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Paul Baudry, Dominique Osso

### ► To cite this version:

Paul Baudry, Dominique Osso. Energy Saving Certificates in France: a new frame for the second period (2011-2013) and afterwards. ECEEE 2011 Summer Study, ECEEE, Jun 2011, Presqu'île de Giens, France. pp.447-454. hal-02154019

**HAL Id: hal-02154019**

**<https://edf.hal.science/hal-02154019>**

Submitted on 12 Jun 2019

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# Energy saving certificates in France: A new frame for the second period (2011–2013) and afterwards

Paul Baudry  
EDF R&D – Département EFESÉ  
1 Avenue du Général de Gaulle, BP408  
92141, Clamart Cedex  
France  
+33 147653806  
paul.baudry@edf.fr

Dominique Osso  
EDF R&D – Département ENERBAT  
Site des Renardières – Avenue des Renardières  
Ecuelles  
77818 Moret-sur-Loing cedex  
France  
+33 16073 70 89  
dominique.osso@edf.fr

## Keywords

energy savings certificates, white certificates, energy efficiency policy, CO<sub>2</sub> savings, energy saving potential, policy evaluation, cost recovery

## Abstract

Energy Saving Certificates have been implemented in France since 2006. The first period of this obligation scheme has been completed on June 30th 2009 and the target of 54 TWhcumac (meaning accumulated over the lifetime and discounted) addressed to energy suppliers has been achieved successfully. The second period started with a target of 345 TWhcumac to be obtained after 4.5 years, including an intermediate period of 18 months and a second period from January 2011 until December 2013. If most of the already existing rules have been retained, new ones have been added and the obligation has been enlarged to gasoline suppliers of the transport sector.

This high target increase and the entrance of new major economic actors in the ESC field create new conditions that enhance competition and make more difficult the target achievement. The paper describes this evolution from the first to the second period, and discusses the new challenges and the difficulties created by these new conditions. Then questions concerning the third period following the end of this second period are addressed:

- the question of cost recovery that is not addressed in the system,
- the complexity of the scheme that should be overcome,
- the impact of mixing different types of obliged parties, some of them with only energy supplying activities (i.e. related

to buildings and industry), and other ones (i.e. related to gasoline supplying for transportation) with a larger field of activities,

- the reduction of the affordable savings potential.

## Introduction

Among the many policy instruments aiming at improving energy efficiency, energy supplier obligations schemes are in use in different European Union countries and States of the United States. Depending on the specific design or implementation conditions, certificates used within these schemes are usually called Energy Saving Certificates or White Certificates in Europe and Energy Efficiency Portfolio Standards or White Tags in United States. Bertoldi and al. (2010) recently reported the experiences of United Kingdom (UK), Italy, France, Denmark and the Flemish region of Belgium, which are the European countries having implemented energy supplier obligations<sup>1</sup>. While all these schemes share a basic design, many operating conditions are specific to each country, depending on the local context. The French law n°2005-781 setting the trends of Energy Policy issued on July 13<sup>th</sup> 2005 established Energy Saving Certificates in France.

After reminding the main elements of the French Energy Saving Certificates (FESC) during the first period 2006-2009, this paper reports results of FESC obtained during this first period, and the evolutions of the operating conditions that

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1. Paolo Bertoldi, Silvia Rezessi, Eoin Lees, Paul Baudry, Alexandre Jeandel, Nicola Labanca (2010), Energy Policy 38 1455–1469

were implemented for the second period ending on December 2013. The lessons learnt from the first FESC period, the expected impact of the operating conditions during the second period, and potential issues for the period after 2013 are also presented in the perspective of EDF as the first energy supplier in France, bearing the highest FESC obligation. The responsibility on the content of this publication lies with the authors, from EDF/R&D.

## Background on the French Energy Certificates in France during the first period 2006–2009

The decision to introduce this instrument and the rules during the period 2006–2009 were taken by the government while the different stakeholders were involved mainly in proposing the different eligible energy saving actions. Implementation decrees fixed the operating conditions and the French Energy Saving Certificates (FESC) started on July 1<sup>st</sup> 2006 for a three year period. While the details of these conditions have been presented before<sup>2</sup> (Bodineau 2009), the main features of FESC during this first three-year period were the followings:

