

To: DG ENER, European Commission

From: Nicole Kearney, Director, CLASP Europe

Date: 17th April 2024

Re: CLASP's comments and recommendations on the proposed working documents for the revision of Ecodesign and Energy Labelling measures for domestic cooking appliances

CLASP appreciates the opportunity to provide comments on the Working Documents for Ecodesign and Energy Labelling measures for domestic cooking appliances. Our comments are mainly focused on the proposals for hobs. We recommend accelerating the policy timeline, improving energy efficiency standards for all hobs, and the inclusion of NO₂ emissions for gas hobs. We also support a more ambitious policy revision regarding cooking fume extractors.

Table of contents

| | | |
|-----------|---|-----------|
| 1. | INTRODUCTION | 1 |
| 2. | RECOMMENDED POLICY TIMELINES AND REVISIONS FOR HOBS | 3 |
| 3. | IMPROVING HOB ENERGY EFFICIENCY | 5 |
| | 3.1. A Common Test Method for Gas and Electric Hobs | 5 |
| | 3.2. Impact of the Comparable Test Method on Energy Efficiency | 11 |
| 4. | RECOMMENDATIONS FOR IMPROVING HOB ENERGY EFFICIENCY | 15 |
| | 4.1. Ecodesign Levels | 15 |
| | 4.2. Information Requirements | 15 |
| 5. | INTRODUCING NO₂ EMISSIONS LIMITS FOR GAS HOBS | 16 |
| | 5.1. Introduce a Transitional Test Method for Gas Hob NO ₂ Emissions | 16 |
| 6. | CLASP'S RECOMMENDATIONS FOR AN NO₂ LIMIT FOR GAS HOBS | 16 |
| | 6.1. Ecodesign Levels | 17 |
| | 6.2. Information Requirements for NO ₂ Emissions | 19 |
| 7. | OTHER EMISSIONS (METHANE LEAKAGE AND CARBON MONOXIDE) | 19 |
| 8. | CLASP'S RECOMMENDATION ON AN ENERGY LABEL FOR HOBS | 19 |
| 9. | COMMENTS ON HOUSEHOLD COOKING FUME EXTRACTORS | 20 |

1. Introduction

CLASP welcomes the Ecodesign and Energy Labelling proposals disseminated by the EC on 21 February 2024. We are encouraged by the inclusion of a placeholder for NO₂ emission limits and information requirements, as well as efforts to address gas-related concerns regarding the range hood energy label. CLASP recommends further action to strengthen Ecodesign requirements and move towards labelling for hobs. These steps are essential to transition towards more efficient products, mitigate the environmental impacts of hobs on the environment, and protect the health of European households.

The European Commission's (EC) draft working documents are based on findings from the Joint Research Centre (JRC) review study, which represent only incremental improvements for each technology, without any provision for an Energy Label, nor any steps towards establishing one. Gas and electric hobs, despite serving the same function, will continue to be subject to different metrics.

We have examined different hob technologies and estimated the potential impacts of more ambitious policy scenarios. More specifically, CLASP has explored a progressive transition from gas to electric cooking technologies, in line with the EC's objectives to promote electrification and increase the share of renewable energy in the energy mix. Our research indicates that implementing ambitious Energy Labelling and Ecodesign measures could yield cumulative emission reductions of nearly 60 MtCO₂e by 2050,¹ while also protecting European households from dangerous pollutants emitted by indoor gas combustion.^{2,3} In a recent European survey, CLASP gauged consumer support for specific policy options aimed at transitioning to electric cooking. Respondents indicated strong support for different interventions, including requiring manufacturers to produce cleaner, more efficient hobs (supported or strongly supported by 83% of consumers) and making electricity cheaper than gas (supported or strongly supported by 85%).⁴

The current draft requirements for gas and electric hobs are based on different test methods which are not representative of how the products are used in practice, nor do they encourage technological improvements. The existing test method for gas hobs omits measurement methods for emissions and overestimates the efficiency of the product, as the pot sizes used are larger than recommended in the instruction manuals and those that are used to test electric hobs. It is

¹ CLASP, 2024, CO₂ Emission Reduction Scenarios from a Transition to Electric Cooking Appliances, <https://www.clasp.ngo/wp-content/uploads/2024/04/CO2-Emissions-Reductions-Cooking-Electrification.pdf>.

² CLASP, 2023, Clearing the Air: Gas Cooking and Pollution in European Homes, <https://www.clasp.ngo/research/all/cooking-with-gas-findings-from-a-pan-european-indoor-air-quality-field-study/>

³ CLASP, 2022, Exposing the Hidden Health Impacts of Cooking with Gas in the EU, <https://www.clasp.ngo/research/all/eu-gas-cooking-health/>

⁴ CLASP, Unpublished, Gauging Consumer Attitudes and Policy Support for Hobs in Europe.

therefore impossible to compare efficiency of different hob technologies and encourage performance improvements. Comparable measurement methods should be introduced for gas and electric hobs.

CLASP has collaborated with a certified laboratory and a standardization expert to develop and propose a common test method for gas and electric hobs, which can be used on a transitional basis in the upcoming cooking appliance policies. The test method builds upon the existing method for electric hobs (EN-60350-2), with modifications to ensure the method can also be applied for gas hobs, with the addition of NO₂ emissions testing. We have consulted other experts and the CEN/CENELEC technical committees and have incorporated their feedback. The proposed test method is detailed in Attachment 1 to this position paper.

We strongly recommend adopting the proposed policies as soon as possible with some important modifications for hobs outlined below and elaborated upon throughout this document:

Adopt policy as soon as possible by 2025, with the following priorities:

- Define a maximum NO₂ emissions level for gas hobs.
- Continue to test gas hobs in accordance with EN 30-2-1, but with smaller and more appropriate pot sizes to allow for better comparability with electric hobs.
- Introduce additional information requirements for energy efficiency and NO₂ emissions, with declarations based on CLASP's proposed test method. This will enable the EC to gather data and inform revisions to the regulations.
- Mandate CEN/CENELEC to revise the existing gas and electric test methods or develop a new common test method. This should include revisions to gas hob pot sizes and exploring a new simmering test that better reflects real user behaviour and test according to the same heat up test, as proposed by CLASP.

Implement the regulation within 12 months after adoption, by 2026:

- Implement the requirements outlined in the new regulation and start gathering data based on the information requirements.

