

SUBJECT: NEW EMISSION AND INSTALLATION REQUIREMENTS FOR THE INSTALLATION AND OPERATION OF BIOMASS-FUELLED HEATING SYSTEMS FOR CIVIL USE COMPRISED BY BOILERS WITH A THERMAL OUTPUT AT THE HEARTH LESS THAN OR EQUAL TO 35 KW

HAVING REGARD TO:

- Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe;
- Legislative Decree No 155 of 13 August 2010 - 'Implementation of Directive 2008/50/EC on ambient air quality and cleaner air for Europe';
- Directive (EU) 2015/1535 of the European Parliament and of the Council of 9 September 2015 laying down a procedure for the provision of information in the field of technical regulations and of rules on Information Society services;
- Legislative Decree No 223 of 15 December 2017 - Adaptation of national legislation to the provisions of Regulation (EU) No 1025/2012 of the European Parliament and of the Council of 25 October 2012 on European standardisation and of above-mentioned Directive (EU) 2015/1535 of the European Parliament and of the Council of 9 September 2015;
- Regional Law No 24 of 11 December 2006 'Rules for the prevention and reduction of air emissions to protect health and the environment';
- Regional Decree No 449 of 2 August 2018 approving the update of the Air Quality Intervention Regional Plan (AQIRP), which includes, among other measures to be implemented, measure ER-1n 'Wood biomass in the civil sector', aimed at reducing the emission impact of biomass combustion, including through the adoption of increasingly high-performance plant standards;

WHEREAS the Court of Justice of the European Union has issued two judgements against Italy:

- the judgement of 10 November 2020, Case C-644/18, on the systematic exceeding of PM10 limits;
- the judgement of 12 May 2022, Case C-573/19, on the continued exceeding of nitrogen dioxide (NO2) limits;

WHEREAS also:

- Decree-Law No 131/2024 (converted, with amendments, into Law No 166 of 14 November 2024) 'Urgent provisions for the implementation of obligations arising from European Union acts and from outstanding infringement and pre-infringement procedures against the Italian State', which established a steering committee tasked with developing a 24-month National Action Plan to improve air quality, including a detailed roadmap for implementation.
- the aforementioned Plan must also indicate the regional and local authorities obliged to identify the regulatory and programmatic measures to ensure compliance with the particulate matter (PM10) and nitrogen

dioxide (NO₂) limits referred to in Annex X to Legislative Decree 155/2010, which transposed Directive 2008/50/EC on air quality;

- in the event of non-implementation of the measures of the Plan or deviations from the approved roadmap, the steering committee must report to the Council of Ministers, which may authorise the exercise of substitute powers pursuant to the provisions of Article 8 of Law No. 131 of 5 June 2003;

GIVEN that:

- the constant reduction in the concentration of PM₁₀ and PM_{2.5} in the atmosphere in recent years has not yet made it possible to achieve the air quality objectives laid down in Directive 2008/50/EC;
- the recent Directive 2024/2881, which updated and recast Directive 2008/50/EC into a new text, provided for even stricter limits for the protection of human health, to be achieved gradually by 2030 and 2050;
- one of the main emission factors for primary and secondary particulate matter is the combustion of woody biomass;

HAVING CONSIDERED that:

- biomass is, nevertheless, a source of renewable energy production, usually based on the use of local resources, both in terms of raw material and labour;
- the thermal energy produced from biomass can be an optimal solution in areas where the use of heat pumps is problematic due to the impossibility of extracting heat from groundwater or due to the low thermal differential with external air, detectable in colder locations;
- the provisions for the combustion of woody biomass, introduced by the Regions of the Po Valley following the agreement signed with the Ministry of the Environment in 2017, triggered a process of technological innovation that made it possible to improve the performance of biomass systems in terms of emissions and energy efficiency;

GIVEN that:

