The role of French energy efficiency certificates on the overall performance of EE scheme

Policies for energy delivery of energy efficiency

EU Regional Policy Dialogue

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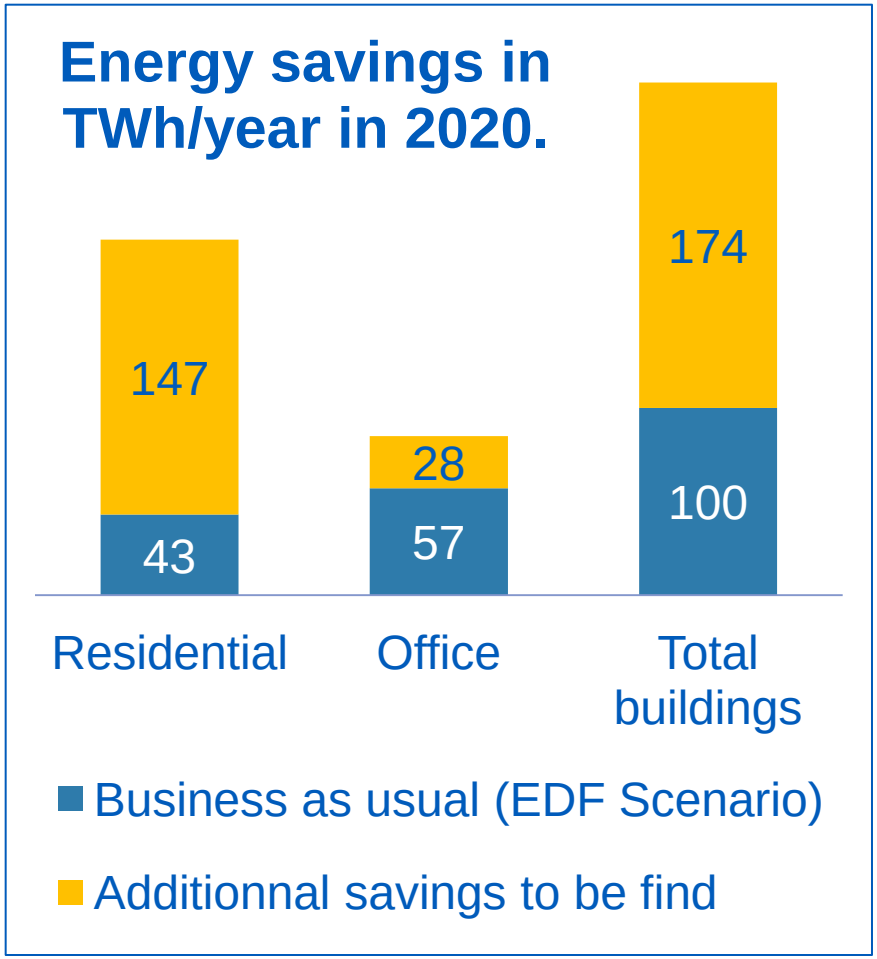
Evaluation of the energy savings potential : still a lot of progress to make !

- In nearly all the prospective scenarios, the quantification of the energy savings potential is based on a **technical approach** with 20 % rebound effect in order to include the behaviors.

- These approaches can't represent the reality for mainly two reasons :
  - There is no real complete economical analysis of the profitability of the EE operations for the customers
  - The 20% rebound effect is not really based on statistical representative sample of the real market condition.

- This leads to erroneous choices in regulation of EE.

In France, the achievement of the objective is based mainly on the building sector (84%).

