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Explanatory Memorandum to

COMMISSION REGULATION (EU) No …/..

of XXX

implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for solid fuel boilers

EXPLANATORY MEMORANDUM

1. CONTEXT OF THE PROPOSAL

Grounds for and objectives of the proposal

Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products (the Ecodesign Framework Directive)[1], aims to improve energy efficiency and other aspects of the environmental performance of products on the EU market. Article 16 of the Directive lists heating equipment among the products identified by the Council and the European Parliament as priorities for implementation. Solid fuel boilers were therefore a priority product group to be considered for implementing measures under the Directive.

Solid fuel boilers are widely used in the European Union for heating purposes and sometimes also provide hot drinking and sanitary water. The proposed Regulation covers solid fuel boilers with a rated heat output of up to 1000 kW, either biomass or fossil fuel boilers. . Boilers using fuels other than solid fuels are covered by a separate ecodesign regulation.

Many inefficient solid fuel boilers continue to be placed on the market, despite similar life cycle costs for solid fuel boilers that are more efficient. The proposed Regulation aims to correct this market failure.

A preparatory study including technical, environmental and economic analysis showed that:

(i) large quantities of solid fuel boilers are sold on the EU market;

(ii) the main environmental impacts in the life cycle of solid fuel boilers are energy consumption (biomass or fossil solid fuel) and emissions of particulate matter, organic gaseous compounds, carbon monoxide and nitrogen oxides, which are considered significant;

(iii) there is a wide disparity in the environmental impacts of the solid fuel boilers currently on the market; and

(iv) there are technically cost-effective solutions that could lead to significant improvements.

Under Article 15 of Directive 2009/125/EC, these are grounds for an ecodesign implementing measure covering solid fuel boilers.

Directive 2010/30/EU[2] of the European Parliament and of the Council on the indication by labelling and standard product information of the consumption of energy and other resources by energy-related products (the Energy Labelling Framework Directive) requires the Commission to draft delegated acts governing the labelling of energy-related products. The proposed Ecodesign Regulation is therefore accompanied by a delegated regulation on energy labelling for solid fuel boilers (including packages consisting of solid fuel boilers, supplementary heaters, temperature controls and/or solar devices). This gives consumers the benefits of energy efficiency labelling and standard product information. Labelling also gives manufacturers a dynamic incentive to improve energy efficiency and to accelerate the market take-up of energy-efficient models.

General context

Unless specific measures are taken, solid fuel boilers are expected to account for annual energy consumption of 530 PJ (about 12.7 Mtoe) in 2030 and annual emissions of 25 kt of

[1] OJ L 285, 31.10.2009, p. 10.

[2] OJ L 153, 18.6.2010, p. 1.

particulate matter, 25 kt of organic gaseous compounds and 292 kt of carbon monoxide in 2030. Nitrogen oxide emissions are in part fuel-related which are difficult and expensive to address. However, non-fuel related annual emissions of nitrogen oxide emissions are expected to increase if specific measures are not taken. This is because one potential new boiler design aiming at higher energy efficiency and lower organic emissions would be to rely on higher combustion temperatures causing higher nitrogen oxide emissions. This would adversely affect health and environment as referred to in Article 15(5)(b) in the Ecodesign Framework Directive. The impact assessment shows that use-phase energy consumption and emissions of solid fuel boilers can be reduced significantly below the business-as-usual level in a cost-effective way.

The main reasons for the persistent sales of low-efficiency solid fuel boilers are market failures to provide incentives for manufacturers to place high-efficiency solid fuel boilers on the market (regulatory failure) and to guide end-users away from purchase decisions based on purchase costs rather than on the life cycle cost of the product (asymmetric information and negative externality). Another problem is 'split incentives': for example, a building owner who purchases and installs a solid fuel boiler may aim for lower purchase costs but the tenant may end up paying higher energy bills as a result. The result is that end-users often miss opportunities for cost-effective improvements in energy efficiency.

