020	Social housing managers, State and local authorities	Under way	2009-2020
7. Energy saving certificates	Regulatory	Increase in the number of energy saving or renewable heat production measures in construction and industry	Energy suppliers	Existing	2011-2014 (2 nd period)
8. 2012 Thermal Regulation	Regulatory	Tighter thermal standards in new buildings	Individuals, anyone constructing buildings for residential or service-sector use	Existing	28 October 2011 - 2020 or 1 January 2013 – 2020, depending on type of building
9. Energy performance diagnosis	Regulatory	Better information for buyers, occupants and visitors	Individuals, building societies	Existing	2007-/-
10. FAR bonus	Regulatory	Energy performance incentive	Individuals	Existing	2005-/-
11. Energy Info offices	Information	Increase in the number and quality of energy performance works: wood-fired heating installed in 3 million dwellings, heat pumps	Individuals	Existing	2000-/-

		in 2 million dwellings and solar heating in 4 million dwellings by 2020			
12. ADEME campaign	Information	Raising awareness of global warming and thermal renovation	Individuals	Existing	2009-/-
13. Regional Climate/Energy/Air plans	Planning	Identifying and capitalising on renewable energy potential	Local authorities	Under way	2010-2013
14. Heat Fund	Financial	Financing 5 400 ktoe of renewable heating production by 2020	Collective, service and industrial sectors	Existing	1 st period from 2009 to 2013
15. Lower-rate VAT for district heating networks using over 50% RES	Financial	3.2 Mtoe of renewable heating by heating networks by 2020	Developers, investors – heating networks	Existing	2009-/-
16. Classification of district heating networks	Regulatory	3.2 Mtoe of renewable heating by heating networks by 2020 - developing cooling networks	Developers, investors – heating networks	Existing, revision being prepared	1997-/-
17. Extension of concession period (public service delegation)	Financial	3.2 Mtoe of renewable heating by heating networks by 2020	Developers, investors – heating networks	Existing	2010-/-
18. Energy Performance Plan for farms	Financial	- Improved overall energy performance on farms - Development of RES	Farms	Existing, scheme being revised	2009-2013
19. Support for the construction or refurbishment of market garden greenhouses or greenhouses in the ornamental and nursery horticulture sector	Financial	Development of RES for market garden greenhouses and greenhouses in the ornamental and nursery horticulture sector	Farms	Existing	Revision of the scheme under way
20. Methanation Energy – Nitrogen Autonomy Plan	Financial Regulatory Grants	Development of 1000 biogas plants by 2020	Farms	Existing	2013-2020
21. Purchase prices for electricity produced from RES	Financial	Increase in the number of renewable energy production projects	Individuals, investors	Existing	2011-/-
22. Guarantees of origin	Regulatory	Upgrading the renewable nature of the energy produced	Investors	Existing	2011-/-
23. Calls for tenders for renewable energy production	Financial	Increase in installed capacity for renewable energy production (wind, offshore wind, biomass, photovoltaic, maritime energies)	Investors	Existing for biomass and photovoltaic Existing for offshore wind Existing for onshore wind in Corsica and overseas Planned for maritime energies	2005-2020
24. ADEME demonstration funds,	Grants	Stimulating R&D	Investors, researchers	Existing	2009-2013

extended by Future Investments programmes					
24a. Future Investments	Grants	Stimulating R&D	Investors, researchers	Existing	2010-/-
25. ANR	Grants	Stimulating R&D	Researchers	Existing	2009-/-
26. Competitiveness hubs	Grants	Stimulating R&D	Public-private Partnership	Existing	2005-/-
27. General tax on pollutant activities	Fiscal	Achieving biofuel incorporation targets	Fuel distributors	Existing	2005-/-
28. Partial exemption from domestic consumption tax	Fiscal	Reducing the additional costs of biofuel production	Fuel producers	Existing	2002-/-
29. Restoration of rivers, canals and port installations	Infrastructure	Replacement of road transport of goods by non-road transport	Transport/distribution enterprises	Being developed	2010-/-
30. Major rail network modernisation plan	Infrastructure	Replacement of road transport by rail transport	Rail passenger and freight transport enterprises	Being developed	2012-/-
31. Development of French rail network	Infrastructure	Giving priority to daily trains in order to promote the modal shift	Rail passenger and freight transport enterprises	Being developed	2010-/-
32. Grand Paris Express project	Infrastructure	Improved public transport	Individuals	Being developed	2010-/-
33. Vehicle scrapping premium	Grants	Faster renewal of vehicle fleet	Individuals	Existing	2011-/-
34. Vehicle incentive	Grants	Purchase of lower-consumption vehicles	Individuals	Existing	2008-/-
35. Creation of a guaranteed purchase price for biomethane incorporated into gas grids	Financial	Helping to achieve heating production targets from biogas	Waste producers	Existing	2011-/-

2.1 Evaluating and improving administrative procedures to remove regulatory and non-regulatory barriers to the development of renewable energy

In order to provide full information, measures and works started in 2013 are also included.

Environmental law measures

From the point of view of pollution and industrial risk prevention monitoring, the legislation on installations classified for the protection of the environment (ICPE) is the legal basis for industrial environmental policy in France (Book V of the Environmental Code). A nomenclature listing every activity and substance by nature is annexed to Article R.511-9 of the Environmental Code and subjects them to the rules laid down by the Orders of the Minister responsible for the environment. Depending on the scale of the risk that they entail, installations are subject to different schemes: the authorisation scheme, the registration scheme or the declaration scheme. The registration scheme was introduced by Order No 2009-663 of 11 June 2009; this scheme is a new intermediate ICPE classification category under which there is a simpler assessment procedure for installations whose nature is well-known and which present a limited risk.

The administrative procedures for environmental protection are further addressed on pages 24 and 25 of the National Renewable Energy Action Plan.

1. Promoting methanation

Under the methanation support plan, launched in March 2013, the threshold of the authorisation scheme for biogas plants subject to the ICPE regulations is shortly to be raised from 50 to 60 tonnes of inputs per day. Simplifying the regulations in this way should make it possible to remove a barrier to the development of methanation in France.

Planning law measures

1. Promoting wind power

The Planning Code contains specific provisions on coastal areas. Under Article L.146-4 of the Planning Code: 'development shall take place continuously with existing conurbations and villages' in coastal municipalities. Moreover, under a paragraph of Article 553-1 of the Environmental Code, wind farms must be situated at a distance of at least '500 metres from buildings used for residential purposes, inhabited property and areas intended for residential use as laid down in the planning documents in force on the date of publication of that law'. Under these provisions, it is not therefore possible to build wind farms in coastal municipalities. Article 26 of Law 2013-312 of 15 April 2013 amends Article L.156-2 of the Planning Code and introduces a derogation from the principle of continuous construction for the overseas *Départements* where most municipalities are coastal.

Energy law measures

1. Electricity generation

- Promoting wind power

Following the entry into force of Law No 2013-312 of 15 April 2013, Decree No 2000-1196 of 6 December 2000 setting, by category of facility, the power thresholds of facilities eligible for mandatory electricity purchase no longer applies to onshore wind farms. Onshore wind farms are therefore no longer subject to a power threshold.

Other administrative simplification measures for onshore wind farms were also introduced under Law No 2013-312 of 15 April 2013. The wind power development zones (ZDE) and the so-called 'five mast' rule that was a criterion for eligibility for mandatory electricity purchase have been abolished. Onshore wind power is now subject to mandatory purchase, with no conditions relating to size or the number of masts making up the farm.

- Promoting all RES sectors

Since 1 January 2012, facilities using renewable energy with an installed electric power of less than 12 MW are automatically authorised. The ceiling has been increased to 30 MW for wind farms.

2. Heat production

- Incorporating biomethane (purified biogas) into natural gas grids

Under Articles L.446-2 and following of the Energy Code (derived from Article 92 of the Law of 12 July 2010 setting out a national commitment to the environment), a new sector is to be created to capitalise on biogas through the incorporation of biomethane (purified biogas) into natural gas grids. The decrees implementing these articles and their accompanying orders define their regulatory scope: setting a guaranteed purchase price, the conditions under which biomethane producers may obtain that price and the rules applicable to relations between producers and suppliers of natural gas purchasing biomethane and defining a guarantee of origin system.

The decrees and orders were drafted in close cooperation with all the stakeholders in this new sector and were published in the Official Journal on 22 November and 24 November 2011.

3. Transport sector

The 2005 Finance Law introduces a fuel taxation system that is intended to promote the incorporation of biofuels to the level set out in Article L.641-6 of the Energy Code. Article 32 in practice introduces a tax on the 'release for consumption' of petrol, on the one hand, and diesel, on the other, based on the sale price, excluding VAT. The rate of the general tax on pollutant activities (TGAP) has been set at 7% since 2010 (Article 266-15 of the Customs Code). Volumes of fuels released for consumption form the taxable basis of the TGAP.