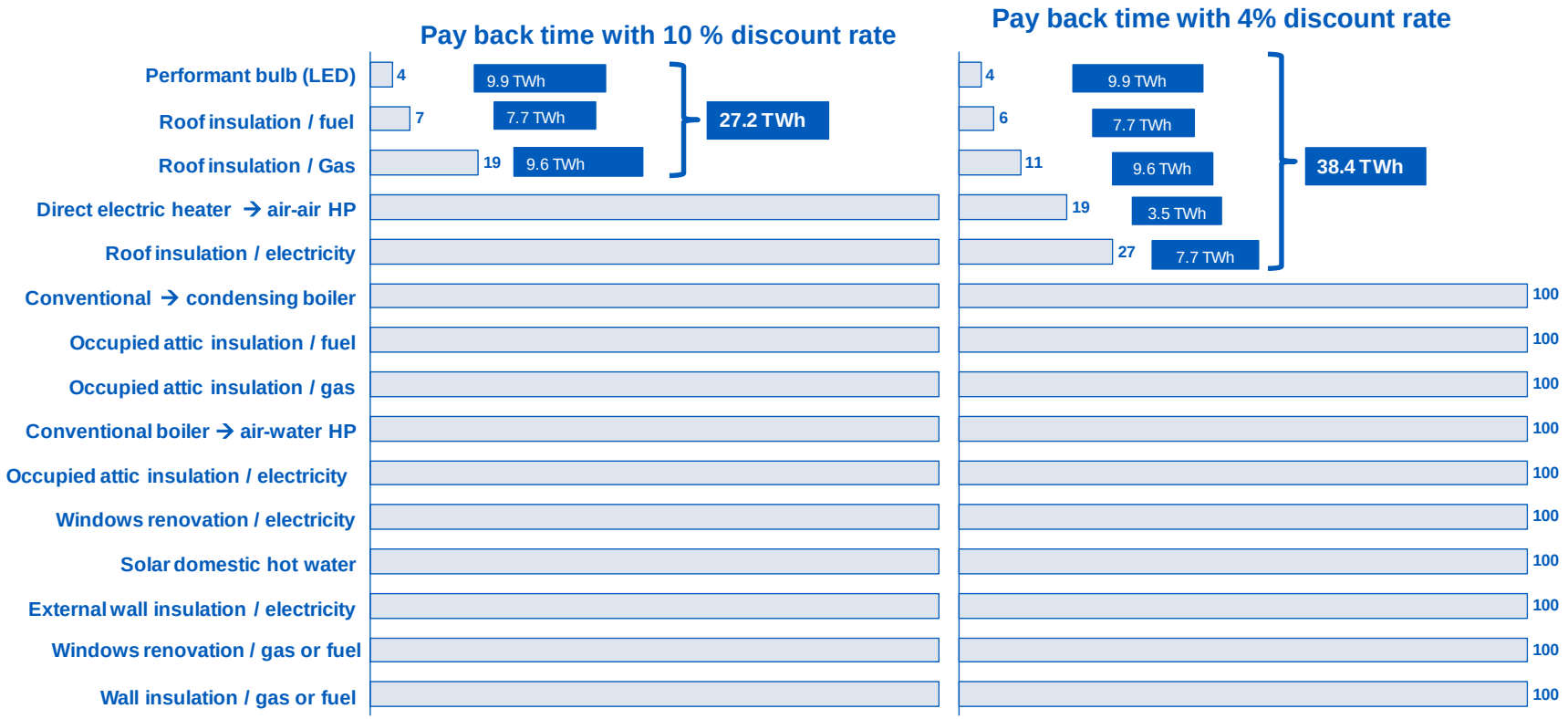


- The total building energy savings objective is equal to 274 TWh/year in 2020
- 36% of the target is achievable with the business as usual scenario at marginal costs.
- We need to engage additional actions, mainly in residential, for about 2/3 of the global target.
- The cost of additional measures is much more expensive because the level of subsidies will have to be much higher to encourage the customers to invest.

Source : DGEC, EDF

The profitability of the additional actions is lower than the usual level required by a private decision-maker

- For residential, the profitable potentiel is :
  - 27 TWh/year with 10% discount rate
  - 38 TWh/year with 4%.
- … and we need 147 TWh/year



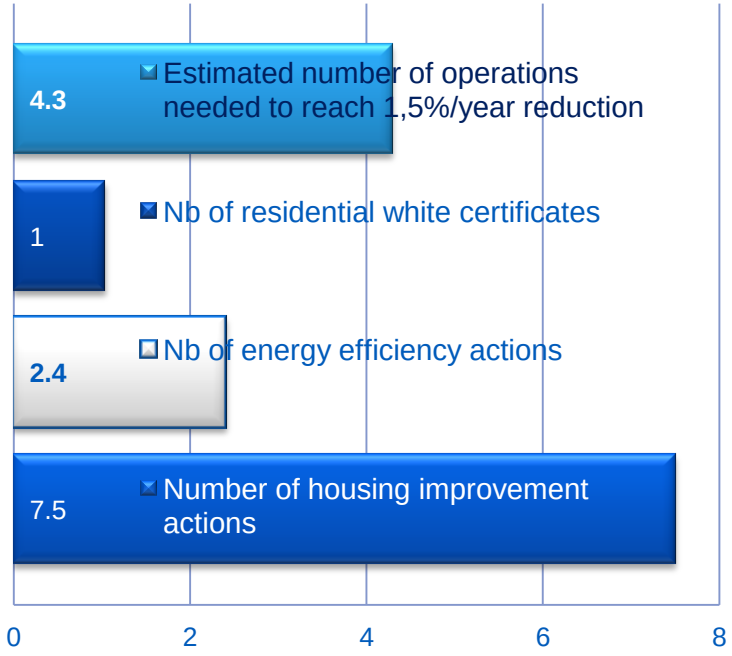
The conclusion are globally the same for the tertiary sector

