

## Ecodesign preparatory study

### DG ENER Lot 22: Domestic and Commercial ovens

#### Final stakeholder meeting on commercial appliances

Friday 25<sup>th</sup> March, 2011

10.00 am to 1.00 pm

#### Minutes

- Welcome and tour de table
- **S. Mudgal (BIO): Presentation of the Ecodesign Directive and of the MEEuP methodology.**  
Villö Lelkes, European Commission policy officer, is currently excused.
- **G. Audard (BIO): Task 1: Main findings on commercial ovens**
  - M. Balley (VDMA) asks when the deck ovens have been included within the study scope.
    - E. Hoa (BIO): Bakery ovens have always been under the scope of the study, but were not described in details before the first stakeholder meeting, where some stakeholders pointed out that they were consuming a large amount of energy and should therefore be further investigated.
  - K. Vökler (HKI, representing EFCEM): The last version of the draft standard for measuring the energy consumption of combi-steamers developed by EFCEM will be given to consultants.
  - P. Taübl (HKI): Following standard DIN 18873-1 for measuring the energy consumption of combi-steamers, new draft DIN standards are being developed: DIN 18873-4: convection oven bakery, DIN 18873-7: multiple deck ovens. They should be finalised by the end of year and are intended to be proposed as EN standards.
- **G. Audard (BIO): Task 2: Main findings on commercial ovens**
  - I. Oehme (UBA): Have ovens powered with solid fuel been considered?
    - B. Tinetti (BIO): ENER Lot 22 is about electric and gas ovens. Solid fuel appliances were covered by ENER Lot 15.
  - D. Wanaverbecq (Bongard): Maintenance costs are too high for in-store convection oven, especially when comparing to rack ovens. The maximum value could be 2000 – 2500 € (slide 48)

- B. Tinetti (BIO) specifies that EcoReport does not model any increase in the energy costs that may not be representative of the reality. Results related to life cycle cost should be considered with caution.
- D. Wanaverbecq (Bongard): The number of bakery ovens may not increase as much, but no data is available on it.
- **G. Audard (BIO): Task 3: Main findings on commercial ovens**
  - H. Rabe (Rational) stresses that the use parameters are only estimates as nobody knows how commercial appliances are used in average in the EU. However, these average values seem realistic.
  - B. Tinetti (BIO): Do you plan to make some tests with the EFCEM test currently drafted?
    - L. Weber (Eloma) and H. Rabe (Rational): This is already the case.
- **P. Goodman (ERA): Task 4 main findings.**
  - H. Rabe (Rational): Combi-steamers are high efficiency products in commercial kitchens, which are primarily used for ensuring high food quality (it does not oxidise the food like microwave ovens do) and not as an energy saving technology. Besides, end-users will not like automatic control leading to connection/disconnection of the system.
    - P. Goodman (ERA) agrees.
  - H. Rabe (Rational): What is the product which saves 50% as stated by US EPA?
    - P. Goodman (ERA) answers that the EPA does not give the source of this data but it is likely to be due to the shorter cooking time.
  - H. Rabe (Rational): Any user can turn off the oven but customer does not want this as he wants his meal quickly.
    - P. Goodman (ERA): Some commercial products are already designed to do this and will switch oven off at night if the users forget to do this. Note automatic power down will be part of standby regulation in 2013.
    - L. Weber (Eloma): Lot of ovens are integrated with control system but this can cause problems.
  - K. Völker (HKI): Is the standby regulation only relevant for the domestic sector?
    - B. Tinetti (BIO): yes it is. Commercial appliances are not covered by the Standby Regulation N. 1275/2008
    - Precision after the meeting: It was confirmed since meeting by Stephan Kolb, responsible for the Standby Regulation at DG ENER, that commercial appliances are not under the scope of the Standby Regulation.
  - E. Sénéchal (CETIM) underlines that the wet brick test is relevant for convection oven only and not combi- steamers. Documents will be sent to the project team to support this position.