To calculate the TGAP, this rate is reduced pro rata to the volumes of biofuels included in fuels sold by % energy (LCV) for premium petrol and for diesel.

The TGAP is helping to encourage operators to include and distribute biofuels by penalising those marketing biofuels in proportions below the set threshold.

2.2. Measures in ensuring the transmission and distribution of electricity produced from renewable energy sources and in improving the framework or rules for bearing and sharing of costs related to grid connections and grid reinforcements

As a reminder, all producers have a right of access to the grid that is guaranteed by law. If the grid manager refuses access, the regulator may impose a penalty if the refusal is not based on objective, non-discriminatory and open criteria. These criteria may be based only on the imperatives connected with the proper performance of public service tasks and on technical grounds relating to grid safety and security and the quality of grid operation. Producers are entitled to obtain a technical and financial proposal (PTF) for their connection under the conditions laid down in the grid manager's technical reference documentation (see pages 38 to 40 of the National Renewable Energy Action Plan).

In 2010, Law No 2010-788 of 12 July 2010 on a national commitment to the environment (known as Grenelle 2) set out schemes intended to improve coordination and speed up grid connection procedures for renewable energy. These provisions are now codified in Articles L.321-7, L.342-1 and L.342-12 of the Energy Code. Decree No 2012-533 of 20 April 2012 on regional renewable energy grid connection plans fleshes out how they are to be applied.

The regional renewable energy grid connection plans (S3REnR) are drawn up by the transmission system operator, in conjunction with the distribution system operators concerned, on the basis of the renewable energy development targets set by the regional climate, air and energy plans (SRCAE),

and are approved by the region's Prefect. Under these plans, the connection capacities for renewable energy considered necessary to achieve the targets set by the SRCAE can be reserved for 10 years. Under Article 1 of the Decree of 20 April 2012, all RES facilities with an installed power of more than 36 kVA are to be connected according to the methods set out in the S3REnR.

The S3REnR set out how the costs of any electricity works that may be needed are to be shared between producers: all renewable energy producers connected under an S3REnR are to pay the same share. This mechanism helps to prevent the barrier and windfall effects brought about by the application of the ordinary law on connection that was in force before the creation of the S3REnR and according to which the first producer whose connection required works to take place bore the costs of those works alone, with subsequent producers benefitting from them free of charge.

Electricity works requiring reinforcement are financed by grid managers. As in the ordinary connection scheme, 'own works', i.e. works from the production facility up to S3REnR works, are financed by producers. Seven S3REnR have been published to date.

3. Description of support schemes and measures to promote energy from renewable sources and new developments from the National Action Plan

Support schemes for renewable heat production and biomethane incorporation

Support schemes for renewable heat production are described in the French National Action Plan from page 66 to page 75. For the most part, the following paragraphs look only at developments since the 1st report.

1. Heat Fund

The Heat Fund scheme is described in detail on pages 67-70 of the National Action Plan.

The Heat Fund has a global appropriation of EUR 1.2 billion for 2009-2013. Annex 2 reviews the Heat Fund 2009-2012.

2. Sustainable Development Tax Credit

The Sustainable Development Tax Credit (CIDD) is described in detail on pages 57-59 of the National Action Plan. It is regularly revised to bring it into line with market developments and to make the scheme more efficient.

The main changes to the tax scheme on 1 January 2012 were intended to:

- extend the tax credit to 31 December 2015, while limiting it, from 1 January 2013, solely to expenditure in homes completed for more than two years;
- reduce the ordinary law rates of the tax credit for all eligible expenditure;
- introduce an increase of 10 points (before reduction) in the tax credit rates for certain eligible expenditure incurred within a 'package of works';
- make the eligibility for the tax credit in respect of expenditure on the purchase of heat insulating materials for glazed walls, insulating panels and external access doors in an individual home conditional upon a concomitant 'package of works';
- extend the list of eligible equipment to include gas micro-generation boilers;

- set, from 1 January 2012, the ceilings laid down by Order for eligible expenditure in respect of electricity generation equipment using radiating energy as well as energy generation using solar thermal energy;
- restore, subject to means-testing, combined eligibility for the tax credit and the zero-rated eco-loan from 1 January 2012.

As a result, moreover, of a new cross-cutting reduction of a certain number of tax advantages in relation to income tax, the tax credit rates were also reduced across-the-board by 15% under Article 83 of the 2012 Finance Law (No 2011-1977 of 28 December 2011).

3. Zero-rated eco-loan

The zero-rated eco-loan scheme is described in detail on page 59 of the National Action Plan.

Since June 2011, a reference specification for works in keeping with overseas climates has been applied to eco-loans awarded in the overseas *Départements*.

4. Thermal Regulation 2012

The Thermal Regulation 2012 described on pages 29-32 of the National Action Plan is a driving force in promoting the use of renewable energy in buildings.

It should be stressed that the TR 2012 more or less systematically requires resources using renewable energy to be installed in individual homes. One of the following solutions has to be used:

- production of domestic hot water from a solar thermal water heater;
- connection to a heating network more than 50% supplied by renewable or recuperated energy;
- proof that the building's energy consumption includes a minimum of 5 kWh/m² per year of primary energy produced from an individual renewable energy source;
- production of domestic hot water from a thermodynamic water heater;
- production of heating and/or domestic hot water from a micro-cogeneration boiler.

5. Energy Saving Certificates

The energy saving certificate (CEE) scheme and its links with the development of renewable energy are described in the French National Action Plan on pages 72-74.

The second period of the CEE scheme, which began on 1 January 2011, was initially scheduled to end on 31 December 2013. The Government has recently decided to extend this period by one year, under the same terms. The second period will therefore end on 31 December 2014 and should make it possible to achieve energy savings of 460 TWh_{cumac}.

The table in Annex 2 updates the table given in the National Action Plan (Annex 2); it shows, for renewable heat production measures subject to standardised operation forms, the volume of kWh_{cumac} of energy saved between 1 July 2006 and 31 July 2013. This volume is 73.8 TWh_{cumac}, i.e. 18.8% of the total volume of energy saving certificates issued.

6. Incorporation of biomethane

As mentioned above, purchase prices for biomethane incorporated into natural gas grids were published, at the same time as the other regulatory texts detailing the support scheme, on 24 November 2011: they are set out in the Order of 23 November 2011 setting the purchase conditions for biomethane incorporated into natural gas grids. Details of the purchase price levels are given at the end of Annex 1.

Support scheme for renewable energy production

As described in the National Action Plan, support for electricity production chiefly involves mandatory purchase and calls for tender (see pages 52-57 of the National Action Plan). Although different, these systems are very similar: they are open to all and are financed in exactly the same

way. Under both these systems, operators of renewable energy facilities can benefit from a long-term purchase contract at a guaranteed price (generally 15 to 20 years). The main difference lies in the fact that, in a call for tenders, the electricity sale price is one of the elements making up the tenderer's bid.

Annex 1 of this document gives details of all existing purchase prices.

1. Photovoltaic electricity

Photovoltaic electricity generation is supported by purchase prices and calls for tender as described in Section 4.3.2 of the National Renewable Energy Action Plan. The current support scheme, under which it is planned to develop 1000 MW/year of new photovoltaic projects, depends on the power of the installation.

- Purchase prices, adjusted every year, for installations in buildings of at least 100 kWc (threshold equivalent to an area of 1 000 m² of photovoltaic panels)

The level of the purchase price for installations of less than 1 000 kWc depends on the power of the installation and the extent to which it is integrated into the building. The price grid can be consulted at the website of the Ministry of Ecology, Sustainable Development and Energy.

Purchase prices are automatically adjusted every quarter on the basis of the requests for connection received during the preceding quarter. Prices fall by 10% a year if the number of requests to connect installations is in keeping with the target trajectory of 400 MW/year.

Urgent measures for photovoltaic electricity were adopted on 7 January 2013. These urgent measures in particular doubled the target volumes of new photovoltaic project development.

- 'Simplified' calls for tender for building installations between 100 and 250 kWc (threshold equivalent to a roof area of between 1 000 m² and 2 500 m²)

Installations of a power of between 100 and 250 kWc are supported by the simplified tendering procedure set out in Decree No 2002-1434. The procedure is virtual and applications are made electronically via the website of the Energy Regulation Commission.

Two calls for tender have now been launched:

- A first call for tender was launched on 1 August 2011 and closed in March 2013. This call for tender related to a power rating of 300 MW and had seven successive quarterly application periods. Successful candidates in this call for tender have been selected.
- A second call for tender was launched on 25 March 2013 and is currently under way. This call for tender relates to a power rating of 120 MW and has three application periods each of four months. The initial period of this call for tender ran from 1 July to 31 October 2013.
- Calls for tender for installations of more than 250 kWc (over 2 500 m² of panels) in very large ground-based panel systems

Installations of a power of more than 240 kWc are supported by the ordinary tendering procedure set out in Decree No 2002-1434. Applicants submit their tender documentation to the Energy Regulation Committee which is responsible for examining bids.