- Regional Decree No 5360 of 11 October 2021 approved the 'Provisions for the installation, operation, maintenance, control and inspection of woody biomass-fuelled thermal systems', introducing even stricter requirements than those laid down in the AQIRP update (Regional Decree No 449 of 2 August 2018) for the installation of such systems;
- Regional Decree No 1754 of 15 January 2024 'Implementation of Decree-Law No 121 of 12 September 2023, converted by Law No 155 of 6 November 2023, on air quality planning – start of the update of regional air quality planning', it was decided to proceed to the strengthening of the implementation measures of the AQIRP in force in the policy window relating to the three sectors most responsible for the emissions identified by the plan ('Agricultural and forestry activities', 'Energy and industrial systems', 'Road transport and mobility');
- Regional Decree No 3649 of 16 December 2024 approved the 'New emission and installation requirements for the installation and operation of

biomass-fuelled heating systems for civil use with a thermal output at the hearth greater than 35 kW – effective from 15 October 2026’, subject to the suspension of its effects until the positive outcome of the notification procedure. The approval is contingent upon the successful notification of this resolution to the European Commission, in accordance with Article 5 of Directive 2015/1535/EU, which requires the communication of any draft technical regulation that is not merely the transposition of an international or European standard.

HAVING CONSIDERED that:

- it is also necessary to establish more stringent emission requirements for systems with an output at the hearth of less than or equal to 35 kW, as these are more prevalent in the region compared to those with higher outputs;
- a comparison with manufacturers of biomass systems revealed that, for domestic appliances (such as stoves), it is challenging to comply with stricter limits than those set out in Regional Decree No 5360/2021, which is largely the result of the possibility of awaiting the final version of the new European regulation on the ecodesign requirements for solid fuel local space heaters (SFLSHs), which is expected to come into force on 1 July 2027 and would introduce an innovative and untested testing methodology;
- boiler manufacturers, although critical of the proposed European regulation on the ecodesign requirements for solid fuel boilers (SBBs), have agreed to meet higher environmental standards, effective from 15 October 2027, compared to those established under Regional Decree No 5360/2021, in particular regarding the emission limits for particulate matter (PM) and total organic carbon (TOC), which pose greater risks to human health;
- the reduction of oxygen in the hearth makes it possible to optimise the efficiency of the system and to reduce the emission of particulate matter, but hinders the achievement of equally high-performance values for carbon monoxide emissions, whose release into the atmosphere, however, presents fewer issues;

HAVING ACKNOWLEDGED that the Ministry of the Environment and Energy Security has commenced the revision of Presidential Decree No 74/2013 ('Regulation establishing general criteria for the operation, management, control, maintenance, and inspection of heating systems for winter and summer air conditioning in buildings, and for the preparation of hot water for sanitary use, pursuant to Article 4(1)(a) and (c) of Legislative Decree No 192 of 19 August 2005'), it is therefore deemed appropriate to update Regional Decree No 5360/2021 once the new State Decree has been issued.

HAVING CONSIDERED it necessary:

- to reduce the emission limits set out in Regional Decree No. 5360/2021 for biomass boilers with a thermal input at the hearth of less than or equal to 35 kW, while differentiating the requirements based on the altitude of the municipality where the boiler is installed and the type of fuel previously used by the system being replaced, as outlined in the attached document, which forms an integral and substantial part of this act;
- to stipulate that the above limits will come into effect on 15 October 2027, thereby providing operators in the sector with sufficient time to adapt their boiler offerings for installation in Lombardy;
- to establish that the update of the overall rules regulating biomass-fuelled thermal systems for civil use, approved by Regional Decree No 5360/2021 and including emissions limits for systems with an output at the hearth of less than or equal to 35 kW, and aspects concerning operation, maintenance, control, and inspection, will be carried out after the issuance of the State Decree that will replace the current Presidential Decree

74/2013, as also stipulated in Regional Decree No 3649 of 16 December 2024 for systems with an output exceeding 35 kW;

HAVING SPECIFIED that the provisions approved by Regional Decree No 5360/2021 concerning emissions limits for domestic appliances (stoves) with an output at the hearth less than or equal to 35 kW and requirements for the operation, maintenance, control, and inspection of biomass-fuelled thermal systems for civil use remain unaffected;

HAVING REGARD TO the document containing the 'EMISSION AND INSTALLATION REQUIREMENTS FOR THE INSTALLATION AND OPERATION OF BIOMASS-FUELLED BOILERS FOR CIVIL USE WITH A THERMAL OUTPUT AT THE HEARTH OF LESS THAN OR EQUAL TO 35 KW', annexed to this measure as an integral and substantial part thereof;

GIVEN:

- that the proposal for this measure constitutes the introduction of a technical regulation and has, therefore, been notified to the European Commission in accordance with Article 5 of Directive (EU) 2015/1535
- and that the outcome of the notification procedure is.....