- the national obligation for the period starting on July 1<sup>st</sup> 2006 and ending on June 30<sup>th</sup> 2009 was 54 TWhcumac, meaning cumulated over lifetime of the technical measure implemented and 4 % per year discounted,
- the obligation was addressed to electricity, gas, fuel, heat and cooling suppliers on the domestic and non-domestic market excluding industry, based for 75 % on the value of sales (Euros) and for 25 % on the quota of sold energy (kWh),
- certificates could be obtained by energy savings on all the sectors (domestic, commercial, industry, transportation) not covered by the EU Emission Trading Scheme. Energy savings were estimated through deemed savings methodologies or specific calculations for complex actions,
- eligible actors were all the economic actors (legal entities) provided that the energy savings were additional to the main economic activity,
- the accounting unit for energy savings was final energy,
- certificates were issued by the administration body and recorded in a national register called EMMY<sup>3</sup>,
- certificates could be traded by transfer of account in the national register
- if an obliged party does not comply with its obligation, it has to pay a penalty of €20 for each kWhcumac “missing”.

To produce certificates, two options are proposed:

- standardised actions based on deemed savings (*ex-ante* evaluation), described and quantified in a dedicated file for each action explaining the eligible conditions of the action (e.g. required level of efficiency, technical certification ...).

- specific actions corresponding to complex energy saving measures that must be validated by the public authority (ministry of Ecology, Sustainable Development, Transportation and Housing).

By setting these rules, the intention of the public authority was to place the energy suppliers as major actors of the energy efficiency market by involving their national commercial network while opening also this market to smaller actors able to save energy at least cost. Another objective was to track energy savings in all the sectors, introducing competition on the cost of energy savings. These conditions were supposed to achieve energy savings at the lowest cost. Figure 1<sup>4</sup> illustrates the workflow between the different bodies involved in the FESC operation and the link between the public authority, obliged actors and other eligible actors.

It must be reminded that even if the French domestic electricity and gas markets are open to competition, regulated tariffs are still in place in the domestic sector. Actually, the share of domestic customers that have switched from regulated tariffs to open market was 5 % at the end of 2010 (CRE 2011)<sup>5</sup>. The FESC scheme does not include any explicit mechanism that allows obliged parties selling electricity and gas at this domestic sector regulated tariff to recover their costs.

## Results and lessons learnt from the first and intermediate periods

### RESULTS

The course of the first period ending on June 30<sup>th</sup> 2009 was followed by a so-called intermediate period without obligation from July 2009 to December 2010, the time necessary to prepare and vote the law and to publish the implementation decrees. Then, the second period has started in January 2011 for a three year duration (until December 2013).

At the end of the first period, 65.2 TWhcumac were registered against a 54 TWhcumac obligation<sup>6</sup>. Concerning the obliged parties, 154 fulfilled their obligation, but 218 failed. 94 % of the obligation was shared out by 3 main stakeholders (EDF, GDF-Suez and Ecofioul an association of 1600 fuel oil retailers) who fulfilled their obligation (MEEDDM 2010).

During the intermediate period, the obliged parties carried on with FESC, which will be taken into consideration for the second period of obligation. At the national level in September 2010, 145.2 TWhcumac were registered by 665 beneficiaries as shown in Figure 2. This figure indicates the target for the first period (lowest red line) and for the second period (highest red line).

So far (in January 2011), 224 standardised actions exist (MEEDDM 2010):

- 68 in residential sector,

2. Luc Bodineau, 2009. The French Energy Saving Certificates Scheme. Presentation at the JRC workshop on White Certificates, Utility and Supplier Obligations, 31 March–01 April 2009, Centre Borschette, Brussels, Belgium.

3. EMMY, <https://www.emmy.fr/front/accueil.jsf>

4. Source: ATEE (2010) Technical Association on Energy and Environment, Le dispositif des certificats d'économie d'énergie – Memento du club C2E, august 2010, 303p

5. Commission de Régulation de l'Énergie, Le marché de détail de l'électricité, <http://www.cre.fr>

6. MEDDEM, Ministry of Ecology, Sustainable Development, Transportation and Housing (Ministère de l'Écologie, du Développement durable, des Transports et du Logement), <http://www.developpement-durable.gouv.fr/-Certificats-d-economies-d-energie,188-.html>