Review and revise the requirements for hobs 2 years later, by mid-2028:

- Conduct an early review of energy performance and emissions data to facilitate analysis based on the new information requirements. This review should aim to:
 - Set new Ecodesign minimum energy performance levels based on CLASP's proposed test method.
 - Reassess and raise the ambition of the NO₂ emission limits.
 - Establish an energy label for hobs, contingent on the primary energy factor better reflecting the EU's transition to renewable energy sources.

2. Recommended Policy Timelines and Revisions for Hobs

CLASP is concerned that the proposed timelines for adoption, application, and revision of the Ecodesign and Energy Labelling regulations are too lengthy to yield significant impact. In particular, we believe the timelines to adopt and revise the regulations should be tighter for hobs.

TABLE 1: ORIGINAL VS. PROPOSED POLICY TIMELINE

| | Original expected timeline | Recommended timeline |
|------------------------|---|--------------------------------------|
| Adoption | Expected end-2025 | As soon as possible in 2025 |
| Application | Two years after adoption, in 2027 | 12 months after adoption – in 2026 |
| Review | Expected seven years after entry into force, end of 2032/early 2033 | Two years after application, in 2028 |
| New regulation adopted | Two years later, end 2034 / early 2035 | Two years later, in 2030 |
| New regulation applied | Expected two years after adoption, in 2036 | One year later, in 2031 |

Table 1 shows that the proposed timelines for adoption, application, and review are too lengthy to have sufficient impact, especially given the EC’s decarbonization targets.⁵ CLASP proposes a faster timeline summarized in Table 1 and detailed in Table 2, which would enable the EC to strengthen requirements for hobs based on our proposed test method. Although ambitious, it is crucial to accelerate the transition to more efficient and sustainable hobs.

TABLE 2: DETAILS FOR RECOMMENDED POLICY TIMELINE

| Timeline | Details |
|---|---|
| <ul style="list-style-type: none"> ✓ Application <ul style="list-style-type: none"> ○ Accelerate application of requirements to 12 months after adoption. ○ Encourage manufacturers to voluntarily apply the proposed revisions before the formal application. | <p>The regulation should incorporate CLASP’s proposed transitional test method, or a suitable alternative, with new comparable, representative, and accurate energy efficiency and NO₂ emissions measurement methods.</p> <p>We do not want to delay the regulation, so we suggest the EC consider the following actions to swiftly maximize impact:</p> <ul style="list-style-type: none"> ✓ Ecodesign minimum requirements should be based on gas hob testing according to existing procedures in EN 30-2-1, but as a priority, the pot sizes used should be updated to better align with those required for electric hobs, as per Table 1 of CLASP’s proposed test method. |

⁵ Including [European Green Deal](#) minimum 55% reduction of greenhouse gas emissions by 2030 and net-zero carbon emissions by 2050.

| | |
|--|--|
| | <ul style="list-style-type: none"> ✓ NO₂ limits should be integrated within Ecodesign minimum requirements. ✓ Information requirements should include additional data points, based on CLASP's test method for energy efficiency and emissions. <p>The rationale for these recommendations is explained in the following sections.</p> |
| <ul style="list-style-type: none"> ✓ Review <ul style="list-style-type: none"> ○ Propose a revision of the hobs regulation no later than 2 years after application – in 2028. | <p>As voluntarily gathered data will be available before formal application, and mandatory data would be available from 2026, there will be sufficient information to inform a policy revision. By 2028, we recommend that the EC:</p> <ul style="list-style-type: none"> - Prepare a report for the Consultation Forum, communicating declared NO₂ levels from gas hobs to determine whether more ambitious NO₂ requirements would be appropriate. - Prepare a report for the Consultation Forum, communicating reported energy efficiency levels for gas and electric hobs based on CLASP's proposed test method, to determine the potential adoption of new efficiency levels. - Review data from product information requirements to assess the impact of a label based on CLASP's proposed test method (or new harmonized test method allowing fair efficiency comparisons between technologies). Ideally, a label should include a repairability index. |
| <ul style="list-style-type: none"> ✓ Adoption <ul style="list-style-type: none"> ○ New regulation adopted two years later in 2030, applied a year later by 2031 | <p>A quicker timeline would allow new and impactful NO₂ limits and efficiency levels to be adopted and applied, based on a common test method that allows fair efficiency comparisons across technologies and delivers greater potential for technological and efficiency improvements.</p> |

3. Improving Hob Energy Efficiency

3.1. A Common Test Method for Gas and Electric Hobs

CLASP is concerned that the current measurement methods for hobs lack the ability to directly compare gas and electric hobs, fail to stimulate technological improvements, and do not accurately reflect real-world usage. Therefore, we recommend introducing CLASP's proposed transitional test method for gas and electric hobs, shared in Attachment 1, to address these shortcomings.

Ideally, this method should serve as a basis to measure both Ecodesign minimum requirements and information requirements. We understand this could delay adoption of the regulations, which is not our intention. We therefore recommend a gradual introduction of the common test method, by introducing NO₂ testing and minimum requirements, and first reporting energy efficiency results based on the test method in the information requirements. The declared emissions and efficiency information can then be reviewed two years after application of the regulations. New minimum energy performance standards (MEPS) and NO₂ limits can then be defined based on the common test method by 2030. This will allow for efficiency comparisons across technologies.

The proposed test method, based on EN 60350-2 for electric hobs, has been adjusted to ensure comparability with gas hobs and to capture efficiency gains linked to technology improvements aligned with [Ecodesign 2009/125 principles](#). This test method has undergone extensive validation through peer reviews and pilot tests to ensure robustness, repeatability, and accuracy. It includes various tests to assess gas and electric hob efficiency performance:

- **Heat up test:** Measures the energy and the time required to heat water to 90°C.
- **Simmering test:** Replicates common cooking habits, like boiling potatoes. This test is currently performed on electric hobs, but since simmering is a common cooking practice, it should also be tested on gas hobs.
- **Low power mode energy test:** Measures the energy used by hobs in low power mode and covers methane-fuelled gas hobs and electric hobs. No changes were made to this test method.

The main energy efficiency adjustments to the test method aim to ensure it can be used for both gas and electric hobs, and that it accurately reflects real-life cooking conditions and behaviours that impact efficiency and offer opportunities for technological improvements. These adjustments align with guidance⁶ provided by IEC and CEN/CENELEC for environmental standards. Key components of the proposed common test method include:

Heat Up Test

Both gas and electric hob test methods currently include a heat up test. CLASP's proposed test method brings minimal changes to the gas test method. Minor adjustments include a revision of the starting water temperature, aligning pot sizes with those required by electric hobs; and conducting tests without adjusting to the rated input power. These adjustments will ensure comparability with electric hobs.

