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Combining innovative and traditional instruments to promote energy efficiency The recent French experience

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JARDIN TROPICAL

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- 1. Introduction: new instruments in the set of energy efficiency measures
- 2. The speeding up of the French energy efficiency policy
- 3. The French « energy efficiency certificates » system
- 4. The true nature of the instrument

1. Introduction: new instruments in the set of energy efficiency measures

Categories of actions and instruments responding to market barriers/market failures

1. Information:

- General sensibilisation (effect on behaviour),
- Energy diagnosis/energy certification (ex-ante savings)

2. Orientation of technical progress by accelerating the dissemination of efficient equipment

• Subsidies

- Direct subsidies
- Fiscal subsidies : tax credit
- Indirect: subsidised interest rate

• Norms on equipments and appliances

• Voluntary agreements

• Market creation and transformation

- Public procurement
- Voluntary agreements
- Labellisation

Development of means of energy efficiency policies

Different forms of public-private partnership

- Implication of Energy Service Companies (ESCOs)
 - Third financing and share savings (70%/30%; 50/50)
 - Guaranteed savings model (no third financing)
- Subsidisation by energy suppliers:
 - in the tradition of regulated utility with IRP/DSM in the US
 - Orientation on the diffuse potential of energy savings (appliances, buildings, heating systems)
 - Obligation on results
 - Obligation of energy efficiency actions on energy suppliers (UK, Italy, France , Flanders, and Ireland)

Development of other means... (followed)

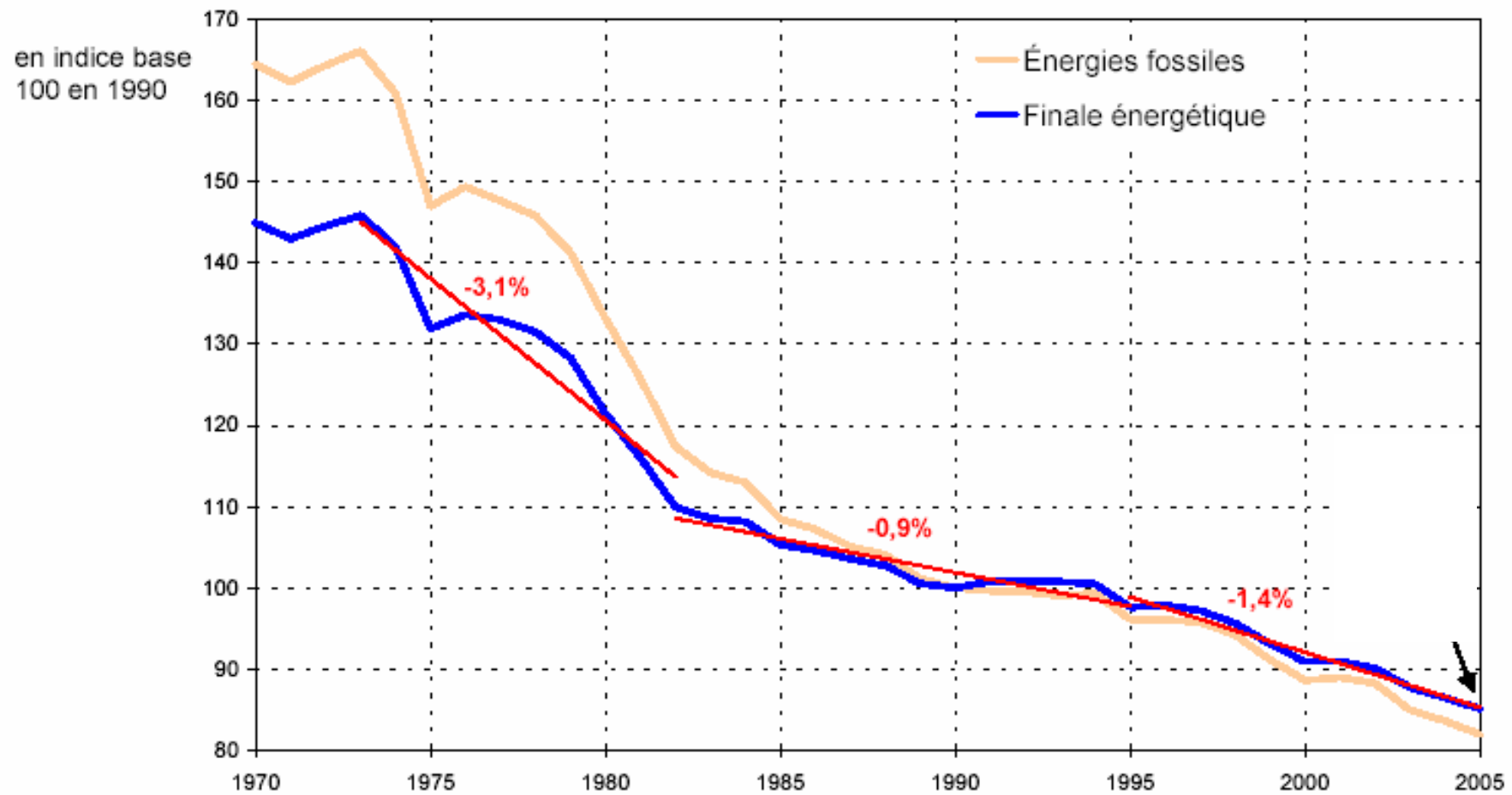
- **Development of special investment funds by banks and credit agencies**
- **Creation of « market institutions »**
 - Formalisation of Contracts of Energy Performance (Directive 2006)
 - To create confidence
 - Guaranteeing savings
 - Creation of « property rights » on environmental goods linked to energy efficiency actions
 - Certification (Negawatt, concept of « energy service », « Saved TOE », etc.)
 - Standardisation: **ex-ante saving programs**