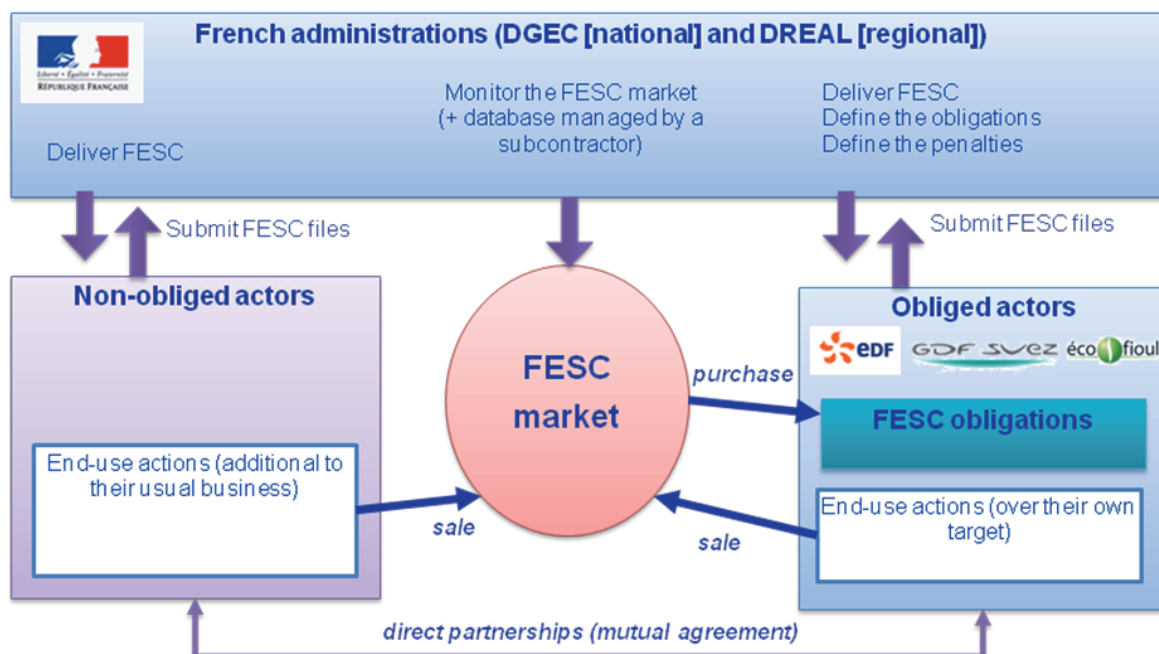


Figure 1: administrative design of FESC scheme (source: ATEE).

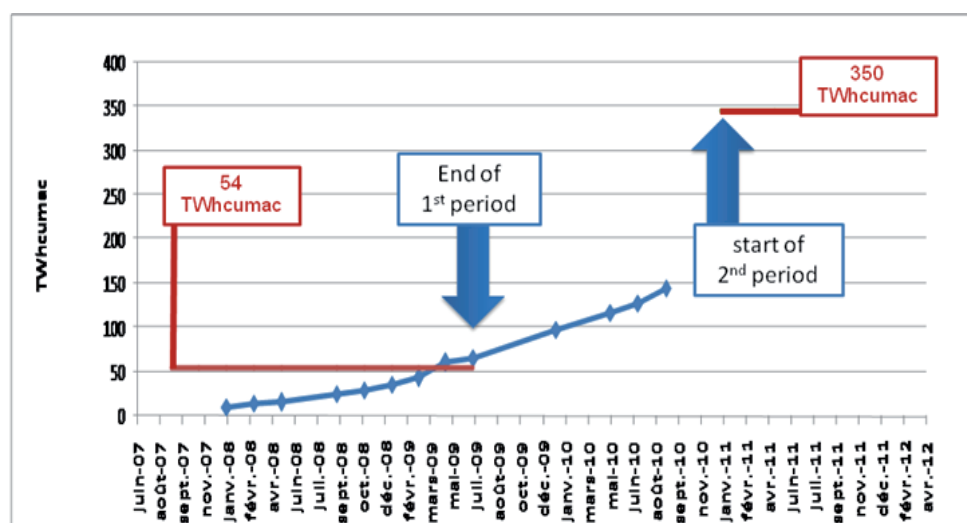


Figure 2: FESC (in TWhcumac) validated in the national register EMMY from January 2008 to September 2010 (source: MEEDM).

- 92 in commercial & service buildings,
- 29 in industry,
- 12 in networks (district heating, public lighting, electricity distribution),
- 16 in transportation,
- 7 in farming.

But only 163 standardized actions were used, and only 50 of them account for 95 % of the delivered FESC and the top 10 actions represent 84 % of the FESC (MEEDM 2010)<sup>7</sup>. 81.5 % of registered FESC in September 2010 concern the residential sec-

tor, with 90 % for thermal insulation and space heating systems (Figure 3). Only 7.1 % of FESC were registered for the tertiary sector, 6.5 % for industry, 4.6 % for the grid, and 0.3 % for the transportation sector.