Simmering Test

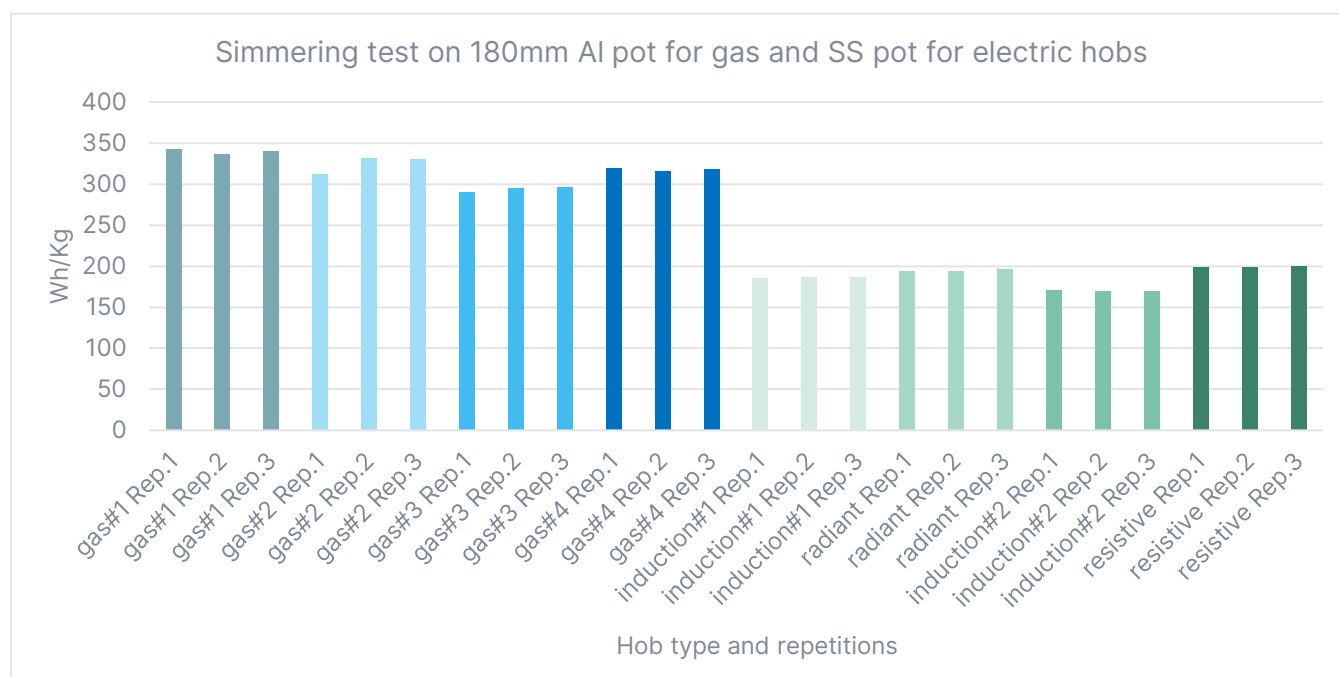
⁶ IEC Guide 121:2023: Securing credible environmentally relevant performance assessment methods in standards and CEN/CENELEC, [Standards in support of the European Green Deal Commitments](#), on energy-related products

CLASP recommends conducting a simmering test on both gas and electric hobs following CLASP's test method. This test is more representative of consumer use than simply heating up. In particular:

- Simmering is present in the existing test method for only electric hobs, but is not currently tested on gas hobs, thus not representing one very common cooking habit.
- CLASP modified the simmering test from the existing test method for electric hobs to better replicate user behaviour.

CLASP conducted the simmering test using an aluminium (Al) pot for gas hobs and a stainless steel (SS) pot for electric hobs of the same size (180mm). The graph below (Figure 1) shows the results of the simmering test based on CLASP's test method: the tests are replicable. The most efficient electric hob tested consumes half the energy (Wh/Kg) of the least efficient gas hob in our sample. Currently, consumers lack access to this information for gas hobs.

FIGURE 1 SIMMERING TEST RESULTS



Pot sizes used for testing

CLASP strongly recommends testing both gas and electric hobs using identical pot size ranges, to ensure comparable and reliable results inform energy efficiency calculations, as per our proposed test method.

Currently, the gas and electric hob standards refer to different pot size ranges, preventing comparable energy efficiency calculations. Gas hob testing uses larger pot sizes than those used

on electric hobs. Using a larger pot increases the efficiency of gas hobs as the flame at maximum input power can cover the largest surface of the bottom of the pan and conduct more heat.

When it comes to electric hob testing, pot sizes are closer to those most found on the market. The electric hob standard EN 60350-2 sets out clear size requirements per cooking zone size. However, the gas standard, EN 30-2-1, lacks clarity. While it indicates pot sizes for different burners, these sizes are significantly larger than those found in the electric standard, and they are generally larger than pot sizes recommended in manufacturer instruction manuals found through CLASP's research (see Figure 3). The "standard burner" and "semi-rapid" burner are the ones tested by CLASP, and they would require a 240mm diameter pot according to the gas standard, which is much larger than what is recommended in the user manuals.

During the consultation forum on 18 March 2024, a comment was raised that gas cooking appliances are already tested with recommended pot sizes. However, this only applies for pots of 220mm diameter and above (see note in Figure 2, Table 1). Additionally, the standard only requires testing for burners with a heat input above 1.16kW, leaving out the smaller burners (i.e., "eco burner" or "auxiliary" burner in the tables to the right in Figure 2). The user manual recommendations show that testing using only larger pot-sizes and larger burners, as prescribed by the standard, is not representative of real-life scenarios.