Various criteria are used to select successful tenderers: price, environmental impact, industrial innovation, construction time, etc. Priority is given to areas of little competitive value, for instance industrial wastelands, with a view to preserving biodiversity and agricultural and forestry uses.

Two calls for tender have now been launched:

- A first call for tender was launched on 15 September 2011 and closed on 3 August 2012. This call for tender related to the construction of 450 MW of new large-scale solar projects. Tenderers successful in this tender were selected in August 2012. Successful projects must be under way within two years of that date.
- A second call for tender was launched on 13 March 2013 and is currently under way. This call for tender relates to the construction of 400 MW of photovoltaic projects, split equally between roof-based and ground-based systems.

The call for tender was closed on 16 September 2013 which was the final date for submitting tenders. The Energy Regulation Committee is currently examining tenders and will select successful tenderers during the first quarter of 2014.

2. Wind electricity (onshore and offshore)

Over and above the support system taking the form of mandatory purchase as described in Section 4.3.2 of the National Renewable Energy Action Plan, two calls for tender for offshore wind farms were launched in 2011 and 2013:

- A first call for tender relating to offshore wind farms of a maximum capacity of 3 000 MW was launched on 11 July 2011. The call for tender covered five particular areas decided after concerted planning in order as far as possible to prevent conflicts of use. The tendering procedure means that the support can be matched in the best possible way to location and operating conditions that vary greatly from one site to another. Successful tenderers were selected on 6 April 2012 and close on 2 000 MW split into four lots were ultimately awarded.
- A second call for tender was launched on 18 March 2013. This follows on from the first call for tender and will help to consolidate the industrial sector that has started to emerge. It should enable the construction of wind farms offshore from Tréport and the islands of Yeu and Noirmoutier, with a total installed capacity of 1 000 MW. Applicants had until 29 November 2013 to submit their tenders.

Lastly, the Order of 8 March 2013 introduces a specific purchase price for wind farms equipped with production smoothing and forecasting systems located in areas at risk of cyclones. The areas in question are Réunion, Guadeloupe, Martinique, Saint Martin and Saint Barthélemy.

3. Electricity generated by maritime energies

As regards maritime energies, on 14 May 2013 the Government announced the launch of a new call for expressions of interest (CEI) 'Renewable Maritime Energies – Building Bricks and Demonstrators'.

It aims to consolidate four strands of this sector: wave, tidal, ocean thermal energy and floating wind power. In each strand, projects may be proposed for 'technological building bricks', i.e. elements that are essential for the large-scale roll-out of maritime energies. In the wave energy strand, projects are also expected to include offshore demonstrators. The CEI was launched on 13 May 2013 and was closed on 31 October 2013.

4. Electricity generated from biomass

Electricity cogeneration from biomass is supported by purchase prices and calls for tender as described in Section 4.3.2 of the National Renewable Energy Action Plan. The current support scheme depends on a facility's installed electric power:

- The development of facilities of over 12 MWe is supported by calls for tender, known as 'CRE' calls for tender. The first call, CRE 1, was launched in December 2003 and the latest, CRE 4, in July 2010.

Energy efficiency is one of the criteria against which projects are assessed, thereby encouraging applicants to optimise the use of the electricity generated.

- The development of facilities of 5 to 12 MWe is supported by regulated purchase prices (Order on prices of 27 January 2011). The price includes a bonus in EUR/MWh for projects with an energy efficiency of more than 50%.
- For facilities of less than 5 MWe, priority is given to simple heat production supported by the Heat Fund, managed by ADEME. Electricity purchase prices are not open, with the exception of facilities of a power of more than 1 MWe within sawmills.

5. Electricity generated from biogas

Electricity production by cogeneration from biogas is chiefly supported by a purchase price set out in the Order on prices of 19 May 2011.

This purchase price has recently been revised:

- in February 2013, to take account of facilities where part of the biogas is used for cogeneration and the remainder is incorporated into the gas grid;
- in July 2013, to enhance the stockbreeding effluent bonus to take better account of the particular conditions of agricultural methanation.

6. Geothermal electricity

Support chiefly takes the form of mandatory purchase. The purchase price was enhanced by the Order of 23 July 2010 in order to help with the development of geothermal energy in the overseas *Départements* whose geology is suitable for its development, and in metropolitan France in order to try to develop EGS geothermal energy (see Annex 1).

7. Sustainable Development Tax Credit

Please refer to paragraph 2 of the section 'Support schemes for renewable heat production'.

8. Zero-rated eco-loan

Please refer to paragraph 3 of the section ‘Support schemes for renewable heat production’.

9. Thermal Regulation 2012

Please refer to paragraph 4 of the section ‘Support schemes for renewable heat production’.

Support system for the transport sector

Partial exemption from the domestic consumption tax (TIC) makes it possible to reduce the additional costs of producing biofuels in comparison with fossil fuels.

Its amount is set every year by the Finance Law for the following year. Only biofuels from approved units are eligible for this tax concession, up to the ceiling of the quantities decided at the time of approval. Under the 2011 Finance Law, these tax exemption rates were set up to 2013. They are given below by type of biofuel:

EUR/hl	2007	2008	2009	2010	2011	2012	2013
ETBE	33	27	21	18	14	14	14
Ethanol	33	27	21	18	14	14	14
VOME	25	22	15	11	8	8	8
VOEE	30	27	21	18	14	14	14
AOME and UOME	25	22	15	11	8	8	8
Biodiesel from synthesis	25	22	15	11	8	8	8

The ‘mandatory’ incorporation of biofuels in fuels, set at an energy percentage of 7% for 2010 under the General Tax on Pollutant Activities, has not been changed. This rate of 7% consequently still applies.

Research and innovation

Support for research is one of the prime movers of public policy to develop new energy technologies, and is intended to help the corresponding sectors to mature and become competitive. The global R&D budget for energy in 2011 was EUR 1.11 billion, including EUR 515 million for new energy technologies (46%). New energy technologies include energy efficiency (in industry, services, housing and transport), renewable energies (solar, wind, maritime, bio-energies, geothermal and hydroelectric), CO₂ capture, storage and upgrading, energy storage, electricity grids, hydrogen, fuel cells and vehicles of the future.

The expansion of the Future Investments programme, in particular the launch of new demonstration projects and labelling by the Excellence Institutes for Carbon-Free Technologies (IEED), was the main development in energy research in France in 2012.

Financing methods and the packages currently available to support new energy technologies are reviewed below.

1. Future Investments

With an overall appropriation of EUR 35 billion, the Future Investments programme is intended to finance profitable resources and research and innovation infrastructure likely to assist France's economic development, in four strategic areas: higher education and training, research, industrial sectors and SMEs and sustainable development.

On 1 January 2013, EUR 28 billion of the Future Investments programme's initial appropriation of EUR 35 billion had been allocated to projects and EUR 4.4 billion was being allocated or earmarked to finance the Government's main priorities such as the thermal renovation of housing and the roll-out of super-fast broadband; EUR 2.2 billion were thus re-allocated, including EUR 300 million for the launch of new targeted calls for expressions of interest by ADEME on the key issues raised by energy transition.

Funds allocated to renewable energies are split between two main programmes:

1. The Excellence Institutes for Carbon-Free Technologies (IEED), managed by the National Research Agency

The 'Excellence Institutes for Carbon-Free Technologies' programme under Future Investments is intended to set up a world-ranking technological innovation platform for renewable energies, new energy technologies and energy efficiency.

These public-private research centres will provide a foundation for research and innovation activities in carbon-free energy sectors that ties in with the competitiveness hubs and the Grenelle environmental priorities for energy research. Activities will be organised around an ongoing technological and economic strategy (work programme of at least ten years), collaborative projects, joint training schemes and shared investment, in particular for prototype development, testing and demonstration resources.

This programme has an appropriation of EUR 1 billion to finance up to 50% of IEED activities. Projects bringing training agencies, public and private applied research laboratories and economic stakeholders together on one site are being selected from two calls for projects in 2010 and 2011. The Prime Minister designated two IEED on 1 June 2011 and six further IEED on 9 March 2012.

2. Demonstration projects and experimentation platforms, managed by ADEME, in the field:

ADEME is running four schemes under its Future Investments programme. Following on from the Research Demonstration Fund, these schemes are intended to finance demonstration projects and technology platforms, selected from calls for expression of interest (CEI). Between 2010 and 2012, a total of 31 CEIs were launched and 115 projects selected (as at 18 June 2013). Overall, the total budget for these projects is over EUR 3 billion, including public financing of EUR 940 million.