Energy efficiency requirements for solid fuel boilers are set on the basis of seasonal space heating efficiency, which takes into account the energy inputs to satisfy the space heating demand for a designated heating season under defined conditions.

The objective of the proposed Regulation is to trigger the market transformation needed to achieve the potential improvement. Compared to a business-as-usual scenario, the proposed Regulation together with the Commission Delegated Regulation on energy labelling is expected to lead to annual use-phase energy consumption savings (EU-27) of about 22 PJ (about 0.5 Mtoe) by 2030, with related emission reductions of CO_2 of around 200 kt, and a reduction of 14 kt in particulate matter, 14 kt in organic gaseous compounds, and 147 kt in carbon monoxide. The emission reductions in particulate matter, organic gaseous compounds, and carbon monoxide are achieved by separate specific requirements, because, unlike emissions of CO_2, they are not related to the efficiency of solid fuel boilers.

Consistency with other EU policies and objectives

The Ecodesign Framework Directive is an important instrument for achieving the objective of 20 % energy savings compared with projections for 2020, and its implementation is one of the priorities in the Commission communication *Energy 2020* and the Energy Efficiency Plan 2011. Implementing the Directive will contribute to the EU's target of reducing greenhouse gases by at least 20 % by 2020, or by 30 % if there is an international agreement that commits other developed countries to comparable emissions reductions. The proposed Regulation contributes to this process and is in line with the Commission Action Plan on Sustainable Consumption and Production and Sustainable Industrial Policy.

The Delegated Regulation on energy labelling of solid fuel boilers, including packages combining solid fuel boilers, supplementary heaters, temperature controls and/or solar devices, complements the minimum energy efficiency requirements of the ecodesign implementing measure.

Directive 2001/81/EC[3], on national emission ceilings for certain atmospheric pollutants, limits emissions of pollutants from all sources combined that arise as a result of human activity in the territory of the Member States. Directive 2008/50/EC[4] on ambient air quality and cleaner

[3] OJ L 309, 27.11.2001, p. 22.
[4] OJ L 152, 11.6.2008, p. 1.

air for Europe requires Member States to limit the level of a number of air pollutants at zone and agglomeration level. These Directives contribute indirectly to limiting emissions from solid fuel boilers as they have led a number of Member States to start to introduce maximum levels of certain pollutant emissions from such boilers. However, the approach and the levels of limits to the relevant emissions from boilers vary greatly between Member States. There is no specific, harmonised solid fuel boiler regulation in the EU. Having individual emission limits set by Member States could hamper the functioning of the EU's single market.

Promoting market take-up of efficient solid fuel boilers, using biomass in particular, contributes to the objective of Directive 2009/28/EC[5] of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources. That Directive sets mandatory targets for Member States to ensure that a certain proportion of their energy in 2020 is renewable, making up a combined total for the EU of 20%. Member States have submitted National Renewable Energy Action Plans to the Commission, which show that bioenergy will contribute to approximately half of the EU target. With limited biomass resources available, energy efficient use of bioenergy is important.

2. CONSULTATION OF INTERESTED PARTIES AND IMPACT ASSESSMENT

Consultation of interested parties

Consultation methods, main sectors targeted and general profile of respondents

EU and international stakeholders and Member State experts were consulted from the very beginning of the preparatory study, and energy labelling was discussed together with ecodesign requirements in the Ecodesign Consultation Forum set up under the Ecodesign Framework Directive. The Consultation Forum comprises Member State experts and stakeholders, representing manufacturers, retailers, environmental NGOs and consumer organisations. At the meetings of the Consultation Forum on 12 July 2012, the Commission presented a working document suggesting ecodesign requirements and an energy labelling scheme for solid fuel boilers.

All relevant working documents were circulated to the Member States, European Parliament and stakeholders, and the working documents for the Consultation Forum were published in the Commission's CIRCA system alongside the stakeholder comments received in writing. In addition, the initiative was discussed bilaterally between Commission staff and various stakeholders and Member States. The draft regulation was notified to the World Trade Organisation on 26 June 2013 in accordance with the Agreement on Technical Trade Barriers.