FIGURE 2 TO THE LEFT, TABLE PROVIDED IN STANDARD EN30-2-1. TO THE RIGHT EXAMPLE OF USER MANUALS OF 2 GAS HOBS

| Table 1 — Pan diameter and mass of water depending on the heat input of the burner | | |
|--|--|---|
| Nominal heat input of the burner kW | Internal diameter of the test pan mm | Mass of water m_{e1} to be used kg |
| between 1,16 and 1,64 inclusive | 220 | 3,7 |
| between 1,65 and 1,98 inclusive | 240 ^a | 4,8 |
| between 1,99 and 2,36 inclusive | 260 ^a | 6,1 |
| between 2,37 and 4,2 inclusive | 260 ^a with an adjustment of the heat input of the burner to 2,36 kW \pm 2 % using the method given in EN 30-1-1:2008+A3:2013, 7.3.1.2.1.1 a) | 6,1 |
| greater than 4,2 | 300 ^a with an adjustment of the heat input of the burner to 4,2 kW \pm 2 % using the method given in EN 30-1-1:2008+A3:2013, 7.3.1.2.1.1 a) | 9,4 |
| ^a If the indicated diameter (300 mm, 260 mm or 240 mm) is greater than this maximum diameter given in the instructions for use, the test will be carried out using a pan with the next lower diameter (260 mm, 240 mm or 220 mm), containing the corresponding quantity of water (6,1 kg, 4,8 kg or 3,7 kg). In that case the burner heat input will be adjusted to 2,36 kW, 1,98 kW or 1,64 kW respectively, to \pm 2 %, using the method described in EN 30-1-1:2008+A3:2013, 7.3.1.2.1.1 a). | | |

| Burner | Min pan diameter | Max pan diameter |
|--------------------|------------------|------------------|
| Multi-crown burner | 22cm | 30cm |
| High flame burner | 20cm | 26cm |
| Standard burner | 14cm | 22cm |
| Eco burner | 12cm | 16cm |

| Burner | Min pan diameter | Max pan diameter |
|--------------------|------------------|------------------|
| Ultrarapid | 24cm | 26cm |
| Rapid | 20cm | 22cm |
| Semi-rapid reduced | 16cm | 18cm |
| Semi-rapid | 16cm | 18cm |
| Auxiliary | 10cm | 14cm |

Electric and gas hobs should be tested using the same pot sizes to more accurately reflect how user cooking habits, and more importantly, to facilitate a fair efficiency comparison between technologies. The discrepancy in the existing measurement methods undermines the potential impacts of Ecodesign (and a future energy label) for hobs. The EC should prioritize this gap in the measurement method, by requiring gas and electric hobs to test their products according to Section 5 of our proposed transitional test method (in Attachment 1). We also recommend that the EC mandate the gas technical committee to update their standard accordingly.

Test on smaller pots

In addition to measurements using standard-size pots, **CLASP recommends that in addition to measurements made using standard size pots, the measurement method also includes the use of smaller pots. Those pots would be smaller than the cooking zone on an electric hob, and only slightly larger than the burner for gas hobs - close to the diameter of the flames at maximum capacity.**

This practice mirrors common cooking habits and significantly impacts product efficiency. Requiring this new test will incentivize manufacturers to innovatively improve their products' efficiency. During the Consultation Forum, some stakeholders stated that using smaller pots is an incorrect way of cooking and that a test standard should not account for incorrect cooking behaviours. However, CLASP research conducted in 8 European countries⁷ demonstrates that 62% of consumers occasionally use smaller pots (Figure 3 and 4). The energy-saving potential linked to this cooking habit can be addressed through technological improvements, as observed with induction hobs. Anecdotal evidence also confirms the use of cooking zones closer to walls, despite pot size, driven by safety concerns, further highlighting the need to account for real-life scenarios in testing methods. Other "incorrect" cooking habits, such as using varying amounts of water, cannot be rectified by existing or foreseeable technological improvements in hobs and cannot contribute to improving efficiency of the product itself.

⁷ CLASP, Unpublished, Gauging Consumer Attitudes and Policy Support for Hobs in Europe.

FIGURE 3 QUESTION ASKED IN CLASP'S CONSUMER SURVEY. # RESPONDENTS 7968 FROM 8 EUROPEAN COUNTRIES

Q: "When you cook, do you sometimes use a pot that is smaller than the flame (on a gas hob) or the cooking area (on an electric hob)?
Please see examples below for this"



FIGURE 4 62% OF THE CONSUMERS, AT LEAST SOMETIMES, USE A POT SMALLER THAN THE FLAME OR THAN THE COOKING ZONE WHEN COOKING.

■ No ■ Not sure ■ Yes many times ■ Yes sometimes

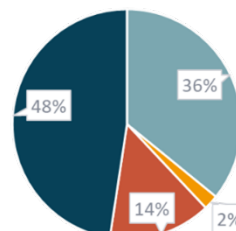


Table 3 illustrates the impact of pot size on energy consumption. Performance varies across hob technologies, whereas using a pot smaller than the required size for testing (based on input power/cooking area) can significantly (up to 35% for gas and 34% for resistive hobs) impact hob efficiency. While the original pot size for electric hobs aligns with the standard at 180mm, gas hobs require a larger size at 240 mm.

TABLE 3: IMPACT OF USING A SMALLER POT VS. LARGER POT ON THE SAME BURNER/COOKING ZONE FOR THE SIMMERING TEST WITH 3 REPETITIONS FOR EACH COOKING ZONE TESTED

| Technology | Pot material | Consumption (Wh/kg) for 180mm pot | Consumption (Wh/kg) for 150mm pot | % difference in consumption between 180mm and 150mm pots | Input power of cook zone tested (kW) | Original pot size mm |
|-------------|--------------|-----------------------------------|-----------------------------------|--|--------------------------------------|----------------------|
| Gas#1 | Al | 340 | 397 | 17% | 1.91 | 240 |
| Gas#2 | Al | 325 | 429 | 32% | 1.90 | 240 |
| Gas#3 | Al | 294 | 397 | 35% | 1.95 | 240 |
| Gas#4 | Al | 318 | 404 | 27% | 1.82 | 240 |
| Induction#1 | SS | 186 | 175 | -7% | 1.83 | 180 |
| Radiant | SS | 195 | 219 | 12% | 1.78 | 180 |
| Induction#2 | SS | 170 | 172 | 1% | 1.82 | 180 |
| Resistive | SS | 199 | 267 | 34% | 1.92 | 180 |