GIVEN that this measure contributes to the achievement of objective 5.1.5 'Improving air quality and reducing emissions' of the Regional Programme for Sustainable Development (RPSS) of the 12th legislature, approved by Regional Council Decision No 42 of 20 June 2023;

HAVING RECALLED the preambles in full;

by unanimity of the votes cast in the forms laid down by law,

HEREBY DECIDES

1. to approve the document containing the 'EMISSION AND INSTALLATION REQUIREMENTS FOR THE INSTALLATION AND OPERATION OF BIOMASS-FUELLED BOILERS FOR CIVIL USE WITH A THERMAL OUTPUT AT THE HEARTH OF LESS THAN OR EQUAL TO 35 KW', annexed to this measure as an integral and substantial part thereof;
2. to provide that the provisions contained in the document referred to in point 1 shall apply from 15 October 2027, for the reasons set out above;
3. to recognise that all the provisions approved by Regional Decree 5360/2021 remain unaffected, with the exception of the emissions limits indicated in the Annex referred to in point 1 and in the Annex to Regional Decree No 3649 of 16 December 2024;
4. to publish this measure in the Official Journal of the Lombardy Region (BURL);
5. to certify that this measure is not subject to the publication obligations referred to in Articles 23, 26 and 27 of Legislative Decree No 33/2013.

EMISSION AND INSTALLATION REQUIREMENTS FOR THE INSTALLATION AND OPERATION OF BIOMASS-FUELLED BOILERS FOR CIVIL USE WITH A THERMAL OUTPUT AT THE HEARTH OF LESS THAN OR EQUAL TO 35 KW

From 15 October 2027, the requirements for the installation of EN 303-5 biomass-fuelled boilers for civil use, with a thermal output at the hearth of less than or equal to 35 kW, shall be as follows. Generators must hold the environmental certificate issued in accordance with Ministerial Decree 186/2017, with emission values not exceeding those specified below and an energy performance value ($\eta\%$) not lower than the indicated threshold.

a) In municipalities located over 300 m above sea level, replacing a previous woody biomass-fuelled system

PP (mg/Nm ³)	TOC (mg/Nm ³)	NOx (mg/Nm ³)	CO (mg/Nm ³)	$\eta\%$
10	5	120	100	92

b) Municipalities located over 300 m above sea level, replacing an existing system powered by gas, diesel, or LPG, or installing a new system (without replacing an existing one)

PP (mg/Nm ³)	TOC (mg/Nm ³)	NOx (mg/Nm ³)	CO (mg/Nm ³)	$\eta\%$
5	2	120	100	92

c) In municipalities located lower than 300 m above sea level, replacing a previous woody biomass-fuelled system

PP (mg/Nm ³)	TOC (mg/Nm ³)	NOx (mg/Nm ³)	CO (mg/Nm ³)	$\eta\%$
2.5	2	120	100	92

d) Municipalities located lower than 300 m above sea level, replacing an existing system powered by gas, diesel, or LPG, or installing a new system (without replacing an existing one)

PP (mg/Nm ³)	TOC (mg/Nm ³)	NOx (mg/Nm ³)	CO (mg/Nm ³)	$\eta\%$
1	1	120	100	92

System requirements

1. In cases **1.b** and **1.c**, the installation of a **PM abatement system**, either integrated into or external to the generator body (which may also be condensing), is mandatory. The installation configuration must ensure at least 90% availability in all cases, meaning the abatement system must be operational for more than 90% of the generator's operating hours. The condensing operating requirement shall be declared by the designer, on the basis of the maximum return temperature, not exceeding **35°C**.

The emission and performance values of the assembly: generator + abatement system, shall be certified in accordance with EN 303-5. Performance shall be measured in the non-condensing operating mode.

2. The installation of a **puffer accumulator tank** is mandatory to ensure adequate load compensation and to minimise on/off cycles. The following inertial volume limit values shall be complied with.

- Manually loaded boilers: dimensioning according to EN 303-5
- Automatically fed boilers: ≥ 25 litres/kW of nominal power, or sizing determined by the designer based on the type of building-installation system