Summary of responses and how they have been taken into account

In general, an ecodesign measure for solid fuel boilers is well supported by stakeholders and Member States. The positions of the main stakeholders on crucial features of the working documents and how they have been taken into account can be summarised as follows:

Product scope

Most Member States and stakeholders agree that the products to be covered are solid boilers with a rated heat output up to 1000 kW and cogeneration with an electrical capacity of up to 50 kW.

One Member State suggested that non-woody biomass boilers should be included in the regulation in order not to create a loophole. Any potential loophole is minimised by excluding only solid fuel boilers that are designed for non-woody biomass and not those where it is just one of multiple suitable fuels.

[5] OJ L 140, 5.6.2009, p. 16.

Ecodesign requirements for energy efficiency

Member States and stakeholders requested earlier application of the most stringent of the three tiers of requirements that were initially proposed. The proposal applies those stringent requirements after four years instead of six years after adoption.

Ecodesign requirements for emissions

Member States and stakeholders requested earlier application of the three-tier requirements for particulate matter, organic gaseous compounds and carbon monoxide emissions that were initially proposed. Member States also asked to be allowed to keep more stringent national requirements until the last of two or three tiers of requirements apply. However, since ecodesign regulations fall under Article 114 of the Treaty of the Functioning of the European Union this cannot be done in principle. The proposal addresses these issues by setting only one tier with emission limit values that level corresponding to those of the Member State that has the most stringent levels, but allows a relatively long transition time of four years before they apply, to allow time for manufacturers selling in Member States that currently have no such legislation to adapt. Member States can continue to apply their national requirement during those four years.

One Member State also requested a limit for NO_x emissions, set at a level that can be achieved by using only primary measures, such as burner design and boiler design. This is included in the proposal.

Timetable review

Several Member States asked for the regulation to be reviewed at the same time as the ecodesign regulation for boilers and heaters using other fuels than solid fuels, which is what is proposed.

Collection and use of expertise

Scientific/expertise domains concerned

External expertise was mainly gathered through the preparatory study providing a technical, environmental and economic analysis, which was carried out by a consortium of external consultants on behalf of the Commission's Directorate-General for Energy. Additionally, a scenario analysis of various policy options was conducted for the impact assessment by an external consultant.

Methodology used

The methodology is set out in the Directive, in particular Article 15 and Annexes I and II. The technical, environmental and economic analysis followed the structure of the 'Methodology Study Ecodesign of Energy-using Products' devised for the Commission's Directorate-General for Enterprise and Industry and endorsed by stakeholders.

Main organisations/experts consulted

The preparatory study was conducted in an open process, taking into account input from stakeholders, including manufacturers, installers, retailers and their associations, environmental NGOs, consumer organisations and experts.

Summary of advice received and used

The technical, market and economic analysis carried out for the preparatory study resulted in recommendations for ecodesign requirements for solid fuel boilers. These recommendations were used, in conjunction with the most recent available industry data, to suggest possible ecodesign requirements for solid fuel boilers to the Consultation Forum. The comments of

members of the Consultation Forum were taken into account in the impact assessment, which involved continuous collaboration with various individual stakeholders and experts.

No potentially serious risks with irreversible consequences were raised by any stakeholder, nor were any identified during the preparatory work.

Means used to make the expert advice publicly available

The preparatory study made use of a website to allow interim results and further relevant materials to be published regularly for timely stakeholder consultation and input. The study website was publicised on the Commission's specific ecodesign websites. The contractor held open consultation meetings for stakeholders directly affected to discuss the preliminary results of the study.

The written input received through the Consultation Forum is available on the Commission's CIRCA portal, including the minutes of the Forum's meeting on solid fuel boilers.

Impact assessment

An impact assessment of the possible policy measures was carried out, covering the criteria set out in Article 15(5) of the Ecodesign Directive, and the impact on manufacturers, including SMEs.