- *Renewable and carbon-free energy and green chemistry demonstration projects and technology platforms (EUR 1 125 million)*

This scheme has an appropriation of EUR 1 125 million to finance demonstration projects and technology platforms covering the fields of solar, wind and maritime energy, geothermal energy, CO₂ capture, storage and upgrading, plant chemistry, advanced biofuels, hydrogen and fuel cells, energy storage and positive energy areas and buildings.

Following the CEI on Maritime Energies in 2009 financed by Future Investments, 12 CEIs were launched between 2009 and 2012 and contracts awarded to 12 projects, in addition to the five projects selected by the Research Demonstration Fund.

- *Circular economy (EUR 210 million)*

This scheme has an overall appropriation of EUR 210 million to finance research and demonstration projects on issues connected with pollution prevention, eco-design and waste collection, sorting, recycling and upgrading.

These CEIs were launched between 2010 and 2012, and a contract awarded to one project as at 31 December 2012.

- *Smart electricity grids (EUR 165 million)*

This scheme has an appropriation of EUR 165 million to finance research and demonstration projects relating to the integration of intermittent renewable energies (wind, solar, maritime, etc.) into electricity grids and the development of smart products and services helping to manage consumption.

Two CEIs were launched in 2009 and 2010 under the Research Demonstration Fund and financed by that scheme. A third CEI was launched in 2011. A fourth CEI was launched from March-December 2012.

One contract had been awarded under the third CEI as at 31 December 2012, in addition to the eight projects under the Research Demonstration Fund.

- *Future Vehicles*

This scheme has an appropriation of EUR 950 million to finance technology demonstration projects and innovative and sustainable travel solutions.

Following the Research Demonstration Fund CEI financed by Future Investments, 12 CEIs were launched between 2010 and 2012 and 12 contracts awarded as at 31 December 2012, in addition to the five projects under the Research Demonstration Fund.

2. The National Research Agency (ANR) supports projects prior to collaborative research

The National Research Agency's targeted measure in the area of new energy technologies and energy efficiency has made it possible to commit close on EUR 70 million a year since the Agency was set up. Since 2011, there have been calls for projects under five programmes leading to the co-financing in 2012 of:

- 14 projects in the field of renewable production and management of electricity (PROGELEC);
- 10 projects in the field of efficient and carbon-free energy systems (SEED);
- 10 projects in the field of sustainable transport and mobility (TDM);
- 12 projects in the field of sustainable towns and buildings (VBD);
- there was no call for projects under the Bio-Materials and Energy (BioME) programme in 2012.

3. As they move towards commercial marketing, the Joint Ministerial Single Fund (FUI) supports the collaborative projects of competitiveness hubs

The FUI finances the collaborative research and development projects of the competitiveness hubs. The Fund is intended to support applied research projects aiming to develop products or services that can be marketed in the short- or medium-term.

The Fund has an appropriation of EUR 6 million for the period 2009-2012, including EUR 495 million for R&D projects and EUR 105 million for innovation platforms. The projects that are financed are selected because they are innovative and because of the economic activity that they are likely to generate once the call for projects is complete.

4. National funds under the Eurogia+ programme finance industrialisation projects between partners from at least two European Member States

Set up in 2008, Eurogia+ is an energy-related programme covering all technologies that are able to reduce carbon emissions. It covers both the use of hydrogen and renewable energies (wind, biomass, geothermal, solar, hydraulic, etc.) and energy efficiency. A French enterprise may take part in a collaborative R&D project with European partners. 17 States (Austria, Belgium, Croatia, Denmark, Estonia, France, Germany, Hungary, Iceland, Ireland, Israel, Monaco, Norway, Poland, Slovenia, Turkey) are providing financial support for project stakeholders. In 2012, three new projects were approved, bringing the number of projects co-financed by France under the programme to 18 with a total budget of EUR 77 million.

Amounts of expenditure on renewable energies

In order to reflect actual systems, and in particular their financing, as accurately as possible it has been decided to depart from the table suggested in the Commission's template while providing as much economic data as possible on the cost of support schemes, although the costs listed are not exhaustive.

1. Electricity generation

To finance mandatory purchase and calls for tender, a contribution is levied on final consumers' bills: the **Public Electricity Service Contribution (CSPE)**.

The CSPE is used to collect the compensation due to electricity suppliers for carrying out their public service obligations (Article L.121-6 of the Energy Code). Compensation for the additional costs connected with purchase contracts provided for in Articles L.311-10 and L.314-1 of the Energy Code (purchase prices and calls for tender) represents only part of the costs compensated. The CSPE is also used to compensate for higher production costs in zones which are not interconnected with the metropolitan grid in order to ensure an electricity supply price which is the same throughout France and to compensate suppliers for the costs that they incur in applying the specific social tariffs for the disadvantaged.

Compensation due for the application of mandatory purchase contracts (prices and calls for tender) is assessed in relation to the purchaser's avoided costs defined with reference to the market price of electricity. **The amount of the compensation for a given year therefore depends on the market prices recorded in that year.**

Each year, the Energy Regulation Commission (CRE) records the costs that purchase contracts and other public service tasks (price adjustments and application of social tariffs) have represented for suppliers in the previous year and, at the same time, draws up a forecast for the following year so that the Minister can set the new CSPE to be levied.

The purchaser's avoided costs are set by subsector. For each subsector, the CRE draws a line between production considered to be 'quasi-certain'²⁰ and 'chance' production. The avoided cost of quasi-certain production is calculated by reference to forward market prices, while that of chance production is calculated by reference to the spot price. **In its 2013 forecasts, the avoided costs of each subsector are therefore on average between EUR 43 and 58/MWh²¹**, in view, on the one hand, of the difference recorded in that year between the spot price and the forward price, and, on the other, the relative proportions of 'certain' production and 'chance' production in each subsector.

In this respect, in the electricity sector, the support granted to a subsector for a given period is considered to be the amount of the compensation due to mandatory purchasers for applying the purchase contracts connected with that subsector in that period.

At the time of drafting of this report, the costs recorded for 2011 and the forecast costs for 2013 were available. The data for 2012 are taken from the forecast costs estimated by the CRE in its deliberation of 13 October 2011. The data for 2013 are taken from the forecast costs estimated by the CRE in its deliberation of 9 October 2012.

Table 3a: Support schemes for renewable energies and cogeneration (electricity only)

In EUR million	Cost of support recorded by the CRE in 2010 ²²	Cost of support recorded by the CRE in 2011	2012 forecasts ²³	2013 forecasts
Gas cogeneration	820	800	710	530
Renewable electricity	760	1 460	2 220	3 010
Photovoltaic	250	900	1 530	2 110
Wind	350	400	500	570
Hydro	80	65	65	120
Biomass	30	50	85	120
Biogas	30	37	40	85
Geothermal	0	3	6	4
Domestic waste incineration	15	5	-1	15

²⁰ The quasi-certain power is the power available at any time in a given period and is considered to have a probability of some 90%.

²¹ Details of charges and avoided costs are given in the CRE deliberation at the following address: <http://www.cre.fr/documents/deliberations/proposition/cspe-et-contribution-unitaire-2013t>; the method by which the purchaser's avoided costs are calculated can be consulted at: <http://www.cre.fr/documents/deliberations/decision/evolution-des-principes-de-calcul-du-cout-evite-par-l-electricite-produite-sous-obligation-d-achat-en-metropole-continentale>.

²² Rounded to two whole figures.

²³ *Idem*.

In 2011, the average unit cost of support recorded by the CRE was some EUR 470/MWh for photovoltaic, EUR 37/MWh for wind, EUR 16/MWh for hydro, EUR 59/MWh for biomass, EUR 44/MWh for biogas, EUR 49/MWh for geothermal and EUR 5/MWh for incineration.

It should be noted that, in the case of biogas and photovoltaic energy, this unit cost of support is not entirely representative of the unit cost of support for new installations, as purchase prices have changed greatly in recent years (falling for photovoltaic and increasing for biogas (see Annex 1). Moreover, in the case of biogas, this figure comes essentially from waste biogas installations for which the purchase price is naturally not as high as for methanation units.

2. Heat production

The following table presents the breakdown of aid from the Heat Fund from 2009 to 2012.

Table 3b: Support schemes for renewable energies (heating alone)

		2011		2012	
Non-BCIAT wood (BCIAT = 'Biomass Heat – Industry, Agriculture, Services' call for projects)					
Heat investment grants	Fund	EUR 524/toe	EUR 58 million	EUR 475/toe	EUR 57.1 million
BCIAT wood					
Heat investment grants	Fund	EUR 368/toe	EUR 43.8 million	EUR 389/toe	EUR 40.5 million
Geothermal					
Heat investment grants	Fund	EUR 861/toe	EUR 26 million	EUR 1 207/toe	EUR 14.4 million
Biogas					
Heat investment grants	Fund	EUR 189/toe	EUR 1.2 million*	EUR/toe	EUR 0 million**
Solar					
Heat investment grants	Fund	EUR 10 183/toe	EUR 16.2 million	EUR 10 408/toe	EUR 10 million
Heating networks over 50% supplied by renewable or recuperated energies					
		EUR 358/toe	EUR 92.8 million	EUR 253/toe	EUR 100 million

* Also covered by Waste Fund in 2011 (+ EUR 2.3 million).

