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COMMISSION STAFF WORKING DOCUMENT
EXECUTIVE SUMMARY OF THE IMPACT ASSESSMENT

Accompanying the document

COMMISSION REGULATION (EU) No .../... of XXXX laying down ecodesign requirements for ventilation units

COMMISSION DELEGATED REGULATION (EU) No.../... supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to energy labelling of residential ventilation units

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1. PROBLEM DEFINITION

The Ecodesign Directive 2009/125/EC and the Energy Labelling Directive 2010/30/EU lay down a framework for the Commission to set eco-design and energy labelling requirements for energy-related products. This impact assessment assesses the impacts of different policy options for the product group 'ventilation units'. The assessment considers whether implementing measures under those Directives should be adopted to reduce their environmental impact, in particular their energy consumption.

The underlying problem is that the majority of building stock in the EU could benefit from optimised mechanical ventilation, with demand side control, heat recovery ventilation or both. The market alone is not achieving a larger penetration of energy efficient ventilation units. In addition, the market is not providing a high enough use of mechanical ventilation units in substitution of natural ventilation. Ventilation units are energy-using but also energy-related products whose electricity consumption can be further reduced. Moreover, additional savings on space heating can be achieved. If all the ventilation units would be replaced by the Best Available Technology, savings of more than 60-70% are possible.

The market for ventilation units is mostly driven by the legislation at building/system level. Nevertheless important opportunities are missed because the consumers and installers are not adequately informed, installers lack training, there is a negative image of ducted ventilation systems and split incentives between builder/end-user and landlord/tenant, i.e. the ones buying the installation and the ones having to pay the energy bill. This incapacity of the market for achieving an optimal solution is known as a market failure. The market failure is especially pronounced in the residential sector, i.e. with non-professional buyers, whereas in the non-residential sectors the buyers are better informed, also helped by several voluntary certification initiatives by industry associations.

2. ANALYSIS OF SUBSIDIARITY

At the level of the products, there have been no mandatory legislative measures either in the EU or in third countries addressing the electrical efficiency and the thermal efficacy of ventilation units. Action is necessary on EU level, because this lack of harmonized specific regulation in the EU induces the risk that individual energy efficiency requirements set by Member States could hamper the functioning of the EU internal market. The Ecodesign Directive, which has the internal market objective as Treaty legal basis, and the Energy Labelling Directive give the European Commission a mandate to adopt implementing measures reducing energy consumption of ventilation units as well as guiding consumers towards the most efficient products.

3. OBJECTIVES

Relevant general objectives are given by the legal basis of the Ecodesign and Energy Labelling, i.e. Article 114 of the TFEU ('internal market') and Article 194 ('security of energy supply', 'promoting energy efficiency and energy saving') of the Treaty on the Functioning of the European Union.

The specific objectives are

- to facilitate removal of the poorest performing products from the market, where their life cycle cost disadvantages have proven insufficient to drive this, thereby reducing

the problem of the different interests and priorities of the market actors (split incentives);

- to help residential buyers to make an informed/rational choice based on performance information that reflects real life usage, thereby moving the market to adopt improved technology solutions;
- to set incentives for producers to further develop and market energy efficient and climate-friendly technology and products;
- to generate cost savings for end-users.

The operational objectives are

- to develop an appropriate metric for energy performance that reflects real life usage, is cost-effective, accurate and repeatable/reliable;
- to ensure that buyers receive appropriate and understandable performance information and so foster an effective competitive market driven by competition on energy performance;
- to create a framework for gathering information about energy performance that can allow or possible subsequent (self-) regulation at a review four years after entry into force;
- to achieve the objectives listed above without having a significant negative impact on functionality, safety, affordability of the product, nor on the industry's competitiveness and the administrative burden imposed on it as provided in Art. 15 of the Directive.