Concerning the economic actors (i.e. the eligible ones), 377 non-obliged parties registered FESC for a amount of 7.8 % of the certificates registered (including 90 local authorities for 1.4 %). Moreover, the market exchange (trading) remained below 1 % of the FESC totally issued by November 2010 as presented in the national registry (Figure 4). The price of FESC stabilized around 3 Euro/MWhcumac. Also, the potential direct partnerships (mutual agreement contracted before the FESC submission to the public authority<sup>8</sup>) are not public and remain unknown.

7. MEEDM (2010) Lettre d'information Certificats d'économies d'énergie, Novembre 2010, 3p

8. FESC sales outside the public market exchange reported in the EMMY database.

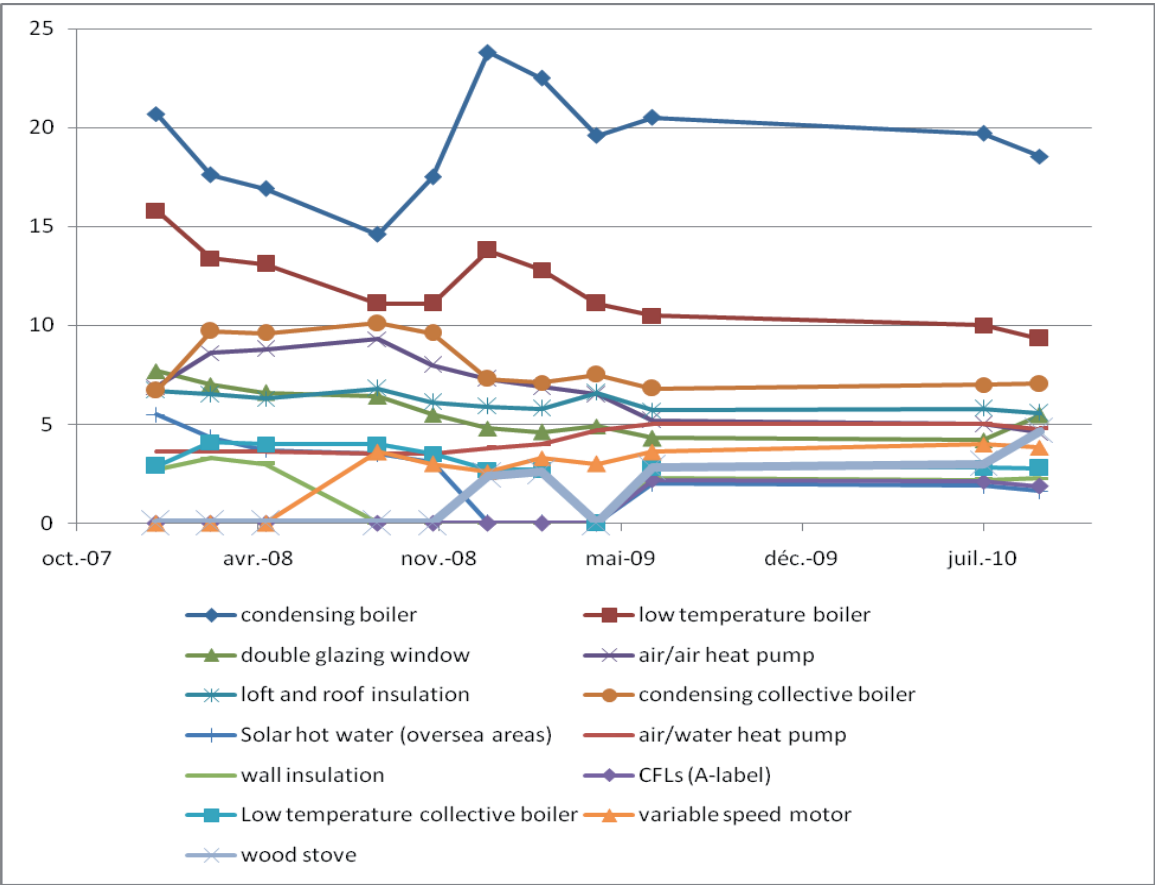


Figure 3: FESC standardised action breakdown by type of actions (in % of total FESC) (source: data from MEEDDM).