** No thermal upgrading or biogas incorporation project was assisted by the Heat Fund in 2012 but the Heat Fund supported 18 biogas heating transport networks.

3. Transport sector

Although the tax concession rates for biofuels have continued to fall, increasing incorporation rates led to an ongoing increase in the overall cost of the tax concession up to 2008. The trend was then reversed (the increase in the amount in 2012 can be attributed to 2011 during which the production of VOME²⁴ fell because the double counting of biofuels from wastes and residues was not capped). In 2012, the cost of the tax concession was estimated to be EUR 287 million.

The total amounts of the tax concession are given in the following table:

²⁴ Vegetable Oil Methyl Esters.

Table 3c: Support schemes for renewable energies (transport alone)

Year	2007	2008	2009	2010	2011	2012
Total amount of 'biofuel' tax concession	EUR 500 million	EUR 720 million	EUR 521 million	EUR 425 million	EUR 270 million	EUR 287 million

4. Cross-cutting support

From the point of view of cross-cutting support schemes which have a positive impact on renewable energy development, but which cannot be broken down by the main production sectors, the following costs can be given:

- 2012 sustainable development tax credit²⁵ (on expenditure incurred by households in 2011): EUR 1 billion. In 2011: EUR 2 billion.
- Zero-rated eco-loan (expenditure incurred in 2012 spread over five years from 2013): EUR 90 million.
- The 'Waste Fund': EUR 35 million in 2012 and EUR 26 million in 2011 for methanation. Under this Fund, administered by ADEME, grants may be awarded for new waste processing methods. In this instance, it subsidises the 'digestion' part of methanation units without taking account of the upgrading of the biogas.

3.1 Information on how supported electricity is allocated to final customers for the purposes of Article 3(6) of Directive 2003/54/EC

It is mandatory under Article 5 of Decree No 2004-388 of 30 April 2004 for electricity suppliers to inform final consumers of the origin of the electricity supplied in accordance with the provisions of Article 3(6) of Directive 2003/54/EC.

Suppliers must therefore specify in their bills to final customers:

- the various primary energy sources used to generate the electricity that they have sold over the preceding year;
- the contribution of each primary energy source to the supplier's overall fuel mix over the preceding year;
- a reference to publications concerning the environmental impact of the electricity generated by all the primary energy sources used by the supplier.

This Decree was amended by Decree No 2012-62 of 20 January 2012 on the guarantees of origin of electricity in order to specify that the quantity of energy generated from renewable sources corresponding to guarantees of origin transferred from an electricity supplier to a third party is to be deducted from the share of primary energy sources in accordance with Article 15(8) of Directive 2009/28/EC.

4. Information on how, where applicable, the support schemes have been structured to take into account RES applications that give additional benefits, but may also have higher costs,

²⁵ The fiscal data cannot be broken down by sector.

including biofuels made from wastes, residues, non-food cellulosic material, and ligno-cellulosic material

In electricity generation, the additional costs entailed in advantageous environmental performance may be taken into account only by creating a specific purchase price or by creating a specific power range in a call for tender.

The photovoltaic calls for tender mentioned in Section 3 thus include specific power ranges that are reserved for innovative technologies that entail higher costs: thermodynamic solar installations, concentrated solar power installations, solar installations coupled with storage devices, photovoltaic installations equipped with sun trackers.

In renewable heating and cooling production, support schemes are matched to each sector so as to support all technologies, including those having additional advantages but entailing higher costs.

In the transport sector, in parallel with the tax concession (see Section 3) which is a support scheme for biofuels, the TGAP (General Tax on Pollutant Activities) was amended in 2010. Article 266-15 of the Customs Code was amended by the 2010 Finance Law. Under this article, animal or used oil methyl esters (AOME or UOME) incorporated in diesel or domestic heating oil are accounted for at twice their actual lower heating value (LHV).

This system is framed by the Order of 13 March 2013 which states that only approved units may produce biofuels eligible for the double accounting system. This system is also capped at 0.35% of energy in the volumes of fuels made available for sale.

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

France did not consider it appropriate to establish a system of guarantees of origin for heating and cooling from RES which is not mandatory under Community rules.

As regards the guarantees of origin of electricity generated from renewable sources or by cogeneration, Articles L.314-14 to L.314-17 of the Energy Code and Decree No 2012-62 of 20 January 2012 brought the guarantee of origin system into line with Directive 2009/28/EC. These articles state in particular that guarantees of origin are the only possible way of certifying the renewable nature of electricity generation.

Under the Order of 19 December 2012, Powernext was appointed as the body responsible for issuing, monitoring and withdrawing guarantees of origin in France. Since 1 May 2013, when this appointment came into effect, Powernext has been responsible for ensuring the accuracy, reliability and protection against fraud of the guarantee of origin system. Powernext sends a yearly report to the Minister responsible for energy on the guarantees of origin issued over the preceding year.

In the case of renewable electricity facilities subject to mandatory purchase, the mandatory purchaser takes over the producer's right to obtain guarantees of origin. This substitution was introduced to stop consumers from doubling the value of the renewable share of electricity. The economic valuation of the guarantee of origin by mandatory purchasers is systematically deducted from the overall amount of the compensation that they receive via the CSPE.

6. Description of the developments in the preceding two years in the availability and use of biomass resources for energy purposes

The method used to calculate the quantities of biomass used for energy purposes and the quantities of energy produced has changed since the National Renewable Energy Action Plan was submitted in 2010. The reason for this change is that there is no robust statistical evaluation method for or specific survey of the quantities of raw material imported for use for energy purposes and the quantities of energy produced from imported biomass. There is no change, however, to the indicative trajectory.

As the lack of a survey means that no data are available, the following table is therefore partly incomplete. Data which are not available are shown by a hyphen (-).

All raw material is given in the 'amount of domestic raw material' columns of Table 4. These data come from the declarations by producers of energy from biomass (electricity and heating). The corresponding quantity of domestic biomass has been calculated using the conversion factors set out in the 2010 National Renewable Energy Action Plan.

In the case of biomass supplies for transport (common arable crops for the production of biofuels), the information collected by the customs service at the time of payment of the General Tax on Pollutant Activities sheds light on the 'consumption' in France of biofuels produced from domestic biomass and imported biomass.

Table 4: Biomass supply for energy use

	Amount of domestic raw material (in m ³ unless otherwise indicated)		Primary energy in domestic raw material (ktoe)		Amount of imported raw material (in m ³ unless otherwise indicated)		Primary energy in amount of imported raw material (ktoe)	
	2011	2012	2011	2012	2011	2011	2011	2012
Supply of biomass for heating and electricity generation								
Direct supply of wood biomass from forests and other wooded land for energy generation (fellings, etc.)**	28 077 280	32 612 490	6 160	7 155	-	-	-	-
Indirect supply of wood biomass (residues and co-products from wood industry, etc.)**	16 060 954	18 457 920	2 506	2 880	-	-	-	-
Energy crops (grasses, etc.) and short rotation trees (please specify)	-	-	-	-	-	-	-	-
Agricultural by-products / processed residues and fishery by-products **	-	-	423	422	-	-	-	-
Biomass from waste (municipal, industrial etc.) **	-	-	1 010	1 028	-	-	-	-
Supply of biomass for transport								
Common arable crops for biofuels	-	-	1 898	2 280	-	-	529	437
Energy crops (grasses, etc.) and short rotation trees for biofuels	-	-	-	-	-	-	-	-

** The definition of this biomass category should be understood in line with Table 7 of part 4.6.1 of Commission Decision C (2009) 5174 final establishing a template for National Renewable Energy Action Plans under Directive 2009/28/EC.

Table 4a. Current domestic agricultural land used for production of crops for energy production (ha)

Land use	Surface (ha)	
	2011	2012
1. Land used for common arable crops (wheat, sugar beet, etc.) and oilseeds (rapeseed, sunflower, etc.)	- wheat – maize: 200 121 ha - beet: 54 198 ha - oilseed surfaces (rapeseed, sunflower): 852 880 ha	- wheat – maize: 176 966 ha - beet: 47 927 ha - oilseed surfaces (rapeseed, sunflower): 1 005 180 ha
2. Land used for short rotation trees (willows, poplars) Main types: poplars, eucalyptus and willows felled before 20 years and rejecting stumps, excluding cones	4 466 ha	4 508 ha
3. Land used for other energy crops such as grasses (reed canary grass, switch grass, Miscanthus), sorghum.	-	-

Up to 2009, industrial set-asides and assisted energy crop surfaces were surveyed. It was possible to assess surfaces given over to energy crops from those data. Following the abolition of the mandatory set-aside in 2009, only energy crop surfaces were known for 2009. Surveying of these data was discontinued in 2010. There are therefore no data for 2011 and 2012 for row 3 of Table 4a above.