4. POLICY OPTIONS

The options considered are self-regulation, energy labelling only, Ecodesign requirements only and a combination of an Ecodesign and energy labelling measure. Self-regulation is not initiated by industry. The combination of Ecodesign and an energy labelling measure is judged by stakeholders as most effective for residential ventilation units, whereas for non-residential products only Ecodesign measures are adequate.

The Ecodesign Regulation is intended to remove the least efficient products from the market. The minimum efficiency requirements as well as the energy labelling should increase the penetration of more energy efficient appliances in the market and provide incentives for manufacturers to invest in appliances with higher energy efficiency.

As regards the type and severity of these measures there were different views amongst interested parties and thus scenarios for three sub-options were considered. Considerations that played a role were the Ecodesign Directive Annex II, which indicates that targets should be set at minimum life cycle costs, and on the other hand the article 15(5) of the same directive stipulating that there should be no negative impact on functionality.

The product group 'ventilation units' (hereafter 'VU') consists of residential ('RVU') and non-residential ('NRVU'). Small units with nominal power below 30W per individual fan are excluded, except for information requirements, as well as various forms of technical ventilation.

Sub-option A is a package of measures inspired by initial industry proposals for RVU and NRVU. The measures of this sub-option aim at the 'low hanging fruit', but are by no means ambitious.

Suboption B is a package of RVU and NRVU measures that aims at the least life cycle costs (LLCC) of the products, which for this product are fairly close to the Best Available Technology (BAT). With this combination of measures, the highest energy saving and lowest consumer expenditure will be achieved when strictly looking at the unit itself, i.e. in applications in new buildings. Like sub-option A but more extensively, this sub-option uses pre-dominantly component-oriented metrics, i.e. the parameters used for setting minimum requirements or the energy labelling scale are based on components and not on the complete system.

Sub-option C uses a balanced, holistic approach towards minimum requirements, i.e. an approach taking into consideration the complete ventilation system and not only its components, which leaves the industry a considerable amount of flexibility in how to achieve the best energy efficiency of the unit. As such, it is better tuned to retrofit situations, which are believed to be dominant in the construction sector for the years to come.

5. ASSESSMENT OF IMPACTS

The analysis of sub-options leads to savings versus the Business-as-Usual (BaU) as shown in tables 1 and 2.

TABLE 1: ANNUAL SAVINGS POLICY SCENARIOS 2030 vs BaU 2030

	Sub-option A (extra) saving	Sub-option B (extra) saving	Sub-option C (extra) saving
Electricity TWh/a	20	25	22
Space heating fuel saving PJ/a	647	1 926	1 278
Net primary energy primary PJ/a	815	2 137	1 466
GWP MtCO ₂ /a	44	118	81
Acquisition €bn/a	53.2	68.9	60.8
Revenue VU industry €bn/a	7.9	10.3	9.0
Revenue trade, installers & related industry €bn/a	43.2	55.8	49.3
Employment industry '000 jobs	95	124	109
Employment trade, installers & related ind. '000 jobs	393	508	448
Energy costs €bn/a	22	49	35
Consumer expenditure €bn/a	14.3	38.9	26.3

The total administrative burden for all operators amounts to 4 million euros (< 0.1% of annual revenue), which is not excessive in view of the savings.

The table below gives an overview of the impacts on environment, consumers and industry, with a view to the criteria on implementing measures set out in Article 15(5) of the Ecodesign Directive.