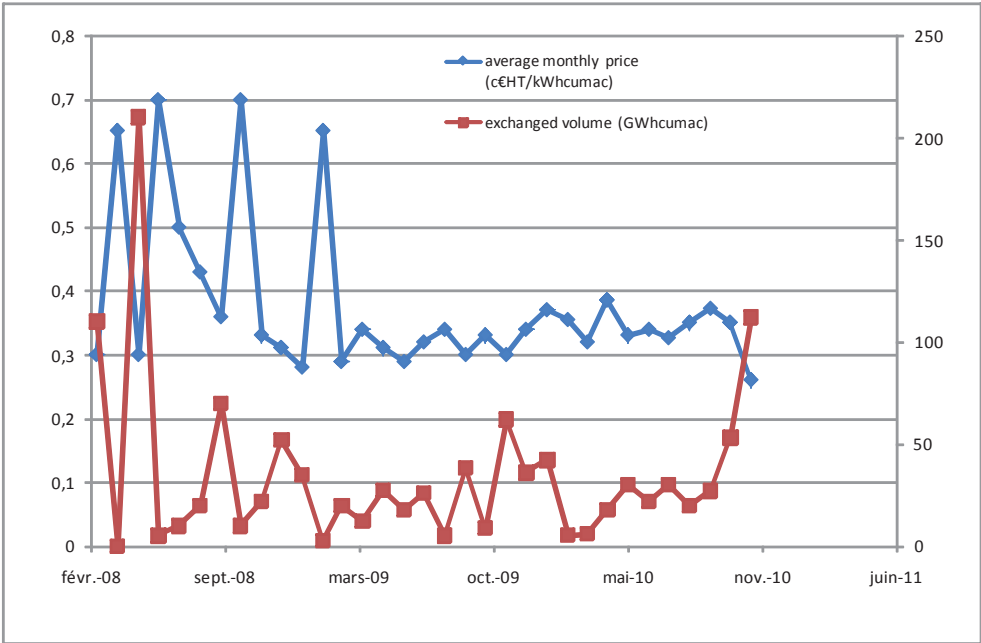


Figure 4: volume (GWWhcumac) and price (c€ exclusive of VAT/kWWhcumac) of FESC traded in the national registry (source: EMMY).

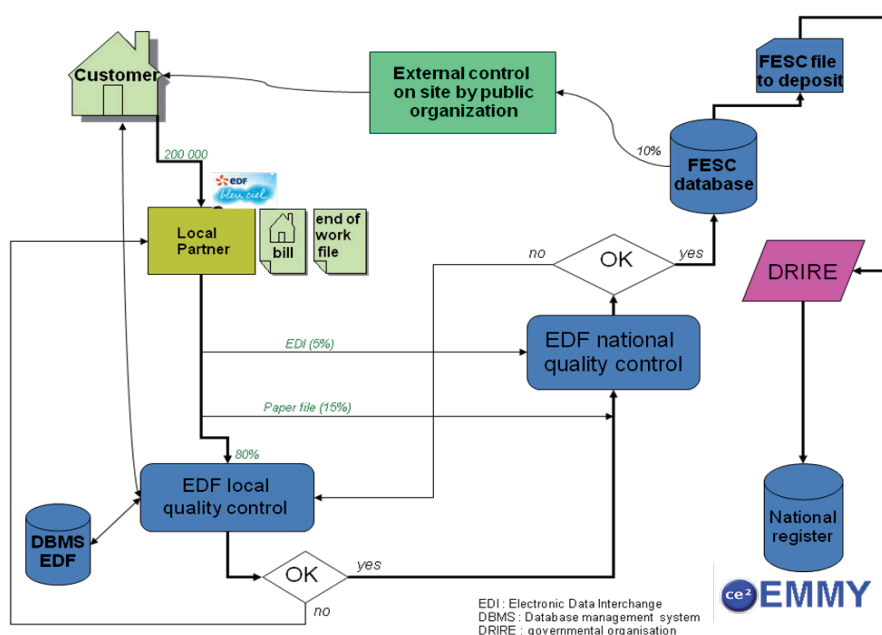


Figure 5: EDF management process for FESC in the mass-market sector (households).

### LESSONS LEARNT

As a first feedback from this three-year experience, the lessons learnt are the following:

- All the stakeholders of the energy efficiency value chain (energy suppliers, building craftsmen associations, equipments and appliances industries, local and national public authorities, energy efficiency agency (ADEME)) were deeply involved during the drawing up of the scheme and the first period. The level of expertise on energy efficiency of these very different stakeholders increased, contributing to place this issue in the politic and business activity. This means also that a high level of human resource was dedicated to enable the FES setting up.
- Commercial networks of energy suppliers launched thousands of partnerships with the fragmented craftsmen companies, endorsed under their trademark (Figure 5). Moreover, training courses on global approach of the building retrofit were developed and proposed to craftsmen (rewarded by FESC). In the framework of a partnership between EDF, the energy agency (ADEME) and building installer associations (FFB<sup>9</sup>, CAPEB<sup>10</sup>), 32,000 craftsmen attended training courses in all the French regions at the end of 2010 (FEEBAT 2010)<sup>11</sup>.
- FESC scheme must not be considered as an instrument based on financial incentives. The tasks required to obtain FESC concern the whole commercial chain: information campaigns, marketing activity (call centers, customized information, tool development and operation...), partnerships, commercial delivering, training of market players, information systems development, transformation of energy savings into certificates, quality control, evaluation.

