

**SUBJECT: NEW EMISSION AND INSTALLATION REQUIREMENTS FOR THE INSTALLATION AND OPERATION OF BIOMASS-FUELLED CIVIL HEATING SYSTEMS WITH A HEAT OUTPUT AT THE HEARTH GREATER THAN 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 judgments against Italy:

- the judgment of 10 November 2020, Case C-644/18, on the systematic exceeding of PM10 limits;
- the judgment of 12 May 2022, Case C-573/19, on the continued exceeding of nitrogen dioxide (NO<sub>2</sub>) limits;

**WHEREAS also:**

- Decree-Law 131/2024 (converted with amendments by Law No 166 of 14 November 2024) established a steering committee to draw up a 24-month national action plan to improve air quality, with a timetable for action;
- 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 (NO<sub>2</sub>) 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 timetable, the steering committee must

report to the Council of Ministers, which may authorise the exercise of substitute powers;

**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:

- however, biomass is 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;

**HAVING CONSIDERED also** 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;
- by Regional Decree No 1754 of 15 January 2024, it was decided to strengthen the measures implementing the AQIRP in force in the areas of intervention relating to the three sectors most responsible for emissions identified by the plan itself ("Agricultural and forestry activities", "Energy and industrial systems", "Road transport and mobility");
- the provisions approved by Regional Decree 5360/2021 apply to systems with a heat output at the hearth from 5 kW up to 3 MW, while referring the regulation of systems with a rated heat output exceeding 500 kW to the provisions of the Legislative Decree 152/2006;
- larger biomass-fuelled systems can ensure even higher environmental performance than those provided for by Regional Decree 5360/2021, with particular reference to emissions that are most harmful to human health, thanks to the improvement of the combustion technique and the possibility of applying fine dust abatement systems or even inertial accumulators that minimize the on and off cycles;

- the reduction in the maximum emissions limit for particulate matter (PP) and total organic carbon (TOC), provided for by Regional Decree No 5360/2021, contributes to improving air quality;
- the reduction of oxygen in the hearth makes it possible to optimise the efficiency of the plant and to reduce the emission of particulate matter, but hinders the achievement of equally high-performance values for carbon monoxide emissions;

**NOTING:**

- that the Ministry of the Environment and Energy Security has initiated the revision of Presidential Decree 74/2013 ('Regulation laying down general criteria for the operation, management, control, maintenance and inspection of heating systems for the winter and summer air conditioning of buildings and for the preparation of hot water for sanitary uses, pursuant to Article 4(1)(a) and (c) of Legislative Decree No 192 of 19 August 2005'), which is the reason why it is appropriate to provide for the update of Regional Decree 5360/2021 after the new State Decree has been issued;
- Article 5 of Directive 2015/1535/EU provides that any draft technical regulation which is not merely the transposition of an international or European standard is to be notified to the European Commission, stating the reasons why it is necessary;

**HAVING CONSIDERED** it necessary:

- to lower the maximum emissions limit for particulate matter (PM) and total organic carbon (TOC), as established by Regional Decree No 5360/2021, for systems with a hearth output exceeding 35 kW, differentiating the limit values based on the altitude of the municipality where the system is located and the type of fuel previously used for the system being replaced;
- to establish new emissions limits for biomass-fuelled systems with a hearth output greater than 35 kW, with their entry into force on 15 October 2026, to allow operators in the sector to adapt their plant offerings for installation in the Lombardy Region;
- to establish that the update of the overall rules regulating biomass-fuelled civil thermal systems, 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;

**HAVING SPECIFIED** that the provisions approved by Regional Decree No 5360/2021 concerning emissions limits for systems 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 civil thermal systems remain unaffected;

**HAVING REGARD TO** the document containing the "NEW EMISSION AND INSTALLATION REQUIREMENTS FOR THE INSTALLATION AND OPERATION OF BIOMASS-FUELLED CIVIL HEATING SYSTEMS WITH A HEAT OUTPUT AT THE HEARTH GREATER THAN 35 KW - EFFECTIVE FROM 15.10.2026", annexed to this measure as an integral and substantial part of it;

**HAVING CONSIDERED** approving the above document and notifying it to the European Commission, pursuant to Article 5 of Directive 2015/1535/EU and the transposing Legislative Decree (Legislative Decree No 223 of 15 December 2017), noting that the provisions contained therein will not be effective:

- within three months of receipt of the communication, which is the deadline for any comments from the Commission or, in any event,
- until the notification procedure has been successfully completed, taking into account any comments made by the Commission with a possible amendment to this Decision;