- S. Edwards (ECOS): Increasing energy price is major issue. It should be possible with modern controls to influence user behaviour. This is an opportunity for innovation.
- **Discussion about the criterion for differentiating commercial and industrial bakery ovens.** The power of the appliance is proposed as a criterion, with 100 kW for electric ovens and 120 kW for gas ovens as potential thresholds.
  - M. Balley (VDMA): Due to the short time between the publication of reports and the stakeholder meeting, comments will be sent after. The power of the appliance is not a good criterion. Improving an appliance (i.e. lowering its power rating) could make an oven that was out of scope (as its power rating was above the limit) falling under the scope of regulation. VDMA proposes to define a limit on the input of bread dough (weight) which can be baked.
  - D. Wanaverbecq (Bongard) is not opposed to this approach.
  - B. Tinetti (BIO) emphasizes that if the EC propose a regulation, the aim will be to avoid any loopholes at boundaries. Interface with Lot 4 will be needed to minimise this issue. Stakeholders are asked if a criterion to differentiate industrial and commercial ovens is already used in any standard.
  - No answer from stakeholders.
- **G. Audard (BIO): Task 5 main findings.**
  - H. Rabe (Rational) asks if heavy metals emissions to air and water from stainless steel take into account that stainless steel is well-recycled.
    - G. Audard (BIO) explains that the EcoReport tool considers the impacts of the production of stainless steel as an average in the EU, taking into account that part of it is recycled and part of it directly produced.
    - Precision in the minutes: it is considered in the EcoReport tool that 63% of stainless steel used in the EU is recycled. Recycling 1 kg of stainless steel requires 62 MJ of primary energy (see Table 2 p41 of the MEEuP methodology).
  - D. Wanaverbecq (Bongard): On Slide 84, the power of electric deck oven is higher than the power of the gas deck oven. This is not coherent.
    - G. Audard (BIO): This will be corrected. However, there is no influence on the outcome of the environmental and cost impact assessment as this table is only meant to give an idea of the Base-case characteristics. Parameters used for the impact assessment are presented in the following slides.
  - D. Wanaverbecq (Bongard): For Base-case 6, the number of km over the lifetime for repair and maintenance should be lower. More maintenance is needed for gas appliances, which would mean more kilometres.
    - M. Balley (VDMA) agrees that more maintenance is needed for gas ovens.
    - L. Weber (Eloma): For BC6, it should be 1600 km, like combi-steamers.
  - L. Weber (Eloma): Water consumption in in-store should be evaluated.

- K. Gehard (Wiesheu): Water consumption for Base-case 6 could be estimated to 0.5 litre per hour
  - I. Oehme (UBA): Were other environmental impacts assessed, apart from the ones analyzed by EcoReport (e.g. carbon monoxide or methane)?
    - S. Mudgal (BIO): The methodology imposes the use of EcoReport and does not require any other assessment. Only a full Life Cycle Assessment would provide a meaningful answer.
    - P. Goodman (ERA): CO emission limits for commercial gas ovens (and other gas appliances) are tackled in the safety standard. Safety issues must not be compromised by the Ecodesign Directive.
  - H. Wegner (MIWE) underlines that an oven requires a certain mass to ensure its functionality. Reacting to Task 5 conclusions, he stresses that the mass of stainless steel cannot be reduced much.
    - H. Rabe (Rational) adds that stainless steel is also used for hygienic reasons. Due to its high cost, its use is already minimized.
    - G. Audard (BIO) answers that this conclusion is only an observation. Significant impacts do come from stainless steel and reducing its use would soften these impacts. This does not imply that there will be any recommendation of reducing the weight of stainless steel.
    - M. Balley (VDMA) suggests changing the wording on the conclusions to reflect that it should take into account the technical feasibility of reducing the use of stainless steel.
  - S. Edwards (ECOS) notice that consumers should be aware of the high share of energy in the life cycle cost of commercial ovens, which would encourage some energy efficient initiatives.
- **P. Goodman (ERA): Task 6 main findings.**
  - H. Rabe (Rational) challenges the presentation of internal steam generation as being more efficient than external steam generation (slide 112).
    - P. Goodman (ERA) pinpoints that it can reduce energy by heating only what is needed.
    - H. Rabe (Rational) argues that due to the intense use of commercial combi-steamers, most of the steam generated is used. Moreover, immersing the heating element into water is more efficient than dropping water on it. Altogether, tests show that it results in almost the same energy consumption.
    - L. Weber (Eloma) explains that the difference is due to standby, not steam generation.
    - P. Goodman (ERA) points out that other stakeholders have said that there is a difference in energy consumption however until a standard method exists, it is not possible to substantiate claims.