- FESC focused on a limited portfolio of standardized actions, mainly in the building sector, showing that the low hanging fruits were gathered. At the opposite, more complex energy efficiency actions like thermal insulation in very different technical conditions were not heavily addressed during this first period.
- FESC scheme is a bottom-up instrument requiring analytical accounting of hundreds of thousands energy efficiency actions. Therefore, it generates a heavy organization to collect, aggregate, control the energy savings in order to submit to the public authority the files for validation (Figure 5). This is associated with substantial running costs on the energy supplier side. In the cost-benefit analysis of the FESC scheme, transaction costs should include, not only the public authority costs, but also all these costs on the supply side dedicated to transform energy savings in certificates.
- The working out of new standardized actions is very long and time consuming. They are now dedicated to small energy saving potentials as the highest saving potentials are already covered by previous standardized actions.
- The energy suppliers have fulfilled their obligation mainly by driving their own commercial offers<sup>12</sup>. They could not wait for the market availability of FESC to obtain the required amount of certificates. This explains, as presented above, why the liquidity of the FESC market has been very low. Therefore, the trading has not been a central element of the FESC scheme.

It is often argued that energy suppliers can obtain commercial benefits from FESC related to customer loyalty, public image,

9. FFB: Fédération Française du Bâtiment.

10. Confédération de l'Artisanat et des Petites Entreprises du Bâtiment.

11. FEEBAT (2010) <http://www.feebat.org/>.

12. For example the EDF commercial offers, under the trademark "bleu ciel d'EDF" dedicated to mass market (<http://bleuciel.edf.com/offres-et-services/>) including soft loans for retrofitting measures, assessment of the refurbishment cost, energy performance assessment of dwellings, recommendations and monitoring, advices ...



attraction of new customers, and additional incomes from new energy services. Actually, the scale of potential incomes from energy services are marginal when compared to FESC costs for EDF<sup>13</sup>. Moreover, the customers do not integrate easily the link between the bill coming from the energy supplier and the commercial offers related to energy savings.

## The second obligation period

### EVOLUTIONS OF THE FESC SCHEME

The second period of the FESC has started in January 2011 for a 3-year duration. The level of obligation is 345 TWhcumac. It is a six-fold increase compared with the first period value (54 TWhcumac). The certificates delivered during the intermediate period of 18 months will be included to fulfil the obligation, which reduces this value of increase rate.

The FESC scheme is modified as the transportation fuel wholesalers<sup>14</sup> are now also under obligation and the eligible entities are restricted to local authorities, social housing landlords, and the national association dedicated to building refurbishment (ANAH). Moreover, the small fuel oil retailers (selling less than 500 m<sup>3</sup>/year), involved in the scheme during the first period were excluded from the scheme. Due to the entrance of new obliged parties the obligation is broken-down in:

- 255 TWhcumac for the historical obliged parties (i.e. those under obligation during the first period),
- 90 TWhcumac for the new obliged ones (i.e. transportation fuel wholesalers).

The exact amount of obligation for each supplier will be known at the end of the second period. For the historical obliged parties, this will be more than a threefold increase in annual rate.

In addition to these modifications, the eligibility of measures was broadened to include training, innovation and the fuel poverty issue. Concerning fuel poverty, the obliged parties have the possibility to contribute to funds dedicated to low-income owners to help them for their dwelling refurbishment. This option is presently still not defined by the public authority and is still under discussion.

Also, the possibility to submit energy savings programmes has been added to certify a global commercial offer, including various standardised actions and the process to manage them. This new procedure intends to simplify the certification process then to reduce administrative costs. However, the new required conditions for the eligibility of actions were tightened for obliged parties. They now have to demonstrate that they have played an active role in the customer's decision to realise the energy efficiency action, and give the proof of the anteriority of this role concerning the energy saving action: date and signature of each customer, and its commitment not to have a contract with another supplier giving right to certificate, to avoid double counting.