Pot material

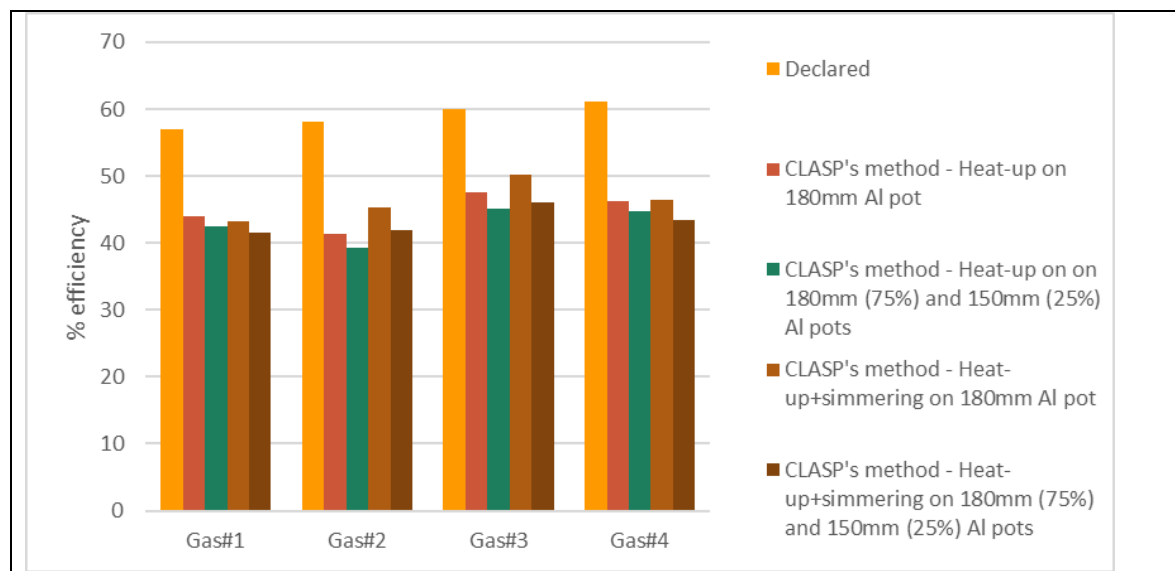
The current gas and electric hob test methods use different pot materials: aluminium pots for gas hobs and stainless steel for electric hobs. While CLASP's proposed test method aligns with this approach, we **recommend the EC mandate collaboration between the CEN/CENELEC electric and gas standards committees to establish a common material pot material for testing.**

Pot material significantly impacts hob energy performance, as gas hobs perform better with aluminium, while induction hobs require stainless steel or hybrid materials. CLASP research⁸ indicates a strong market shift towards hybrid materials. The test method should reflect what is available on the market, as well as consumer trends. We have communicated these findings to both the CEN/CENELEC electric and gas technical committees. However, we do not believe the policy should be delayed to accommodate pot material adjustments, especially considering the potential for a shorter revision timeline as recommended by CLASP.

3.2. Impact of the Comparable Test Method on Energy Efficiency

Figure 5 shows the efficiency impact of using CLASP's test method on tested burners or cooking zones. In these calculations, a smaller pot (150mm) accounted for 25% of the efficiency calculation to reflect consumer usage, while a 180mm pot accounted for 75%. Gas efficiencies were calculated using an aluminium pot, and electric efficiencies were calculated using a stainless steel pot. It is evident that for gas hobs, declared efficiencies of burners significantly exceed the results achievable with CLASP's test method. This is linked to results of the heat up and simmering tests, but also to the use of smaller pots compared to those required under the existing gas method. For electric hobs, the resistive hob exhibits the greatest efficiency impact when subject to the simmer and heat up tests with the 180 and 150mm pots.

FIGURE 5 EFFICIENCY OF HOBS BASED ON DECLARED EFFICIENCY VS. MEASURED EFFICIENCY, WITH SIMMERING AND HEAT UP TEST RESULTS.



⁸ Polaris Market Research, 2023, Europe Pots & Pans for Residential End-Use Market Analysis & Segment Forecast to 2032.

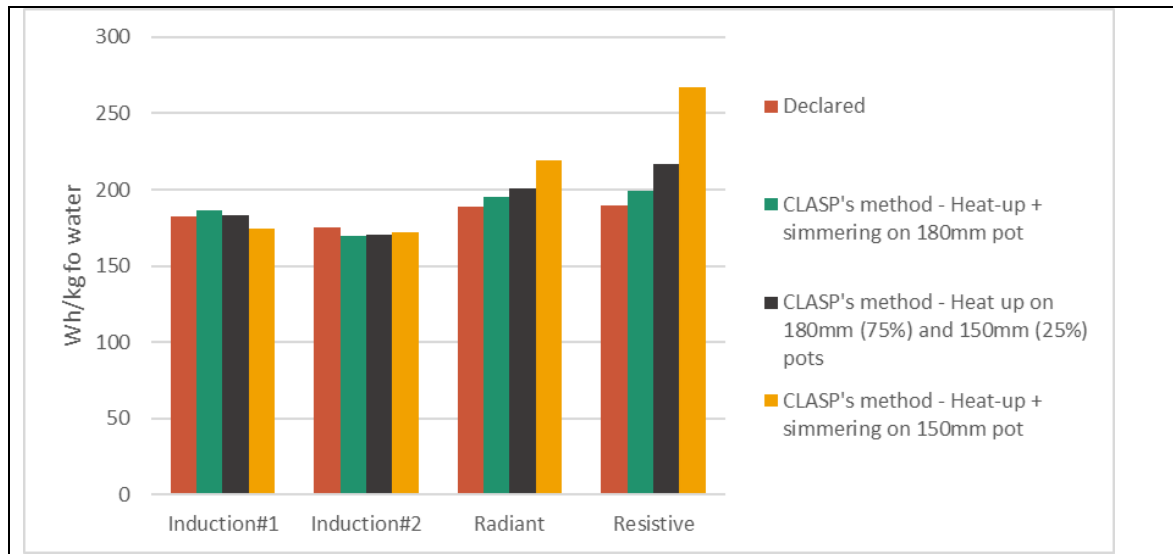


Figure 6 shows the results of the heat up test for gas and electric hobs. Electric hobs demonstrate faster heating times to reach 90°, resulting in lower final energy consumption measured in Wh/Kg of water.