The data given in column 1 of the above table draw on biofuel competition monitoring. These are gross surfaces which do not take account of co-products.

The data given in column 2 are taken from farmers' returns; they do not include surfaces planted by industrial or forestry concerns.

7. Information on any changes in commodity prices and land use in the preceding 2 years associated with increased use of biomass and other forms of energy from renewable sources

Works are under way as regards energy wood. Since 2011 the CEEB (Wood Economy Research Centre) has been carrying out a survey on behalf of the SSP (Statistical and Forecasting Service) of the Ministry of Agriculture on energy wood from forestry and on behalf of the Ministry of Finance for the other types of energy wood.

These works have recently made it possible to revise and publish energy wood price indices in France.

In order to monitor energy wood from forestry, the SSP aggregates the data from the CEEB and produces three indices:

- forest/hedge/urban wood chips;
- wood of all lengths;
- wood of less than two metres.

The fact that these initial indices are not falling does not as yet make it possible to link their trends to an increased use of biomass. The following graph nevertheless shows an upward trend in the price indices for energy wood (baseline 100: 4th quarter 2011)

Graph 1: Forestry energy wood indices (Sources: AGRESTE, SSP, CEEB) (p. 36 of original)

Key:

Bois ronds toutes longueurs – Round wood all lengths

Bois bûches – Logs

Plaquettes (forestières, bocagères et urbaines) – Wood chips (forest, hedge, urban)

3e trimestre 2011 - 3rd quarter 2011 – and so on.

- The 2012 and 2013 indices are provisional

In the case of biofuels, the prices of the commodities included in their production fell sharply in 2013 after rising in 2012 (see below: source – AGRESTE). There is no indicator that as yet makes it possible to link these trends to an increased use of biomass.

Graphs on p. 37 of original

Juil. = July; Août = August; Janv. = January

Cours moyen mensuel = Average monthly quotation

Graines de tournesol rendu Bordeaux = Sunflower seeds del. Bordeaux

Graines de colza rendu Rouen = Rapeseed del. Rouen

Graines de soja Marché de Chicago = Chicago market soya beans

Blé tendre rendu Rouen = Wheat del. Rouen

Mais rendu Bordeaux = Corn del. Bordeaux

Blé tendre Chicago = Chicago wheat

Mais Chicago = Chicago corn

8. Description of the development and share of biofuels made from wastes, residues, non-food cellulosic material, and lingo-cellulosic material

Table 5: Production and consumption of Article 21(2) biofuels (Ktoe)

Article 21(2) biofuels ²⁶	2009	2010	2011	2012
Total consumption of Article 21(2) biofuels	0	63	362	125
% share of 21(2) fuels from total RES-T	0%	2.4%	18.2%	5.5%

Accounting methods mean that we can provide data only on consumption, and not production, in France of these types of biofuels between 2009 and 2012.

9. Estimated impacts of the production of biofuels and bioliquids on biodiversity, water resources, water quality and soil quality in the preceding two years

There has been no assessment of the impact of the production of biofuels on these natural resources in the preceding two years. France is first endeavouring to implement the sustainability criterion system for biofuels as set out in Directive 2009/28/EC.

²⁶ Biofuels made from wastes, residues, non-food cellulosic material, and lingo-cellulosic material.

10. Estimate of the net greenhouse gas emission savings due to the use of energy from renewable sources

Table 6: Estimated GHG emission savings from the use of renewable energy (t CO₂eq)

Environmental aspects	2011	2012
<i>Total estimated net GHG emission saving from using renewable energy</i>	67.30 M t CO ₂ eq	82.40 M t CO ₂ eq
- Estimated net GHG saving from the use of renewable electricity	44.23 M t CO ₂ eq	56.36 M t CO ₂ eq
- Estimated net GHG saving from the use of renewable energy in heating and cooling	17.26 M t CO ₂ eq	19.87 M t CO ₂ eq
- Estimated net GHG saving from the use of renewable energy in transport	5.81 M t CO ₂ eq	6.16 M t CO ₂ eq

Methodology

1. Estimated net GHG saving from the use of electricity from biomass energy

This saving is calculated from the consumption of electricity from the different types of biomass. The reference mixes taken into account for the various sources of renewable energy draw on those used by the SceGES model in 2012.

As there are no precise data on LCA emissions from the various types of biomass, a conservative reduction of 60% from fossil fuel has been taken as a benchmark – in line with discussions at European level on the issue of solid and gaseous biomass (see the Commission’s ‘Non-Paper on Biomass Sustainability’ of 30 April 2013).

For the other sources of electricity, whether renewable or not, the LCA emission values are those calculated by ADEME (data for some of them coming in particular from the ‘Carbon’ database).

	Estimated emissions (conservative) (kgCO ₂ MWh)	Estimated emissions (conservative) (kgCO ₂ MWh)	Market share outside EuR	Saving / reference heating	Energy quantity 2011 (GWh)	Emissions avoided 2011 (M t CO ₂ eq)	Quantity of energy 2012 MJ _{usable}	Emissions avoided 2012 (M t CO ₂ eq)
Biomass energy								
Carbon	1038.0	288.3	45.6%	-54.4%				
Gas	406.0	112.8	40.3%	39.6%				
Fuel	704.0	195.6	4.9%					
Nuclear	6.0	1.7	9.2%					
Reference mix	672	186.8		0.0%				
Crop residues	269.0	74.7		60.0%	344	0.14	355	0.14
Landfill gas	269.0	74.7		60.0%	1 026	0.41	1 020	0.41
Sludge gas	269.0	74.7		60.0%	51	0.02	62	0.03
Methanation gas	269.0	74.7		60.0%	131	0.06	203	0.06
Energy wood	269.0	74.7		60.0%	1 822	0.74	1 875	0.76
Renewable urban waste – elec only	269.0	74.7		60.0%	1 315	0.53	1 349	0.54
Renewable urban waste – cogeneration	269.0	74.7		60.0%	825	0.33	845	0.34
TOTAL BIOMASS						2.22		2.30
Other EuR								
Carbon	1038	288.3						
Gas	406	112.8						
Fuel	704	195.6						
Nuclear	6	1.7						
Hydro ref mix	653							
Hydroelec (+EMR)	6	1.7			46 133	29.85	59 215	38.32
Geothermal ref mix								
Geothermal		0.0			56		51	
Solar ref mix	636							
Solar	54.7	15.2			2 358	1.37	4 446	2.59
Wind ref mix	884							
Wind	7.33	2.0			12 294	10.78	15 001	13.16
Total other EuR						42.01		54.06
TOTAL						44.23		56.36

2. Estimated net GHG saving from the use of heating and cooling from renewable energy sources

- Biomass energy

GHG emission saving is calculated from the results of final consumption of heat produced from biomass. In the case of wood heating, the results of the 'Life Cycle Analyses' (LCA) produced for ADEME in 2005 have been used.

In the residential sector, considered separately because of the large share for which it accounts, the reference energy mix has been obtained from the respective shares of gas heating, domestic heating oil and electricity in domestic heating. This gives reference emissions of 72.1 gCO₂eq/MJ_{usable}. Taking account, moreover, of a conservative average performance factor of 50% for individual wood heating units (ratio of usable energy to final energy), LCA emissions of an average of 14.4 gCO₂eq/MJ_{usable} can be found from the 2005 ADEME study.

The life cycle analysis carried out for ADEME on energy wood heating in the collective and industrial sectors has also been used. Use is made of a fuel, gas and electricity reference mix whose LCA emissions are 84.1 gCO₂eq/MJ_{usable}. Account is also taken of average losses of 10% in heating networks (performance = 90% = usable energy / final energy) and emissions of 4.3 gCO₂eq/MJ_{usable} for wood heating.

As regards the other biomass sources for heating production, in the absence of LCA data, the conservative assumption of a GHG saving of 60% with respect to fossil fuel has been used as a benchmark in this case as well.

Lastly, GHG emission reductions connected with the use of biomass energy were calculated to be 15.16 and 17.24 M t CO₂eq in 2011 and 2012.

- **Other renewable energies**

As there is no LCA for the geothermal, heat pump and thermal solar sectors, a reduction of 60% is conservatively estimated for the benchmark energy mix in individual heating.