To go deeper in the detail, a strong trend of the FESC evolution from the first to the second period is an increased complexity of the scheme:

- more regulations : 3 decrees, 3 orders, 1 circular letter,
- each regulation more detailed: for example, the order describing the list of elements to show to obtain certificates was 2 pages long for the first period and is now 6 pages long,
- high increase of justifications to collect, report, control, aggregate, transmit, and classify.

Four documents must be systematically collected and classified for each energy saving action:

- attestation of the beneficiary on the active and incentive role of the certificate claimer before the action, giving the proof of this anteriority, and giving the exclusivity of certificates to the certificate claimer,
- attestation of the beneficiary on the compliance of the realised energy saving actions to the official standardised actions files,
- attestation of the installer on the compliance of the realised energy saving actions to the official standardised actions files,
- invoice or accounting file.

For around half of energy saving actions, two additional documents are required:

- certificates related to materials or installed equipments,
- attestation of the installer qualification.

As an example, during the first period in which the administrative conditions were less stringent, the amount of paper to be classified for the 500,000 energy saving actions operated by EDF in the domestic market represented 500 linear meters. According to the new obligation and the increase of papers to be classified, this will be between 4 to 5 km.

An additional decree in preparation concerns the administrative control and the penalty if the body having obtained certificates fails to demonstrate that it fulfilled all the administrative requirements. The penalty concerning this non-compliance is of €4/kWhcumac, doubled compared to the penalty related to the amount of missing certificates at the end of the period (€2/kWhcumac).

The penalty would be supported by the certificate holder, and not by any other stakeholder having taking part to the energy saving action even if it's him that failed.

### THE POTENTIAL IMPACTS OF THIS EVOLUTION

In this section, we present potential impacts on the FESC scheme due to the evolution of the mechanism. As the second period has recently started (January 2011) it is impossible to have a feedback, so the issues developed below should be considered as a risk perspective.

#### Cost increase

The cost to fulfil the second obligation period combines the total amount of required energy savings and the average cost of each saved kWh.

13. Source : internal EDF accounting system

14. A part of the transportation fuel wholesalers in France are subsidiaries of super market sector (volume retailing).

The 6.4 increase factor of obligation from the first to the second period will represent a factor of around 3.1 in annual rate for the historical obliged parties if we include the intermediate period of 18 months. As comparison, in UK the increase from EEC1 to EEC2 (Energy Efficiency Commitment) then to CERT (Carbon Emission Reduction Target) was around a twofold increase (Bertoldi et al. 2010). The French increase represents a strong discontinuity that the market has to support. Such an increase of intensity requires a high development and organization effort for obliged parties to comply with the new target.

The unitary cost of FESC is expected to move in this new market conditions. In one way, the industrialization of the different processes should in principle reduce the share of administrative costs. However, several factors should lead to an opposite trend:

- the strengthening of the minimum energy performance mandatory regulations on equipment and thermal insulation of building reduces the energy saving potential as these regulations constitute the baseline for the energy saving actions and the FESC deemed savings are calculated by difference with this reference,
- the competition on the FESC market will be strengthened by the introduction of new obliged parties (car fuel wholesalers) which play on the same market than the historical obliged parties, mainly on the building sector. There are only 16 standardized actions on the transportation sector which correspond to a low potential amount of FESC. A good example of the growing competition is the launch of subsidy by the supermarket sector for households that refurbished their dwelling,
- there will be less and less low cost energy savings as more and more buildings with low energy efficiency performance, technically and economically easy to retrofit, will already have been addressed,
- the tightening of the administrative rules to obtain certificates will increase the running costs. For example, the administration requires more elements (demonstrating the implication of the obliged parties) to validate the FESC that have to be delivered for hundred thousands of actions, as it has been described in the previous paragraph.

Therefore, the combination of these different factors will increase the cost of each kWhcumac from the first to the second period of FESC and in a larger extend the global cost for obliged parties.

#### Unfair competition between obliged parties

When the competition conditions for getting FESC are analysed, the positions of the different market actors can be compared. The energy suppliers do not hold in their main activity the assets that allow them to get certificates. They need to contract partnerships with installers that will implement the energy saving actions. The electricity or gas bill does not contribute to generate FESC. On the opposite side, the fuel wholesale companies that also hold a network of supermarkets are getting certificates by giving purchase vouchers linked to the sale of energy efficiency measures dedicated to the building sector (e.g. thermal insulation, heating systems ...). These vouchers are

used by the customers to buy any goods in their supermarkets, creating a strong commercial synergy. At the same time, these companies are free to fix the price of car fuel.