Question:

- **Which combination between the conventional and innovative instruments?**

2. Speeding up of the French energy efficiency policy

Evolution of energy intensity in France



Source: Observatoire de l'énergie

TCAM: taux de croissance annuel moyen

Recent steps

- **1. Plan carbone 2003:**
 - Increasing focus on thermal insulation of existing buildings
 - Thermal efficiency in new buildings
 - Tax credit 25% on heat pumps and renewables for heating
- **2. Energy Law of July 2005 (loi POPE):**
 - **Target of average 1.2% annual decrease in national energy intensity**
 - more ambitious than the EU 2006 directive target of 9% savings between 2008-2017

Objective of reductions of final consumption (Mtoe)

	2005	2010	2015	2020
Projection 2000 with policies and measures	<i>171.5</i>	<i>183.0</i>	<i>195.4</i>	<i>207.7</i>
Loi POPE 2005 (-1.2%)	167.6	176.6	180.9	182.3

•Increase of tax credit

Low thermal boiler	Condensation boiler	Thermal insulation	Renewable Space heating	Heat pump
15%	25-40%	25-40%	50%	50%

•Certificate of energy performances

•Obligation of energy diagnosis when sales of housing, or change of tenants

•Creation of Energy Efficiency Obligation with tradable certificates (three year 2006-2008)

**Effects of tax credit of 40%
on dissemination
of Efficient heating equipments in 2005**

	2004	2005	Rate progression %
Solar water and space heating	8 150	14 000	72 %
Wood stove	315 000	380 000	21 %
Wood boilers	8 800	20 000	127 %
Heat Pumps	17 000	24 000	41 %
Condensation boiler	33 000	75 000	127 %

« Grenelle de l'environnement » October 2007 :

- **Ambitious law to be adopted on Summer 2008**
- Numerous measures are proposed by ad hoc commissions on carbon and energy issues
- Energy-climate tax is still in discussion
- **Leverage on Energy efficiency obligation** for 2009-2012
 - **could be increased by factor 5 to 10 to help objectives in building**

« Grenelle »: one of the main focus on buildings (40% CO2 emissions in France)

Reduction of energy consumption

- 20 % in administrative and tertiary building in 5 years
- 12 % in residential in five years
- 33% up to 2020.

Construction des logements neufs à très haute performance énergétique dès 2010 et à énergie passive ou positive dès 2020.

Construction des bureaux, bâtiments et équipements publics aux normes basse consommation ou énergie positive dès 2010.

Rénovation thermique des bâtiments publics d'ici cinq ans.

Incitation financière à la rénovation thermique pour les bâtiments privés et à l'équipement à base de Renouvelables (notamment district heating with biomass).