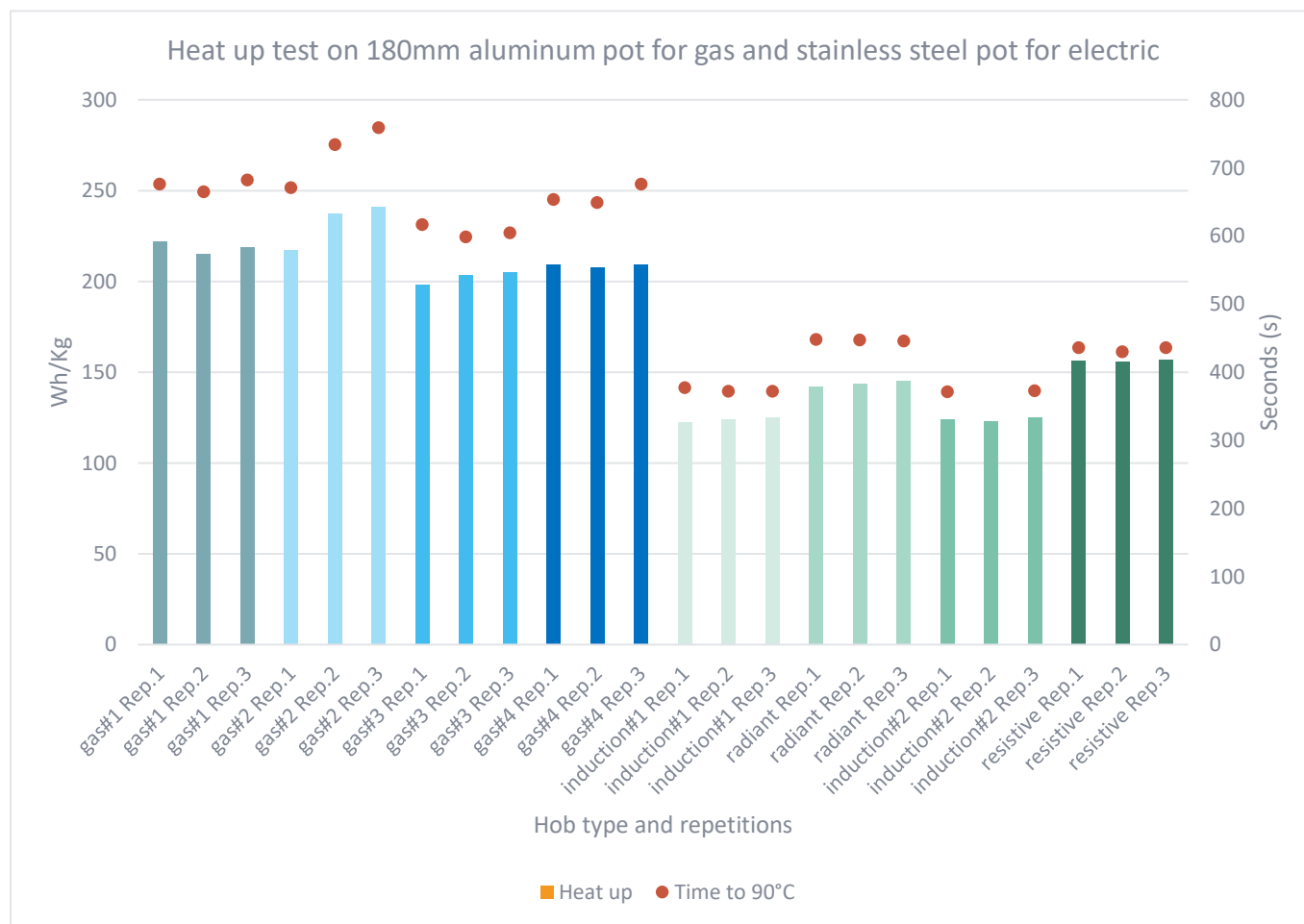
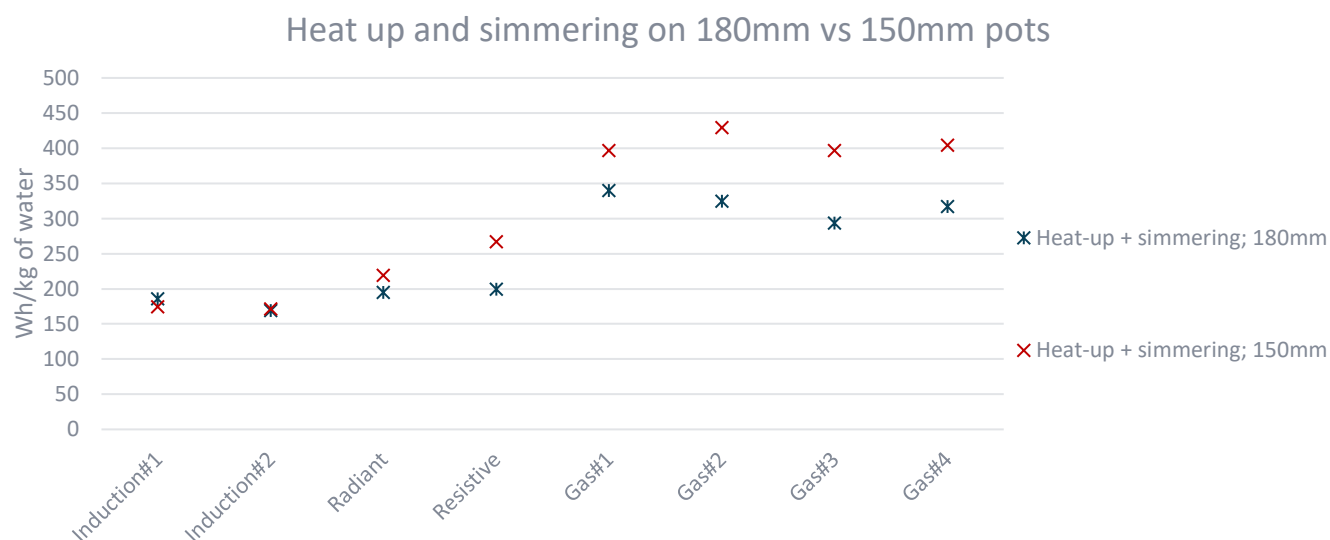


FIGURE 2 HEAT UP TEST ON AL FOR GAS AND SS FOR ELECTRIC HOBS, TESTED ON SAME SIZED POTS (180 MM)

Figure 7 provides a comparison of the impact of the heat up and simmering test results by directly comparing gas and electric hobs. Induction emerges as the top-performing technology at this stage to replicate user behaviour, using different pot sizes within the same cooking zone.