	Estimated emissions (conservative) (kgCO ₂ MWh _{usable})	Estimated emissions (conservative) (gCO ₂ MJ _{usable})	Market share outside EuR	Saving / reference heating	Energy quantity 2011 (ktoe)	Energy quantity 2011 (MJ _{usable})	Emissions avoided 2011 (Mt CO ₂ eq)	Energy quantity 2012 (ktoe _{usable})	Energy quantity 2012 (MJ _{usable})	Emissions avoided 2012 (Mt CO ₂ eq)
Domestic heating										
Oil	466.0	129.4	24.7%	-79.5%						
Gas	222.0	61.7	55.9%	14.5%						
Electricity	105.0	29.2	19.4%	59.5%						
Ref. Mix	259.5	72.1		0.0%						
Chip burners	42.0	11.7		83.8%						
Log burners	40.0	11.1		84.6%						
Chip boilers	33.0	9.2		87.3%						
Log boilers	33.0	9.2		87.3%						
Domestic wood estimate	52.0	14.4		80.0%	3 080	128 953 440 000	7.43	3 578	149 782 770 000	8.64
Collective/ industrial heating										
Oil	490.0	136.1	30.0%	-61.9%						
Gas	242.0	67.2	60.0%	20.1%						
Electricity	105.0	29.2	10.0%	65.3%						
Ref. Mix	302.7	84.1		0.0%						
Wood chips	24.0	6.7		92.1%						
Wood waste	14.0	3.9		95.4%						
Bark & sawmill residue	8.0	2.2		97.4%						
Estimated collective + industrial + agricultural heating	15.3	4.3		94.9%	2 077	78 263 852 400	6.25	2 357	88 814 588 400	7.09
Urban waste - heating	121.1	33.6		60.0%	62	2 336 234 400	0.12	62	2 336 234 400	0.12
Urban waste - cogeneration	121.1	33.6		60.0%	191	7 197 109 200	0.36	195	7 347 834 000	0.37
Crop residues	121.1	33.6		60.0%	390	14 695 668 000	0.74	388	14 620 305 600	0.74
Biogas	121.1	33.6		60.0%	137	5 162 324 400	0.26	151	5 669 861 200	0.29
TOTAL BIOMASS					5 937	236 608 628 400	15.16	6730.5	268 591 593 600	17.24
<i>Geothermal</i>	103.8	28.8		60%	89	3 726 252 000	0.16	94	3 935 592 000	0.17
<i>Thermal solar</i>	103.8	28.8		60%	121	5 066 028 000	0.22	133	5 668 444 000	0.24
<i>Heat pumps</i>	103.8	28.8		60%	945	39 566 260 000	1.71	1 227	51 372 036 000	2.22
TOTAL							17.26			19.87

3. Estimated net GHG saving from the use of renewable energy in transport

This is calculated from:

- the rate of physical incorporation of the various categories of biofuels;
- and emission factors, for fossil fuels and the various categories of biofuels in France, estimated in the 'Life Cycle Analysis applied to first-generation biofuels consumed in France' study carried out for ADEME and published in 2010.

It should be noted that the study – and therefore the reduction figures given here – does not include the effects of land-use changes (whether direct or indirect).

As the breakdown of incorporated biofuels in terms of the resource from which they were produced is not, moreover, known at national level, the values given for emissions are as conservative as possible.

	PCI in MJ/l	Estimated emissions (gCO ₂ /MJ)	Reduction / fossil	Quantity of energy 2011 (MJ)	Emissions avoided 2011 (M t CO ₂)	Quantity of energy 2012 (MJ)	Emissions avoided 2012 (M t CO ₂)
Diesel sector							
Fossil diesel	36	91.4	0.0%	1 336 581 178 036	0.00	1 339 307 730 540	0.00
VOME	33	37.5	59.0%	67 834 405 485	3.06	89 118 248 505	4.81
AOME / UOME	33	9.1	90.0%	15 154 613 133	1.25	5 236 130 064	0.43
Diesel from synthesis	34	59.4	36.0%	2 397 585 208	0.08	1 914 496 242	0.06
Total diesel					<u>4.98</u>		<u>5.30</u>
Petrol sector	PCI in MJ/l						
Fossil petrol	32	90.1	0.0%	287 222 702 400	0.00	271 205 699 200	0.00
ETBE	27	68.5	24.0%	20 027 743 938	0.43	17 823 441 967	0.39
Ethanol	21	46.0	49.0%	8 967 808 353	0.40	10 864 795 746	0.48
Total petrol					<u>0.83</u>		<u>0.87</u>
TOTAL					5.81		6.16

11. Values and estimates for the excess/deficit production of energy from renewable sources compared to the indicative trajectory

Table 7: Actual and estimated excess and/or deficit production of renewable energy compared to the indicative trajectory

Sector	2009	2010	2011	2012 p	2013	2014	2015	2016	2017	2018	2019	2020
Electricity												
Hydro	n/r	+6	-79	-163	0	0	0	0	0	0	0	0
by pumping	n/r	-32	-28	-63	0	0	0	0	0	0	0	0
Geothermal	n/r	-12	-11	-14	0	0	0	0	0	0	0	0
Solar	n/r	+10	+121	+266	0	0	0	0	0	0	0	0
Hydrokinetic/wave/tidal	n/r	-2	-2	-10	0	0	0	0	0	0	0	0
Wind	n/r	-92	-156	-324	0	0	0	0	0	0	0	0
Biomass	n/r	-45	-39	-67	0	0	0	0	0	0	0	0
<i>Solid biomass</i>	n/r	-56	-52	-76	0	0	0	0	0	0	0	0
<i>Biogas</i>	n/r	+11	+13	+8	0	0	0	0	0	0	0	0
TOTAL Electricity (I)	n/r	-135	-166	-313	0	0	0	0	0	0	0	0
Heating & cooling												
Geothermal (excl. CAP)	n/r	-65	-86	-101	0	0	0	0	0	0	0	0
Solar	n/r	-20	-34	-52	0	0	0	0	0	0	0	0
Biomass	n/r	+287	-1233	-233	0	0	0	0	0	0	0	0
<i>Solid biomass</i>	n/r	+248	-1284	-298	0	0	0	0	0	0	0	0
<i>Biogas</i>	n/r	+39	+51	+65	0	0	0	0	0	0	0	0
RE from heating pumps	n/r	+130	-145	-73	0	0	0	0	0	0	0	0
<i>Aerothermal</i>	n/r	+204	+9	+116	0	0	0	0	0	0	0	0
<i>Geothermal</i>	n/r	-74	-154	-189	0	0	0	0	0	0	0	0
TOTAL Heating & Cooling (II)	n/r	+336	-1497	-459	0	0	0	0	0	0	0	0
Transport												
Bioethanol/bio-ETBE	n/r	-156	-158	-132	0	0	0	0	0	0	0	0
Biodiesel	n/r	-78	+143	+74	0	0	0	0	0	0	0	0
Hydrogen from renewable sources	n/r	0	0	0	0	0	0	0	0	0	0	0
Electricity from renewable sources	n/r	-8	+4	-3	0	0	0	0	0	0	0	0
<i>Road transport</i>	n/r	0	0	-9	0	0	0	0	0	0	0	0
<i>Non-road transport</i>	n/r	-8	+4	+7	0	0	0	0	0	0	0	0
TOTAL Transport (III)	n/r	-242	-11	-61	0	0	0	0	0	0	0	0
TOTAL (I + II + III)*	n/r	-41	-1674	-833	0	0	0	0	0	0	0	0

* Note: In the total (I + II + III), renewable energy in transport is counted twice.

11.1 Details of statistical transfers, joint projects and joint support scheme decision rules

No statistical transfers or joint projects are planned at present, although France has not ruled out their use in future.

12. Information on how the share for biodegradable waste in waste used for producing energy has been estimated, and what steps have been taken to improve and verify such estimates

The share of biodegradable waste in all waste used for producing energy is set at 50%, as suggested by Eurostat. No steps have therefore been taken to improve the estimation of that proportion.