Interdiction dès 2010 des simples vitrages

Interdiction des ampoules à incandescence en 2010

3. The « energy efficiency certificates » obligation in the set of instruments

- 3.1. Main rules
- 3.2. A first assessment

The different Energy Efficiency Obligations in Europe

	Average annual target	Perimeter	Flexibility
UK 2005-2008	43 TWh/an	<ul style="list-style-type: none"> •8 obliged •Target only on households (and poverty) •25 actions 	No (de facto)
IT 05-09	21 TWh/an (estimated)	<ul style="list-style-type: none"> •30 obliged, 1150 eligibles •All sectors and in gas and elec •22 ex-ante actions + specific 	Yes
France 06-09	18 TWh/An	<ul style="list-style-type: none"> •2355 obliged (all fuels) + eligibles •All sectors (outside ETS) and all fuels •130 ex ante saving actions + possible specific 	Yes possible

Main Rules in the French EE Certificates system(3)

Some standard “ex-ante savings”

For building sector

- Roof insulation,
- wall insulation,
- efficient glazing,
- ground insulation...
- Low temperature boiler, condensing boiler, heat pump,
- temperature controls, thermostatic valves...
- CFLs, A+ refrigerator, A+ washing machine,
- public lighting ...

For industry

- High efficiency motor,
- Boiler, Heat recuperation on boiler smokes and compress air system...
- Electronic speed variation motor,
- Efficient lighting system,
- Efficient cooling and freezing system...

For transport

- Training of drivers...//// . Wires.

Flexibility for obliged agents' commitment

- « Obligés » have different means to proceed in order to generate certificates:
 - To subsidize new efficient equipment or insulation
 - To inform the consumers by free diagnosis and propositions of action
 - To subsidize intermediaries (heating specialist, ESCOs, etc.) in order:
 - they develop commercial strategies with efficient equipments
 - They propose subsidized price
 - To develop subsidiary for thermal renovation of customers' housings
 - To subcontract to an ESCOs
 - To organise common projects with local communities and ESCOs
- Government prefers to let them freedom of actions

3. 2. A first assessment

- Low ambition for the first period:
 - **In fact reduction 0,4 % consumption of building and industry** (outside ETS)
 - The goal was **the learning of the instrument** by administration and understanding of operators
- **First results at half period (12. 2007) :**
18 % of the objective but many actions are in the tube
 - Residential: 95.6% (boilers mainly)
 - Tertiary and commercial (1,4 %),
 - Industry (1 %),
 - District heating(0,7 %)
- **Very few eligibles are on the market;**
 - they prefer ex-ante agreements with « obligés »
 - « Certificates exchanges » was a lure to promote the instrument
- Few specific actions

A first assesment (followed)

- Is it costly ?

Expected average cost : 10 €/MWh

final fuel prices : 72 € / MWh for gas,

68 € / MWh for fuel

100 € / MWh for electricity.

- Importance of consumer information costs in the expenses of the “obligés”:
30-50%
- Importance of administrative costs for small actions (administrative registration by ministry)
- Needs of strict accountability for monitoring of the instrument
- **Need of assessment of different actions for the definition of the next stage 2009-2012:**
 - Importance of the redefinition of the new objectives with experience returns
 - change in calculation of certificates, new saving actions, broadening to renewables, microCHP, etc.

3. The true nature of the instrument

- a complement for the other instruments
- a multifunctional instrument
- a change in the marketing strategy and business culture

3.1. Piling up obliged suppliers subsidies with public subsidies

On different measures: With Tax credit, VAT 5%,, subsidised loans

- Difference in the government monitoring on public and private subsidy
 - **Tuning of the fiscal subsidy by the government**
 - **Private tuning of the supplier's subsidy:**
 - **No possible governmental tuning of the private subsidy**
 - Its contribution will depend on number of credits
 - But difficult to anticipate the effect of increase of credits by action
 - **Private actions could not be a subsidy:**
 - Information and diagnosis
 - Incentive on intermediaries (installation engineer, ESCOs)
 - **Conversely private subsidizer could subsidize non publicly supported measure**

Example of heterogeneity:
Difference of public subsidy and private subsidy (amount of certificates) according to specific saving actions

Action types	Cost of action	Tax credit (equipment only)	EE certificates	Total support
Low temperature boiler	3000€	6.5%	11.5%-25%	12 %-31.5%
Condensation boiler	6700€	23%	11.7-19%	34.7-42%
Double glazing	2640€	13%	6%	19%
Solar water heating	4000€	56%	3 -5%	59-61%

Source: S. Monjon, Interaction between TWC and other instruments, ADEME & CIRED, 2007

3.2. Organisation and structuration of the chain of actions

- Informational effects on the manufacturers, building business, engineering consultants (standard actions) and of course..... on customers
- Effects on market transformation
 - (acceleration of evolution of appliances and equipment manufacturing)
- Effects on professional dynamics in different businesses:
 - Building materials, architects, installation engineers, construction SMEs, etc.