FIGURE 7 HEAT UP AND SIMMERING TEST RESULTS FOR GAS AND ELECTRIC HOBS



CLASP expects the full application of the proposed test method will significantly impact the reported efficiency of gas hobs. CLASP conducted testing on one burner each from four different gas hobs, using our proposed test method. In Table 4, we compared the results of our testing with the manufacturers' declared efficiency for that same burner. The table shows the different scenarios and calculations used to assess efficiency levels per CLASP's test method, including using different pot sizes, different tests, and a combination of test results based on expected usage (75% vs 25%). CLASP's findings reveal that, on average, declared efficiency levels for those burners were higher on average by 15% when factoring in heat up and simmering tests using 180mm and 150mm pots.

TABLE 4: CLASP TEST RESULTS SHOWING EFFICIENCY FOR ONE BURNER PER HOB, WITH DECLARED EFFICIENCY PER EN-2-1 AND PER DIFFERENT TESTS USING THE CLASP TEST METHOD (TM)

| Gas Hob # | Declared efficiency as per EN 30-2-1 of the tested burner | CLASP TM Heat-up 180 mm Al | CLASP TM Heat-up 150mm Al | CLASP TM Heat-up 180mm 75%-150mm 25% | CLASP TM Heat up and simmering test | CLASP TM – Heat up and simmering 180mm 75%-150mm 25% |
|-----------|---|----------------------------|---------------------------|--------------------------------------|-------------------------------------|--|
| 1 | 57% | 44% | 38% | 43% | 46.4% | 41.6% |
| 2 | 58% | 41% | 33% | 39% | 50.1% | 41.9% |
| 3 | 60% | 48% | 38% | 45% | 45.3% | 46.1% |

| | | | | | | |
|---|-------|-----|-----|-----|-------|--------------|
| 4 | 61.1% | 46% | 40% | 45% | 43.3% | 43.4% |
|---|-------|-----|-----|-----|-------|--------------|

Note: all samples were sold in the EU market and currently available for sale. CLASP selected hobs at different price points.

4. Recommendations for Improving Hob Energy Efficiency

4.1. Ecodesign Levels

CLASP has concerns regarding the efficacy of current Ecodesign energy efficiency requirements in driving technological improvements, particularly due to the inability to compare gas and electric hob efficiencies under both Ecodesign and Labelling. Although updating the Ecodesign requirements according to CLASP's proposed test method may take some time, as product efficiency must first be benchmarked to determine appropriate efficiency levels, it is not our intention to delay the adoption of the cooking appliance policies.

Therefore, for this current revision of MEPS, we propose the following impactful revision solutions for the EC:

1. Require gas hobs to be tested according to the existing gas test method, but using pot sizes aligned with those used to test electric hobs, per Table 1 of CLASP's test method. These test results should be used to calculate the product's energy efficiency. The MEPS level proposed in the draft Ecodesign working document (57%) could still apply. However, if no gas testing data are available under the existing test method for pots below 220mm and for input powers below 1.16kW, we encourage industry to provide data to the EC to set an acceptable limit, provided this does not result in extending the timeline of Ecodesign adoption. CLASP is also investigating this through further testing.
2. Report efficiencies of gas hobs using the same metrics as electric hobs to enable comparison in Wh/Kg.
3. Plan to revise the MEPS for gas and electric hobs, two years after the entry into force of the revised Ecodesign requirements, once sufficient information has been collected to benchmark hobs against a more representative and comparable test method.

4.2. Information Requirements

CLASP recommends introducing additional energy efficiency product information requirements for gas and electric hobs in this policy revision, for adoption by 2025, to inform a 2028 MEPS policy revision.

These information requirements, to be included in online and print instruction manuals, would be useful both for consumers in the absence of an energy label, to better understand the real efficiency of their hobs, cooking zones, and even cooking habits. This will also enable the EC to gather data in advance of the next policy review. These information requirements include the following, all based on CLASP's proposed test method:

- Time to heat up water to 90°C in all testing conditions (2 pot sizes as per CLASP's test method on each burner/cooking zone), reported in seconds.
- Energy used to heat up water to 90°C in all testing conditions (2 pot sizes as per CLASP's test method on each burner/cooking zone) in Wh/Kg of water.
- Energy used to simmer water for all testing conditions (2 pot sizes as per CLASP's test method on each burner/cooking zone) in Wh/Kg of water.

5. Introducing NO₂ Emissions Limits for Gas Hobs

5.1. Introduce a Transitional Test Method for Gas Hob NO₂ Emissions

CLASP welcomes the EC's initiative to introduce a transitional method to measure nitrogen oxides (NO_x) emissions from gas hobs. We recommend that the NO₂ measurement test method developed and proposed by CLASP (available in Attachment 1) should be used as transitional test method for the time being, to allow for a swift adoption of this regulation. It could be replaced by the test under development by CEN TC 49 as soon as it is completed, and if the European Commission deems it preferable.

CLASP's proposed test method is based on the Australian Test Method AS/NZS 5263.0:2023 which measures NO₂ emissions into the home environment, rather than the European Test Method CR 1404:1994, which measures NO_x emissions. NO_x refers to the oxides of nitrogen NO and NO₂. Both of these gases can be generated during combustion in varying proportions. NO₂ cannot be measured directly but can be calculated from simultaneous measurements of NO_x and NO. NO is less harmful to health than NO₂ but it slowly oxidizes to form NO₂. Thus, NO₂ emissions from cooking are important for their potential health impact in the home environment, whilst both NO and NO₂ (NO_x) are significant for their potential health implications in the broader environment.

Differences between the CLASP and Australian methods include the use of pure methane (G20) instead of a gas mixture, and the use of a hood entirely made of stainless steel to minimize alterations to the fume composition. We have also recommended reporting emissions in mg/h to better quantify emissions within a specific timeframe, as well as in ng/J, for easier comparison between burners and hobs. We also recommend testing for emissions on both standard and smaller pots to account for real-world conditions. CLASP has conducted tests demonstrating the accuracy, repeatability, and representativeness of the method (See Attachment 2).

6. CLASP's Recommendations for an NO₂ Limit for Gas Hobs

6.1. Ecodesign Levels

CLASP is pleased to note the inclusion of an emissions limit placeholder in the draft Ecodesign Working Document. **We propose setting a limit of 6 ng/J NO₂**, at the Qmax level using aluminium pots.