- For tertiary building, the profitable potential is :
  - 21 TWh/year with 10% discount rate
  - 59 TWh/year with 4%.
- … and we are searching for 28 TWh/year more potential

How the Energy efficiency certificate perfom ?

- The device of the white certificates concerns 40% of the potential market.
- To reach the level of energy savings of 1.5%/years (EED draft), more than 4 millions operations will be needed which is nearly two times the average level of energy efficiency actions done each year.
- Moreover, the proof of its real efficiency must be done :
  - Is there any additional actions ?
  - What is the real efficiency of EE actions ?

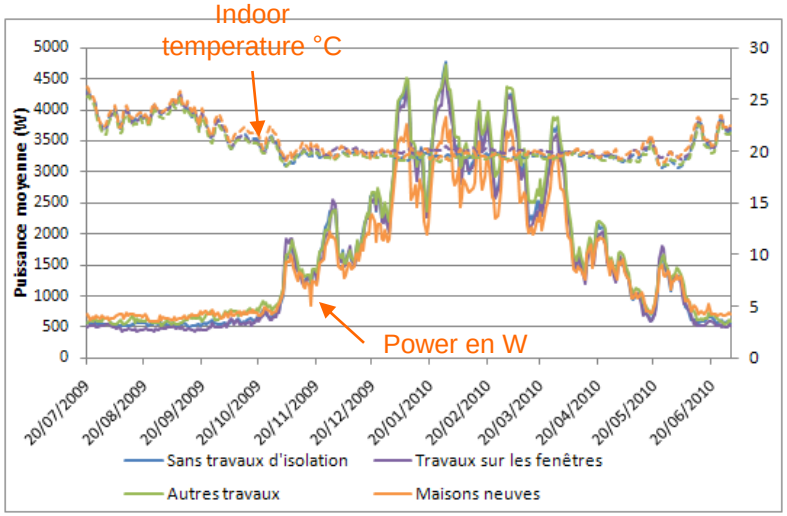
Number of actions in residential sector (2008)



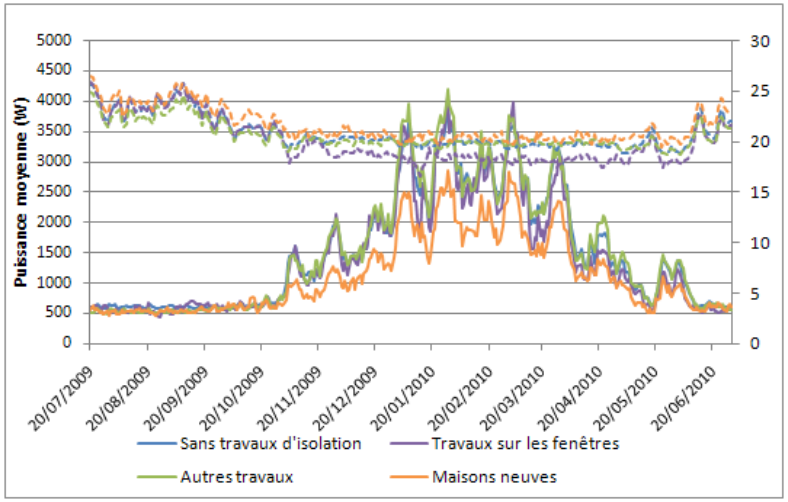
Source : ADEME (OPEN study)

EDF « Panel 6000 » : In uncontrolled conditions of work the efficiency of the operations of insulation is difficult to observe