3.3.Effect on change of culture of the suppliers

- They prefer to seize “White certificate” opportunity than to pay penalty
- Adoption of new marketing strategies focussed on sales of energy services
- In suppliers’ competition it serves their diversification strategy
- As major energy companies have an effective capacity to organise innovation process and market transformation

EDF : an example of strategic adaptation

Rhetoric: « Edf innove et accompagne ses clients pour réduire leurs consommations d'énergie, les industriels et les collectivités locales dans leur engagement environnemental »

- **Convergence with marketing objective because competition in retail**
- **Reconciling competition and sustainable development**
- **Maximum obligation cost : 250 millions d'€ on three years**

In the White Certificates obligation, EDF preference to subsidize labelled intermediates

Labellisation of professionals in building insulation, space heating, etc. (« label Bleu ciel »):

- **isolation, fenêtres, pompes à chaleur, chaudières, chauffage solaire, etc.**

EDF : an example of strategic adaptation (followed)

Offer of energy services to industry (diagnosis, « contrats de progrès Excelis »)

- Advice contracts with industrial customer on the CO2 emissions reduction
- Offer of green electricity to industrial and commercial customers
 - (offer « kWh équilibre »)

Definition of standard contracts of partnership with local communities:

public lighting, administrative and school buildings, council housings

Standard contract of services with households

Contracts for technical advice for PV self generation

4.To conclude

- EE certificate system is certainly not a panacea
- It is certainly not the beginning of a general market regime of « negawatts »
- But
 - It is first of all a useful complement of public subsidization
 - It is also a trigger of dynamics in knowledge and capability
- **More general observation:**
 - **We have to conceive the mix of instruments as evolutionary**
 - **The piling up of subsidies:**
 - a logic of engineers without no real economic assessment
 - It is good for impetus
 - How to reduce public and private support when maturity reaches?

Annex

Differences in the design of the White Certificates systems

	GB (début 2002)	Italy (début 2005)	France (2006)
Nombre de « suppliers » obligés	11 suppliers élec./gaz 15 000 clients min	8 distributeurs élec. ENEL 60% sur elce 22 distributeurs gaz Interdits d'action au-delà du compteur sur clients captifs 100 000 conso. min	2 grands (EdF, GdF) + Suppliers (Total, Electrabel, Poweo, etc) + Régies/SEM + Commerçants GPL/fuel Seuil : 40 GWh
<i>Periods</i>	<i>2002-2004</i> <i>2005-2008</i> <i>Obligation on the period</i>	<i>2005-2008</i> <i>Obligation for each year, but</i>	<i>2006-2008</i> <i>Obligation on the period</i>
Design of certificates	Calculation of the saving on lifetime with 3.5% discount rate	Annual Attribution each year during lifetime of a savings Dissociation gas and elec in the obligation	Calculation of the saving on lifetime with 4% discount rate « kWh cumac »

	GB	Italie	France
Qui?	Uniquement Obligés	Obligés Eligibles : ESCOs <i>Wide defintion of ESCOs</i>	Obligés et nombreux éligibles
Cible	Segment Ménages/building	Tous les consos (hors quotas CO2)	Tous les consos (hors quotas CO2)
Focalisation sur bas revenus	50% des actions	Non	Non
Types d'actions	25 actions standardisées+ Autres actions avec Verification	30 actions standardisées + actions à valider	130 actions standardisées &Actions à valider par les DRIRE
Echanges de certificats	Envisageable	De gré à gré et par marché organisé	De gré à gré
Type de récupération des coûts	Répercussion sur prix dans cadre concurrentiel	Garantie de recouvrement des coûts à 1,7 c/kWh	Pas par le fonds de service public Recouvrement très partiel sur tarifs encore en place
Pénalité	Principe, Pas de concrétisation	3,5-4 €/MWh (non libératoire)	2 €/MWh libératoire