Table 2. Evaluation policy options in terms of their impacts

	base line BAU	Sub-option A	Sub-option B	Sub-option C
reduce energy consumption and related CO2 and pollutant emissions	0	0/-	++	+
promote energy efficiency hence contribute to security of supply	0	0/-	++	+
no significant negative impacts on the functionality of the product. from the perspective of the user	0	+	+	+
health, safety and the environment shall not be adversely affected	0	+	+	+
no significant negative impact on consumers in particular as regards affordability and life-cycle costs	0	+	-	+
no significant negative impacts on industry's competitiveness	0	+	-	+
setting of an ecodesign requirement shall not have the consequence of imposing proprietary technology on manufacturers	0	+	+	+
impose no excessive administrative burden on manufacturers	0	+	+	+

6. COMPARISON OF OPTIONS

The comparison of options and sub-options shows that the preferred policy option for realizing the improvement potential of ventilation units is Sub-option C, a Commission Regulation setting Ecodesign requirements for all products in question, combined with an Energy Labelling delegated Regulation on RVUs, to guide customers towards the most efficient appliances. The Ecodesign requirements would be set in 2 tiers applicable 2 and 4 years after entry into force of the measures respectively. The labelling requirements on RVUs would enter into application simultaneously 2 years after the delegated regulation has entered into force.

This choice ensures that

- The least energy efficient ventilation units will be removed from the market, increasing competition on energy efficiency instead of price and additional features;
- on-going energy improvements are fostered by setting a transparent legislative framework that will provide the industry with the long-term security needed to invest in innovative technology;
- information on product differentiation provides residential consumers with an effective and reliable tool to compare energy consumption of products in an economic setting demand for energy efficient appliances;
- the existing potentials to reduce the electricity consumption of ventilation units are quickly realized leading to significant increase in average efficiency; this potentials are cost-effective given that the extra cost of a more efficient product is paid back in around one third of its lifetime;

- by 2030 the net primary energy saving from ventilation units will increase by 1466 PJ due only to the measures proposed here and CO₂ emissions will be reduced by 81 Mt CO₂ in 2030;
- the accumulative energy and CO₂ savings amount to almost 16,000 PJ and 760 Mt CO₂ equivalent respectively over the 2011-2030 period;
- this can be achieved at no extra consumer expense over product life and also no negative impact on other aspects (health, safety, competitiveness, etc.) is anticipated;
- there is a clear legal framework for product design which leaves flexibility for manufacturers to achieve the efficiency levels; and gives them a level playing field, ensuring fair competition and free circulation of products;
- requirements for ventilation units are harmonized in the Community leading to a minimization of administrative burdens and costs for the economic operators;
- market failures are corrected and the internal market is functioning properly;
- the specific mandate of the Legislator is respected;
- costs for re-design and re-assessment upon introduction of the regulation are limited in absolute terms and not significant in relative terms (per product);
- disproportionate burdens for manufacturers are avoided due to transitional periods which duly take into account redesign cycles;
- the competitiveness of industry, and in particular SMEs will not be reduced;
- there is a positive impact on employment, in particular for SMEs.

It is expected that manufacturer's revenues, in 2010 estimated at around €2.9 billion, will triple over the 2010-2030 period, creating around 85 000 new industry jobs in this primarily EU-based industry. Installers, consisting of over 80% small- and medium sized enterprises taking most of their income from labour, are expected to benefit with an extra increase of revenue from unit sales and extra installation work. Also here, a substantial extra demand for installer jobs is expected.

7. MONITORING AND EVALUATION

The main monitoring element will be the tests carried out to verify correct energy efficiency and labelling. This compliance verification will be done by market surveillance carried out by Member State authorities.

Key performance indicators for residential ventilation units can be the energy label rating of units sold, collected through market research institutes, and dedicated task-forces from Member States or voluntary databases from industry. For non-residential ventilation, the key indicators are the electricity consumption of the VUs and savings on space heating energy. New industry databases and/or databases from existing certification schemes, supplemented by spot-checks from Member State surveillance authorities, are the most likely sources for the non-residential sector.

The appropriateness of scope, definitions and limits will be reviewed after maximum 6 years from the adoption of the measure, as required by Annex VII.9 of the Ecodesign Directive. The review of this measure is scheduled for 2020. Account will be taken also of the speed of

technological development and the input from stakeholders and Member States. Compliance with the legal provisions will follow the usual process of 'New Approach' regulations as expressed by the CE marking.