Several policy options for bringing about market transformation to achieve the appropriate level of ambition were considered, including the 'business-as-usual' case, self-regulation, energy labelling only, ecodesign regulation only and a combination of the latter two.

However, given the clear legislative mandate to establish ecodesign requirements and energy labelling for solid fuel boilers, the depth of analysis for options other than an implementing legal act was proportionate, and the focus was on the assessment of the proposed implementing regulations.

The impacts of several policy scenarios involving the establishment of ecodesign requirements as an important feature were therefore assessed against the 'business as usual' scenario. The scenarios differed in the stringency of the ecodesign requirements for energy efficiency and emissions. Three different levels of stringency were analysed and a further scenario dealt in particular with the issue that fossil fuel boilers would not be able to meet the level of particulate matter emission requirements in the most stringent of the other scenarios and explored different requirements on this for biomass and for fossil fuel boilers.

Based on the assessment of costs and benefits, the scenario with the most stringent requirements, but with less stringent requirements for the particulate matter emissions of fossil fuel boilers than of biomass boilers is the preferred option. This is combined with energy labelling to solve the problem of market failure to improve the take-up of solid fuel boilers with improved environmental performance, as this optimally meets the requirements of the Ecodesign and Energy Labelling Directives.

This combination of ecodesign requirements and energy labelling has the following results:

- the ecodesign requirements achieve the potential for cost-effective improvements in the energy efficiency of solid fuel boilers;
- the labelling scheme creates market transparency for consumers and provides incentives for manufacturers to innovate/invest in energy efficiency;
- the life-cycle environmental impact of solid fuel boilers related to use-phase energy consumption and emissions is significantly reduced;
- the consumer will have to pay more for the solid fuel boiler, but will save in energy costs, resulting in a pay-back time equal to the lifetime of a solid fuel boiler;

- a clear legal framework is created which ensures fair competition;
- there will be positive impacts on the competitiveness of industry, including SMEs;
- there will be a positive impact on employment in the EU;
- requirements for the placing on the market of solid fuel boilers relating to energy efficiency and emissions in the EU will be harmonised, leading to the lowest possible administrative burdens and costs for economic operators;
- no disproportionate burdens and only small additional costs for manufacturers are created due to transitional periods which take due account of re-design cycles, the pace of innovation and the return on the investment required.

3. LEGAL ELEMENTS OF THE PROPOSAL

Summary of the proposed action

1. Definition of the scope of the proposed Regulation

The Regulation is to cover solid fuel boilers with a rated heat output up to 1000 kW. Boilers generating heat exclusively for providing hot drinking or sanitary water, boilers for heating gaseous heat transfer media and cogeneration boilers with an electrical capacity of 50 kW or more are excluded, because they are also excluded from ecodesign regulation for boilers using fuels other than solid fuels. Non-woody biomass boilers are excluded, because the types of fuels and technology they use are diverse and there is at present insufficient European-wide information to determine appropriate requirements for them. They can be regulated on Member State level.

2. Implementation of ecodesign requirements

The main ecodesign requirements are minimum seasonal space heating energy efficiency (77 %) and maximum levels of particulate matter (20 Nmg/m3 for biomass boilers, 40 Nmg/m3 for fossil fuel boilers), organic gaseous compounds (10 Nmg/m3), carbon monoxide (300 Nmg/m3) and nitrogen oxide emissions (200 Nmg/m3). They apply from four years after the entry into force of the Regulation, to take into account the time manufacturers need to re-design currently non-compliant models.

These requirements are intended to achieve the potential for reducing use-phase energy consumption and emissions, while meeting the criteria for ecodesign implementing measures set out in the Ecodesign Directive.

This ‘push’ strategy meets the stakeholder demand for ambitious requirements and corresponds to the levels of ambition proposed by Member States and stakeholders in the Consultation Forum meeting on 12 July 2012.