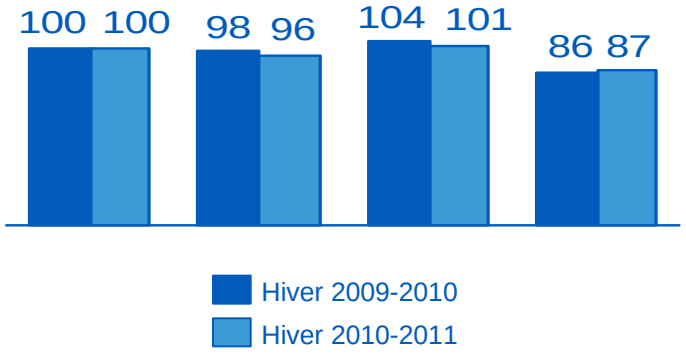
Direct electric heating

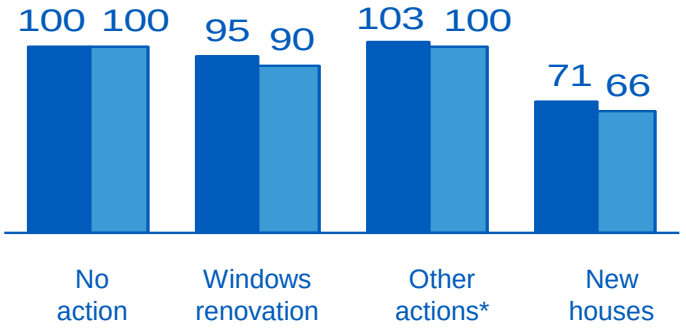


Biomass + electric heating



Winter consumption (nov to may)
(base 100 sur les logements sans travaux)

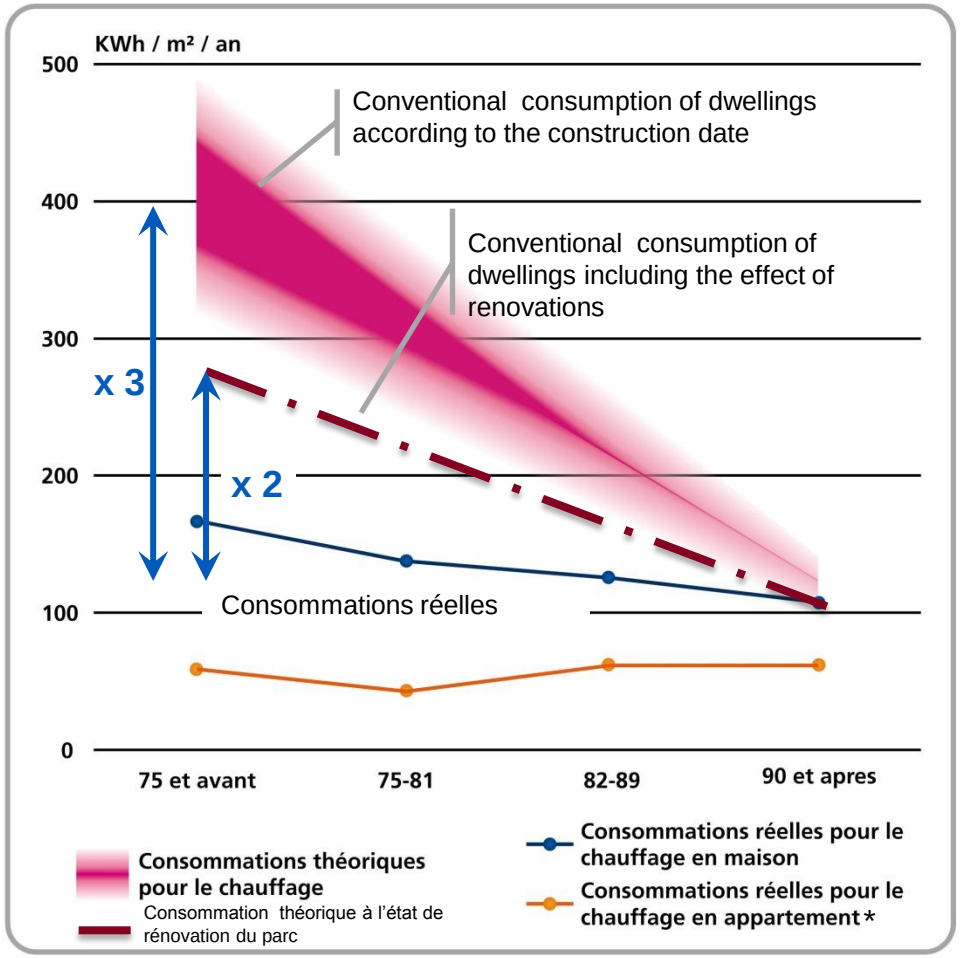




*Wall and roof insulation

A possible explanation : the real heating consumptions are largely below the modeled values