- H. Rabe (Rational) explains that heat exchangers are not relevant for combi-steamers. Energy can be extracted from 60°C but cannot be used in the oven, it can only be used externally (e.g. to warm water).
  - P. Goodman (ERA) state that he was talking about exhaust gases.
  - H. Weger (MIWE) notes that it is not so easy to recover energy from warm air. It can conflict with other regulations which increase price of your product.
- **G. Audard (BIO): Task 7 main findings.**
- **Base-cases 4 and 5: Restaurant ovens**
  - H. Rabe (Rational) suggests raising the price increase of the options for Base-case 4 and 5: Multiplication by 4 for Options 1 and 2. Multiplication by 2 for Option 3.
  - H. Rabe (Rational) suggests removing Option 4 for Base-case 5, following his comment on Task 6. As well, an average gas combi-steamer is equipped with the best available burner. Therefore, Option 5 should also be removed.
- **Base-cases 6: In-store convection oven**
  - D. Wanaverbecq (Bongard) asks clarifications on the Option 6 for Base-case 6. Electronic control of temperature is already implemented in an average in-store convection oven.
    - G. Audard (BIO): This data comes from the questionnaire sent to manufacturers. It was only specified that 2% energy savings could be achieved by “software control”. The concerned manufacturer will be contacted to get clarification.
  - B. Tinetti (BIO) asks if the difference in percent between BAT products and average products is realistic and confirmed by measures.
    - K. Gerhard (Wiesheu) explains that there are two types of in-store convection ovens, used for two different applications. Some models do not use water or steamers, and are more energy efficient, but the result is not the same. It is then difficult to assess.
    - H. Rabe (Rational) states that it may be realistic, but not evident. The differences in energy efficiency are mainly due to difference in manufacturing quality. Good construction provides around 10% better energy saving compared with the average.
- **Base-cases 7 and 8: deck ovens**
  - D. Wanaverbecq (Bongard): The savings due to insulation should be much higher for deck ovens than for in-store convection ovens. The difference between an average deck oven and a BAT should be more than 10%, both for electric and gas version.
  - M. Balley (VDMA) asks what is the reason for the cost of software control on slide 122 (1400€).
    - BIO to further check.

- Precision after the meeting: From discussion with manufacturers, software control was supposed not to be included in an average deck oven. Deck ovens manufacturers are welcome to give comments on improvement options.
- **Base-cases 9 and 10: rack ovens**
  - H. Wegner (MIWE): Saving for heat exchanger should be more than 2%. 20% is possible if the energy is used to produce water for room heating with a standalone energy changer.
    - D. Wanaverbeq (Bongard): 20% is possible for exhaust gases on gas rack ovens only. This is not relevant for electric rack ovens.
    - M. Balley (VDMA) confirms that these savings are possible only if heat is reused outside the process
    - B. Tinetti (BIO): Improvement options should be limited to the oven. A system approach is not in the scope of the study
  - S. Edwards (ECOS) challenges that statistics are valid. Such small percentages seem too small. Energy savings estimated are very low compared to domestic sector although the latter is more regulated. Manufacturers could have willingly underestimated the savings. Consumer will be interesting in eco-innovation leading to cut in energy costs.
    - C. Robertson (ERA) encourages the manufacturers to react on that, during the stakeholder meeting or by sending comments later.

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