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Compatibility of the French white certificate program to fulfil the objective of energy savings claimed by the Energy Service Directive

Introduction

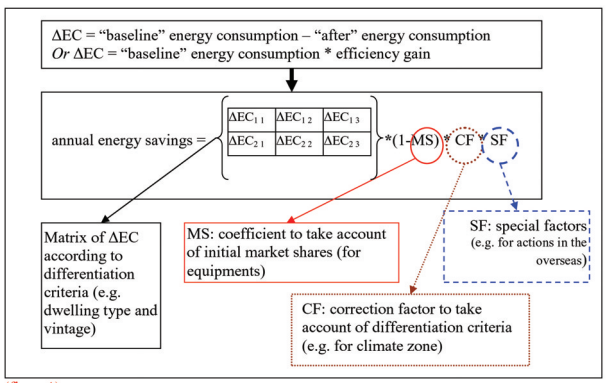
Energy Services Directive (ESD – 2006/32/CE) : **9% final energy savings in 2016.**

➢ **How to measure** the savings: EMEEES project on **evaluation methods.**

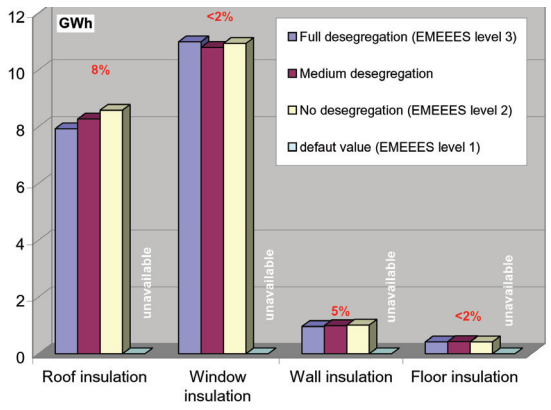
➢ **Test two methods** (building insulation, condensing boilers) of the **French White Certificates** (FWC) Scheme (comparison / consistency of EMEEES and FWC approaches).

FWC energy saving accounting FWC energy

savings unit = kWh cumac = lifetime cumulated ("***cum**ulés*") + discounted at a 4% rate ("***actualisés***")



Building insulation



FWC energy savings assessment depending on the level of evaluation (level 1 = EU, level 2: national, level: 3 specific)

Comparison between EMEEES and FWC:

- FWC and EMEEES formulas are based on heating demand, using consistent physics considerations.
- Same definition for the reference situation or baseline, i.e. the level of heating demand before implementing the insulation actions.
- Rebound effect neglected in FWC whereas the EMEEES method proposes a default value of 20%.

EMEEES accounting method for ESD

savings unit = final energy saved (in kWh) achieved in the year 2016

four step calculation

Step 1: unitary gross annual energy savings (in kWh/year per participant or unit)

Step 2: total gross annual energy savings (taking into account the number of participants or units, in kWh/year)

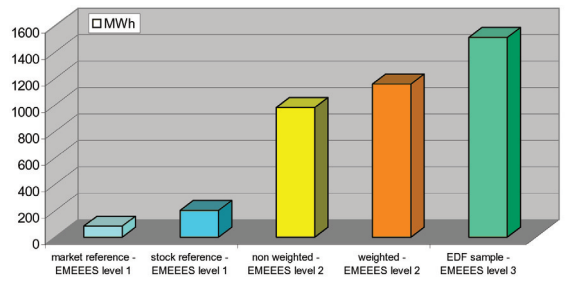
Step 3: total ESD annual energy savings in the **first year** of the actions (taking into account double counting, multiplier effect, and other gross-to-net correction factors (e.g. free-riders)(?), in kWh/year)

Step 4: total ESD energy savings achieved in the year 2016 (in kWh/year, taking account of the timing of the action, and its lifetime)
Example: how many condensing boilers due to the programme are still in operation in 2016?

three levels of evaluations

	Data scale	Main data sources
Level **1**	**European default values**	**existing/available** European regulation, studies and statistics
Level **2**	**National** representative **values**	**up-to-date** national statistics, surveys, samples, registries
Level **3**	**Programme- or Participant-specific values**	**specific** monitoring systems, registries, surveys, measurements

Condensing boiler



FWC energy savings assessment depending on the level of evaluation (level 1 = EU, level 2: national, level: 3 specific) and the reference baseline (stock, market)

Comparison between EMEEES and FWC:

- FWC formula is based on final energy whereas EMEEES formula is based on heating needs.
- Different baselines used.
- Higher calculated savings, when more participants' data are used (i.e. level 3 savings > level 2 savings). due to small sample (68 boilers analysed here).

Conclusion

- The **FWC calculation** methods fit with the global **bottom-up EMEEES methodology (4 steps and 3 evaluation levels).**
- Specific methods (e.g., for insulation actions) may differ between EMEEES and FWC. Necessity to **keep flexibility** in order to use the methods best adapted to its context (e.g. data availability).
- Energy savings amounts largely depend on **parameters describing the before situation (baseline).**
- FWC calculation methods, mainly based on ex-ante deemed estimates, constitute an interesting compromise between accuracy and limited transaction costs.

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Acknowledgments
This paper was built on the work carried out under the EMEEES project. Financial support from Intelligent Energy Europe (EIE) program of the European Community is gratefully acknowledged.