**HAVING NOTED** 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 “NEW EMISSION AND INSTALLATION REQUIREMENTS FOR THE INSTALLATION AND OPERATION OF BIOMASS-FUELLED CIVIL HEATING SYSTEMS WITH A HEAT OUTPUT AT THE HEARTH GREATER THAN 35 KW – EFFECTIVE FROM 15.10.2026”, annexed to this measure as an integral and substantial part of it;
2. to provide that the provisions contained in the document referred to in point 1 shall apply from 15 October 2026, without prejudice to point 3 below;
3. to notify the document referred to in point 1, pursuant to Article 5 of Directive 2015/1535/EU, to the European Commission, noting that the provisions contained therein will not take effect:
  - within three months of receipt of the communication, which is the deadline for any comments from the Commission or, in any event,
  - until the notification procedure has been successfully completed, taking into account any comments made by the Commission with a possible amendment to this Decision;
4. to acknowledge 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 for the civil thermal systems indicated therein;
5. to publish this measure in the Official Journal of the Lombardy Region (BURL);
6. 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

## NEW EMISSION AND INSTALLATION REQUIREMENTS FOR THE INSTALLATION AND OPERATION OF BIOMASS-FUELLED CIVIL HEATING SYSTEMS WITH A HEAT OUTPUT AT THE HEARTH GREATER THAN 35 KW - FROM 15.10.2026

### 1. Systems with a rated heat output greater than 35 kW and up to 500 kW

They must consist only of EN 303-5 boilers and be classified with **at least 4 stars** in the environmental certificate provided for by the ministerial decree. 186/2017; In any case, the values of the parameters set out in the said Certificate must not exceed the limit values set out below.

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

PP10 (mg/Nm <sup>3</sup> )	COT (mg/Nm <sup>3</sup> )	NOx (mg/Nm <sup>3</sup> )	CO (mg/Nm <sup>3</sup> )	η%
5	2	120	100	92

b) In municipalities over 300 m above sea level, replacing a previous system powered by gas, diesel, or LPG, or in the case of a new system without replacement of a system, and in municipalities less than 300 m above sea level, replacing a previous woody biomass-fuelled system

PP10 (mg/Nm <sup>3</sup> )	COT (mg/Nm <sup>3</sup> )	NOx (mg/Nm <sup>3</sup> )	CO (mg/Nm <sup>3</sup> )	η%
2.5	2	120	100	92

c) Municipalities less than 300 m above sea level, replacing a previous system powered by gas, diesel, or LPG, or one newly installed (without replacing a system)

PP10 (mg/Nm <sup>3</sup> )	COT (mg/Nm <sup>3</sup> )	NOx (mg/Nm <sup>3</sup> )	CO (mg/Nm <sup>3</sup> )	η%
1	1	120	100	92

### 2. Systems with a rated heat output greater than 500 kW

a) In the municipalities over 300 m above sea level

PP10 (mg/Nm <sup>3</sup> )	COT (mg/Nm <sup>3</sup> )	NOx (mg/Nm <sup>3</sup> )	CO (mg/Nm <sup>3</sup> )
2.5	2	120	100

b) In the municipalities less than 300 m above sea level

PP10 (mg/Nm <sup>3</sup> )	COT (mg/Nm <sup>3</sup> )	NOx (mg/Nm <sup>3</sup> )	CO (mg/Nm <sup>3</sup> )
1	1	120	100

## System requirements

1. In cases **1.b, 1.c, 2.a, 2.b**, the presence of a PM abatement system, integrated or external to the generator body, which can also be condensing, is mandatory. The abatement system shall be active for more than 90 % of the operating time of the generator. 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. In the case of boilers **EN 303-5** an inertial accumulator (puffer) shall be installed to ensure adequate load compensation and to minimise on and off cycles. The following inertial volume limit values shall be complied with.

- Manually loaded boilers: dimensioning according to EN 303-5
- Self-loading boilers up to 500 kW:  $\geq 25$  litres/kW rated output
- Self-loading boilers > 500 kW: dimensioning by the designer

**3. In the case of heat generators with a heat output at the hearth of more than 500 kW:**

- if certified in accordance with standard EN 303-5, the extract of the Test Report, issued by an accredited body for the specific product standard, or the Environmental Certificate of the generator, if issued by the notified body, is sufficient;

- if not certified according to EN 303-5, at the end of installation the generator must be subjected to a verification of the emission values indicated in point 2, by an accredited laboratory UNI EN ISO 17025, applying the measurement methods prescribed by the Legislative Decree 152/2006 (see also the attached document, published by Arpa Lombardia and updated on 31 March 2022).

For generators with a heat output at the hearth greater than 500 kW, the annual verification of emissions, as provided for in Article 286(2) of Legislative Decree 152/2006, is maintained, the results of which must be sent to the Heat System Registry – Lombardy.