ANNEX 1 – Table summarising purchase prices for renewable energy and purchase price for biomethane incorporated in natural gas grids

Sector	Orders governing electricity purchase	Duration of contracts	Example of prices for facilities operating on the date of publication of the Orders
Hydro	1 March 2007 (in force)	20 years	- EUR 0.0607/kWh + bonus of between EUR 0.005 and 0.025/kWh for small facilities + bonus of between EUR 0 and 0.0168/kWh in winter depending on regularity of production - EUR 0.15/kWh for ocean hydro energy (wave, tidal or hydrokinetic)
Geothermal	21 July 2010 (in force)	15 years	Continental France: EUR 0.20/kWh + energy efficiency bonus of between EUR 0 and 0.08/kWh Overseas Départements: EUR 0.13/kWh + energy efficiency bonus of between EUR 0 and 0.03/kWh
Wind	17 November 2008 (in force)	15 years (onshore) 20 years (offshore)	- Onshore wind: EUR 0.082/kWh for 10 years then between EUR 0.028 and 0.082/kWh for 5 years depending on sites - Offshore wind: EUR 0.13/kWh for 10 years then between EUR 0.03 and 0.13/kWh for 10 years depending on sites
Wind with production forecasting and smoothing system in zones at risk of cyclones	8 March 2013 (in force)	15 years	EUR 0.23/kWh for 10 years then between EUR 0.05 and 0.23/kWh for 5 years depending on sites
Photovoltaic	4 March 2011 (in force)	20 years	Prices in force in the first quarter of 2013: - building-integrated installations: EUR 0.3159/kWh - simplified building-integrated installations: EUR 0.1817 or 0.1727/kWh depending on the power of the installation - other installations: EUR 0.0818/kWh Prices are revised quarterly depending on the number of connection requests compared with annual targets
Cogeneration	31 July 2001 (in force)	12 years	EUR 0.061 to 0.0915/kWh approximately depending on the price of gas, operating duration and power
Domestic waste, excluding biogas	2 October 2001 (in force)	15 years	EUR 0.045 to 0.05/kWh + energy efficiency bonus of between EUR 0 and 0.03/kWh
Combustion of non-fossil plant materials (biomass)	27 January 2011 (in force)	20 years	EUR 0.0434/kWh + optional bonus of between EUR 0.0771 and 0.1253/kWh awarded depending on power, resources used and efficiency and modulated depending on the latter
Biogas (from landfill)	19 May 2011 (in force)	15 years	Between EUR 0.08121 and 0.09745/kWh depending on power + energy efficiency bonus of between EUR 0 and 0.04/kWh
Methanation	19 May 2011 (in force)	15 years	Between EUR 0.1119 and 0.1337/kWh depending on power, to which an energy efficiency bonus of between EUR 0 and 0.04/kWh may be added as well as a bonus for animal effluent treatment of between EUR 0 and 0.026/kWh
Other installations of a power of less than 36 kVA	13 March 2002 (in force)	15 years	EUR 0.0787 and 0.0960/kWh based on the 'blue' price for domestic customers

Purchase prices for incorporated biomethane:

The purchase prices for biomethane incorporated in natural gas grids are governed by the Order of 23 November 2011 setting out the purchase conditions for biomethane incorporated in natural gas grids.

For non-hazardous waste storage installations, the purchase prices for incorporated biomethane are between EUR 0.045 and 0.095/kWh (HHV) depending on the size of the installation.

For other methanation units, the incorporated biomethane purchase prices are made up of a fixed component of between EUR 0.064 and 0.095/kWh (HHV) depending on the size of the installation, to which a bonus calculated on the basis of the nature of the materials subject to treatment by methanation ('inputs') may be added. This bonus is between EUR 0.02 and 0.03/kWh if the inputs are formed exclusively by agricultural or agro-industrial products. It is EUR 0.05/kWh if the inputs are exclusively formed by household waste. When the inputs are 'mixed' (co-digestion), the bonus is weighted and calculated pro rata to the quantities of inputs used per installation.

Since the February 2013 amendment of the Order on prices of 19 May 2011, facilities wishing to upgrade the biogas produced by cogeneration and by incorporation may lastly be entitled to combined prices.

ANNEX 2 – Review of existing measures

2012 Heat Fund – Review

The Heat Fund continued to be very successful in 2011 and 2012.

1. BCIAT 2011 Call for projects – Review

The third BCIAT call for projects was launched in September 2010 and its indicative target was kept at 175 000 toe following the success of the first two calls for projects.

25 of the 33 projects submitted were selected, for an energy production from biomass of some 119 000 toe per year. Although falling short of the target initially set, the BCIAT 2011 is helping to press on towards the targets set for biomass energy in industry. By replacing fossil energies, the projects selected will make it possible to avoid emissions of over 350 000 tonnes of CO₂ per year.

Key figures

Total investment:	EUR 139.4 million
Total aid budget:	EUR 43.8 million, i.e. 31% of investment
Total heat production:	119 100 toe/year
Total biomass power:	228 MWh
Mean aid ratio:	EUR 368/toe
Lowest aid ratio:	EUR 162/toe
Emissions avoided:	over 350 000 tonnes of CO ₂

2. BCIAT 2012 Call for projects – Review

The fourth BCIAT call for projects was launched in September 2011 with an indicative target of 125 000 toe. 22 of the 24 projects submitted were selected, for an energy production from biomass of some 104 130 toe per year. Although falling short of target initially set, the BCIAT 2012 is helping to press on towards the targets set for biomass energy in industry. By replacing fossil energies, the projects selected will make it possible to avoid emissions of over 270 000 tonnes of CO₂ per year.

Key figures

Total investment:	EUR 112.1 million
Total aid budget:	EUR 40.5 million, i.e. 36% of investment
Total heat production:	104 130 toe/year
Total biomass power:	214 MWh
Mean aid ratio over 20 years:	EUR 19.5/toe
Lowest aid ratio:	EUR 14.25/toe
Emissions avoided:	over 270 000 tonnes of CO ₂

In July 2013, the situation of the 115 projects selected from the four BCIAT calls was as follows: 32 projects were on line, 66 projects were under way and 18 projects had been abandoned.

3. Overall review of the Heat Fund including calls for projects and regional aid

The following table summarises the key figures for the Heat Fund from 2009 to 2012:

Key figures 2009-2012	Number of projects	Amount of eligible investment (EUR million)	ADEME aid (EUR million)	Toe RE/year	ADEME aid (EUR/toe over 20 years)
Non-BCIAT wood	389	760	181.2	305 556	29.6
BCIAT wood	104	569.1	223.8	557 620	20.1
Geothermal	236	256.9	64.7	61 306	52.8
Biogas	7	7	2.1	4 564	23.0
Solar	1 090	107.6	53	4 708	563.2
Heating networks	379	887.9	306.4	144 465	106.0
TOTAL	2 205	2 588	831	1 078 219	38.5

Energy Saving Certificates

Table of standardised forms for energy saving certificates relating to renewable energies

Sector	Reference number of standardised operation form	Title of the form	Volume of energy savings certified at 31 July 2013 [kWh _{cumac}]	
Residential	BAR-TH-01	Individual solar water heater (metropolitan France)	911 303 214	
	BAR-TH-02	Collective solar water heater (metropolitan France)	43 535 895	
	BAR-TH-03	Water/water type heat pump	2 384 372 400	
	BAR-TH-04	Air/water type heat pump	15 073 769 020	
	BAR-TH-12	Independent wood-fired heating appliance	24 643 024 900	
	BAR-TH-13	Individual biomass boiler	6 635 618 000	
	BAR-TH-14	Biomass boiler system	352 450 930	
	BAR-TH-14-SE	Biomass boiler system with contract ensuring the maintenance of the boiler system's energy yield	367 853 344	
	BAR-TH-24	Individual solar water heater (Overseas <i>Départements</i>)	3 277 185 912	
	BAR-TH-29	Air/air type heat pump	10 104 099 440	
	BAR-TH-35	Collective solar water heater (Overseas <i>Départements</i>)	46 959 006	
	BAR-TH-37	Connection of a residential building to a heating network supplied by renewable or recuperated energies	2 937 616 854	
	BAR-TH-38	Mini-cogeneration without purchasing obligation	0	
	BAR-TH-43	Combined solar system	10 358 484	
	BAR-TH-46	Collective domestic hot water production system of heat pump type on non-glazed solar receiver	0	
	BAR-TH-48	Individual thermodynamic accumulation water heater	32 022 800	
	BAR-TH-50	Collective absorption heat pump of air/water or air/air type	16 420 000	
	BAR-TH-53	Individual thermodynamic accumulation water heater	0	
	Tertiary	BAT-TH-07	Biomass boiler system	196 507 636
		BAT-TH-11	Collective solar water heater	24 959 237
		BAT-TH-13	Water/water type heat pump	69 021 218
		BAT-TH-13-GT	Water/water type heat pump in large building	42 431 312
		BAT-TH-14	Air/water type heat pump	303 994 859
BAT-TH-14-GT		Air/water type heat pump in large building	114 164 472	
BAT-TH-21		Collective solar water heater (Overseas <i>Départements</i>)	5 571 396	
BAT-TH-27		Connection of a tertiary building to a heating network supplied by renewable or recuperated energies	1 394 530 079	
BAT-TH-40		Absorption heat pump of air/water or water/water type	0	
	BAT-TH-41	Gas engine heat pump of air-water type	0	
Networks	RES-CH-01	Production of renewable heat by network	4 835 083 609	
Total			73 822 854 017	
Volume of energy savings certified at 31 July 2013			392 963 750 918	
Proportion of energy savings made as a result of the development of renewable energies:			18.8%	