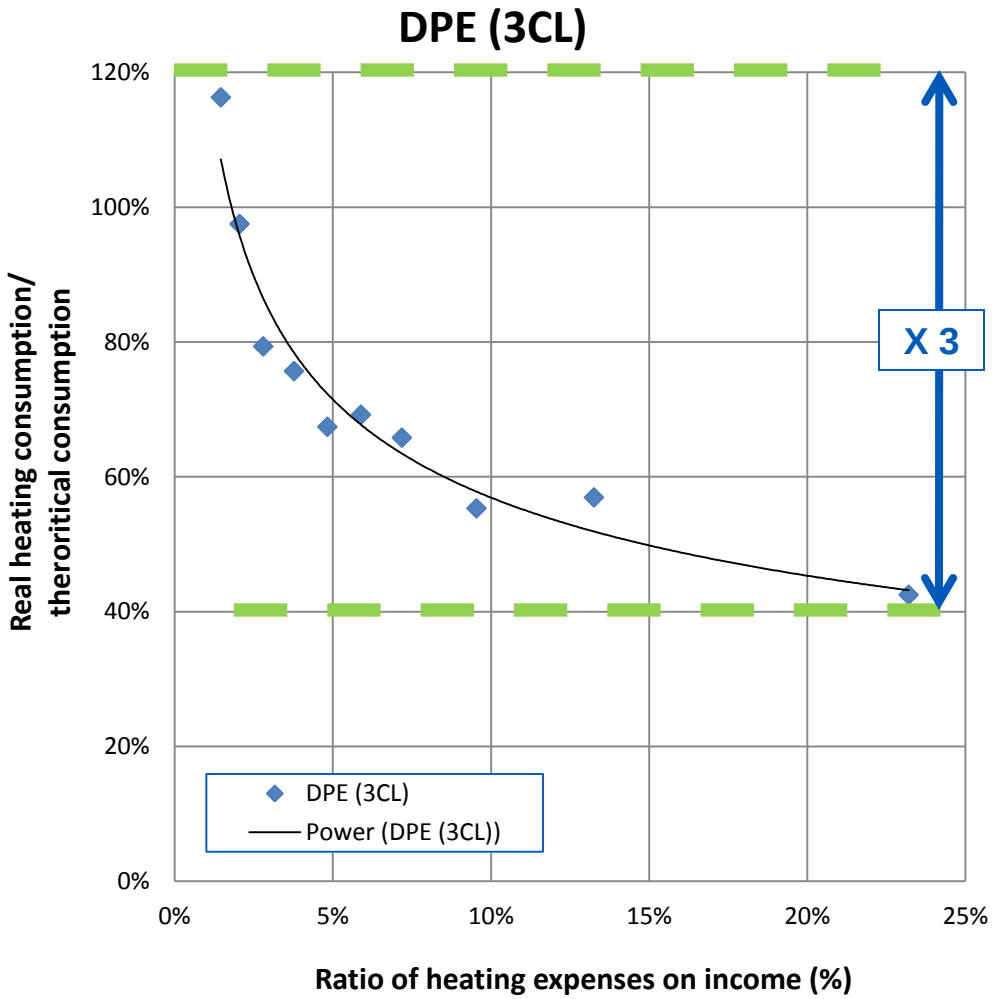
- **The reality is far from the model**
  - **A factor 3 between the theoretical heating consumptions and the real consumptions in individual house**
  - **This factor falls down to 2 when we take into account the fact that housing stock have been partially renewed.**
- **The consumptions are mainly insensitive to the period of construction**
  - **The older is the housing, the more the theory overestimates the consumption**



* Chauffage individuel uniquement

Source : Analyse EDF, données CEREN issues de l'enquête Logement INSEE 2006

The comfort level falls strongly as soon as the heating expense exceeds 3-4 % of the incomes. A rebound effect of 30 to 40% is probably closer to the reality than the usual 20%.



Source EDF R&D.

Conclusions

- Building energy efficiency market cannot be considered as a coherent unique market :
  - B2B markets and few actions in residential are profitable and should be regulated by the market
  - Residential sector is mainly unprofitable for private actors.

- For residential sector
  - Energy efficiency potential based on technical evaluation are largely overestimated.
  - The profitable potential are a factor of 2 lower.
  - A rebound effect of 30 to 40% reduces the achieved/measured energy savings.
  - Altogether, the objectives are unreachable because of a lack profitability for the customer and a large rebound effect.

- Regulation models based on the financing of energy efficiency programs by energy savings are unsustainable because the diagnosis of the financing scheme is wrong.
- They put the obligations on the wrong actors and, at least for the mass market, the problems of financing of the EE efforts are not correctly addressed.