3. Measurements and calculations

Measurements and calculations of the relevant product parameters should be performed using generally recognised state-of-the-art calculation and measurement methods. In this context, manufacturers may apply reliable, accurate and reproducible measurement and calculation methods and harmonised standards set in accordance with Article 10 of Directive 2009/125/EC, as soon as they are made available and published for that purpose in the *Official Journal of the European Union*. Requirements for calculation and measurement methods are specified in Annex III.

For the purposes of calculating seasonal space heating energy efficiency, electricity consumption is to be multiplied by a conversion coefficient of 2.5. The coefficient reflects the estimated average EU generation efficiency of 40%, as referred to in Directive 2012/27/EU on energy efficiency.

4. Conformity assessment procedures

As required by Article 8(2) of Directive 2009/125/EC, the proposed Regulation specifies the conformity assessment procedures applicable. These are either internal design control, as set out in Annex IV to the Directive, or the management system set out in Annex V to the Directive.

5. Verification procedure for market surveillance purposes

When performing the market surveillance checks referred to in Article 3(2) of Directive 2009/125/EC, the Member States' authorities must apply the following verification procedure for the requirements set out in Annex II:

(a) The authorities of the Member State must test a single unit.

(b) The model is considered to comply with the proposed Regulation if the values declared by the manufacturer meet the requirements set out in Annex II and if the measured values match the value declared by the manufacturer within the tolerances specified in Annex VI.

(c) If the result referred to in point (b) is not achieved, the market surveillance authority must randomly select three additional units for testing.

(d) The model is considered to comply with the proposed Regulation if the value declared by the manufacturer meets the requirements set out in Annex II and if the average of the measured values for the three additional units meets the value declared by the manufacturer within the specified tolerances.

(e) If the results referred to in point (d) are not achieved, the model is to be considered not to comply with the proposed Regulation.

6. Information requirements

In order to facilitate compliance checks, manufacturers are required to provide information in the technical documentation referred to in the conformity assessment procedures. Further standard product information for the end-user is set out in the separate Delegated Regulation on energy labelling.

7. Benchmarks

Based on the currently available technologies, benchmarks for high energy efficiency and low emissions are provided for best-performing products.

8. Date of evaluation and possible revision

The main issue is timing; any review should be presented to the Consultation Forum at the same time as the review of the ecodesign and energy labelling regulations for boilers and heaters using fuels other than solid fuels.

9. Transitional provisions

For the energy efficiency and emission requirements, during the first four years after its entry into force the proposed Regulation allows solid fuel boilers which comply with national provisions in force when the Regulation is adopted to continue to be placed on the market and/or put into service.

Legal basis

The proposed Regulation is an implementing measure under Article 15(1) of Directive 2009/125/EC. The Directive is based on Article 114 of the Treaty.

Subsidiarity principle

The adoption of ecodesign measures for solid fuel boilers under individual Member States' legislation would lead to obstacles to the free movement of goods within the EU. Such measures must have the same content throughout the EU. In line with the principle of subsidiarity, it is thus appropriate for the measure in question to be adopted at EU level.

Proportionality principle

In accordance with the principle of proportionality, this measure does not go beyond what is necessary in order to achieve the objective. It offers requirements which act as an incentive for technology leaders to invest in high-efficiency solid fuel boiler technology. It also leads to higher savings than any other conceivable option with the minimum of administrative costs.

Choice of instrument

Proposed instrument: Regulation.

Other means would not be appropriate for the following reason(s):

The proposed form of action is a Commission Regulation implementing Directive 2009/125/EC, because the objectives of the action can be achieved most efficiently by fully harmonised requirements throughout the EU (including the date of entry into force), thus ensuring the free movement of complying solid fuel boilers. No costs arise for national administrations for transposition into national legislation.

4. BUDGETARY IMPLICATION

The proposal has no implications for the EU budget.

5. ADDITIONAL INFORMATION

Review/revision/sunset clause

The proposal includes a review clause.

European Economic Area

The proposed act concerns an EEA matter and should therefore extend to the European Economic Area.