#### Impact on the FESC market

We have presented above that the FESC exchange market during the first period 2006-2009 showed a very low liquidity although the potential of eligible actors was large (any legal entity could register certificates). In the second period, the eligibility is restricted to fewer stakeholders, as presented above leading to fewer potential players in the exchange market. However, new obliged parties have been introduced. Then, the evolution of the new conditions on the liquidity of the market is still unknown.

#### Perspectives after 2013

In this section, we try to investigate potential issues of the FESC scheme that could be considered in the future and contribute to improve the energy efficiency policy. This must be received as a first input to open the debate. Different perspectives are open to overcome the above mentioned difficulties.

#### COST RECOVERY

Among the existing schemes of obligations covering energy suppliers or distributors worldwide, the FESC scheme is an exception concerning the way for energy suppliers to recover their costs. Indeed, no cost recovery mechanism has been explicitly defined in the law nor in the implementation decrees for the electricity and gas domestic sectors where regulated tariffs are still in place. It is indicated in the law that the definition of regulated tariffs of electricity and gas should take into account the cost of FESC. Actually, the evolution of these regulated tariffs is a combination of many factors that are not explicit. No organic link between expected costs of FESC and electricity or gas price has been set up. The implementation of such a cost recovery mechanism would allow energy suppliers that support the obligation to balance their costs with the benefits coming from a cost recovery mechanism that would be introduced. It could take the form of a fixed value, or it might be proposed a penalty/reward system as in California. An obliged parties that would exceed its target of obligation at the end of the period would benefit of a higher value of cost recovery, and it would have a lower value if it does not succeed in reaching the target

In the case of the fuel car wholesalers, who are now under obligation during this second period, they can include the FESC costs in the fuel price as there is no regulated tariff for car fuel sales but free market.

#### SPLITTING THE SCHEME

The obliged parties are energy suppliers on different markets (i.e. building or transportation) with various constraints and opportunities leading to market asymmetry. On one hand, transportation fuel wholesalers have liberalized energy tariffs and few standardized actions dedicated to transportation (16 standardised actions), on the other hand the gas and electricity suppliers for the building sector, main obliged parties, have regulated tariffs and large amount of standardised actions dedicated to buildings (160 actions).



Such asymmetry concentrates competition mainly on the building sector while the costs of certificates obtained in the transportation sector will be higher (Deconninck 2011)<sup>15</sup>.

It could be relevant to separate, like the level of obligation, the two markets (transportation, building) in two dedicated segments, one for the building sector (energy supplier) and on for the transportation one (transport fuel wholesaler).

#### ADDRESSING SOME SPECIFIC ACTIONS

As it was presented above, the main standardised actions used in the FESC scheme are based on efficient equipments (e.g. condensing boilers) or on thermal renewable energy (e.g. heat pumps, wood stoves) but still at a low level on reducing the energy need (e.g. thermal insulation, energy management). To address this last point, it could be relevant to reward more energy savings for some specific actions that constitute a priority for energy efficiency.

### Conclusion

As it has been described, the amount of FESC to obtain in order to comply with obligation has strongly increased from the first to the second period. This contributes to fulfil the objectives of the French energy efficiency policy, in the framework of the European package on energy policy against climate change. Nevertheless, we consider that the increase of the scheme complexity and the absence of cost recovery system in the domestic market where the tariff are still regulated are two factors that

generate important difficulties for an obliged party like EDF that has to face a heavy obligation.

FESC has to be considered as one of the different instruments of the energy efficiency policy. Many other instruments contribute to increase energy efficiency in all the economic sectors: tax credits, minimum energy performance of equipments and buildings, soft loans, energy labelling, penalty/reward on energy car performances, etc.

The European Commission is proposing in its draft of the new European Energy Efficiency Action Plan to make mandatory for each member state to set up an energy saving obligation scheme addressed to energy suppliers or distributors. Implying suppliers is necessary as they are one of the key participants in national strategies to increase the level of energy efficiency in member states, but is not effective by its own to create a real energy service market: it will be therefore key to ensure that other market participants are involved in such strategies.

On the base of our experience in France, we consider that the economic efficiency of this instrument will depend on its capability to minimise transaction costs and to address the more relevant and cost-effective actions first.

### Acknowledgements

The authors would deeply thank E. Tatreux and R. Poiroux (EDF-Marketing Strategy Division) for inspiring discussions and fruitful reading and E. Cayre (EDF-R&D) for relevant reading.

15. C.Deconninck (2011) White Certificates in the Transport Sector An oil Company Perspective, Varese – JRC workshop on White Certificates – 28th January 2011