CLASP tested the same burners for NO₂ emissions (one burner for each hob) as for energy efficiency testing. CLASP's tests results in Table 5 show that the emissions of 4 out of 9 burners fall below our 6ng/J proposed limit when using a 180mm pot, and 5 out of 9 burners fall below this limit when using a 150mm pot. We believe this indicates an appropriate limit to ensure only the least polluting gas hobs enter the market. Australia has already mandated an emissions limit for domestic cooking appliances of 15ng/J, which would have no impact on the European market. Gas hob manufacturers are encouraged to share emissions data with the Consultation Forum to assist in establishing appropriate limits, and CLASP will conduct further testing to share with the EC and Consultation Forum members. Based on existing testing, we have not found any correlation between the price of gas hobs and their emission levels. Therefore, requiring stricter emission limits should not have detrimental impacts on the cost of the products or consumer purchasing decisions.

TABLE 5 NO₂ EMISSIONS TESTING RESULTS FOR ONE BURNER PER HOB, USING CLASP'S PROPOSED TEST METHOD (VALUES HAVE BEEN CORRECTED SINCE THE CONSULTATION FORUM PRESENTATION)

| EMISSIONS [Gas G 20 / pn = 20 mbar] | | | | | | Indicative Price of Hob (Euros) |
|--|----------|-------------|---------------|----------|----------|--|
| ER (Australian) ng/J | Qmax | | NO2 (mg/h) | Qmax | | |
| | 180mm Al | 150mm Al | | 180mm Al | 150mm Al | |
| Hob 1* | 4.2750 | 2.0117 | Hob 1* | 30.01 | 14.12 | 443 |
| Hob 2* | 6.4500 | 4.0800 | Hob 2* | 44.14 | 27.91 | 162 |
| Hob 3* | 4.5100 | 7.1700 | Hob 3* | 29.54 | 47.01 | 259 |
| Hob 4* | 7.1900 | 9.1200 | Hob 4* | 49.44 | 62.69 | 205 |
| Hob 5 | 6.1549 | 5.7209 | Hob 5 | 41.21 | 38.31 | 423 |
| Hob 6 | 7.3825 | 6.5670 | Hob 6 | 51.03 | 45.39 | 249 |
| Hob 7 | 5.7005 | 4.4164 | Hob 7 | 36.73 | 28.46 | 119 |
| Hob 8 | 9.1795 | 7.3872 | Hob 8 | 60.81 | 48.93 | 132 |
| Hob 9 | 5.0049 | 5.0424 | Hob 9 | 31.17 | 31.40 | 248 |

**= burners of hobs 1-4 were tested according to CR 1404, and values were converted by the testing laboratory to ng/J*

Although the Gas Appliances Regulation (GAR) (EU 30-1-1:2023) is supposed to address dangerous emissions from gas appliances, the EC Implementing Decision 2024/224 found that the GAR was failing to satisfy essential requirements regarding the safety of gas appliances and their potential to cause harmful health effects due to emissions. We believe Ecodesign is the right policy to effectively address NO₂ emissions. NO_x emission limits are already in place under 1188/2015 for solid fuel space heaters, 1185/2015 for solid fuel local space heaters, and under 1189/2015 for solid fuel boilers. This revision of Ecodesign for cooking appliances offers an opportunity to **readily act** and introduce similar limits for cooking appliances, limiting to some extent the impact on both the environment and our health:

- From an environmental perspective, NO_x emissions from gas combustion indoors can interact in unpredictable ways with other gases in the indoor and outdoor air, contributing to overall emissions in the environment.
- From a health perspective, gas cooking appliances emit harmful levels of pollutants into people's homes. Research conducted by CLASP and the European Public Health Alliance in 2022⁹ and 2023¹⁰ indicates that cooking with gas emits dangerous levels of NO₂, which is linked to various respiratory illnesses. CLASP conducted the largest indoor air quality field-based testing in Europe, covering seven countries and around 240 households, confirming that, on average, 54% of gas-cooking European households exceed World Health Organization (WHO) recommended daily levels of NO₂. In some countries (e.g., Italy) the daily levels are exceeded by over 70% of households.

Our field study also showed that pollution levels are not adequately mitigated by cooking fume extractors, particularly recirculating technologies.¹¹ Many people only turn on their hoods when cooking odours are strong or when food is burning, and regular filter cleaning is often neglected, reducing the pollutant capture efficiency of the product.¹² Furthermore, Ecodesign currently lacks pollutant capture efficiency requirements for cooking fume extractors.

Suggested revision to Ecodesign text:

1.2.2 Emission requirements for gas household hobs

~~{Placeholder for NO_x emissions;}~~ The NO_x emissions of gas hobs as calculated according to the method presented in Annex X will not be higher than ~~XX mg/kWh~~ 6 ng/l. ~~CH₄ emissions (leakage)?~~

⁹ CLASP, 2022, Exposing the Hidden Health Impacts of Cooking with Gas in the EU, <https://www.clasp.ngo/research/all/eu-gas-cooking-health/>

¹⁰ CLASP, 2023, Clearing the Air: Gas Cooking and Pollution in European Homes, <https://www.clasp.ngo/research/all/cooking-with-gas-findings-from-a-pan-european-indoor-air-quality-field-study/>

¹¹ CLASP, 2023, Clearing the Air: Gas Cooking and Pollution in European Homes, <https://www.clasp.ngo/research/all/cooking-with-gas-findings-from-a-pan-european-indoor-air-quality-field-study/>

¹² CLASP, Unpublished, Gauging Consumer Attitudes and Policy Support for Hobs in Europe.

6.2. Information Requirements for NO₂ Emissions

In the absence of an energy label, CLASP recommends adding NO₂ emissions-related product information requirements for gas hobs, based on CLASP's proposed test method (or a test method proposed by CEN/CENELEC and approved by the EC). The information should include:

- NO₂ emissions, reported in ng/J to allow users to understand how their hobs perform in all testing conditions (each burner and two pot sizes).
- NO₂ emissions, reported in mg/h to allow users to understand that amount of NO₂ emitted into their space per hour in all testing conditions (each burner and two pot sizes).

7. Other Emissions (Methane Leakage and Carbon Monoxide)

At this stage, CLASP lacks sufficient evidence to justify including stricter leakage and carbon monoxide (CO) requirements, beyond those included in the GAR. Our laboratory tests, conducted according to standardized methods, have not shown substantial issues with leakage and CO emissions. However, other research based on testing in real-world conditions has evidenced issues with CO and proved that gas hobs leak methane during combustion and non-combustion phases (when the burners are not in use). While leaks linked to the connections and installations represent higher volumes than those happening at the level of the hob, they nevertheless represent additional consumption for the users and additional GHG emissions that should be taken into account in the information presented to consumers, as well as when evaluating the impact of potential policies.

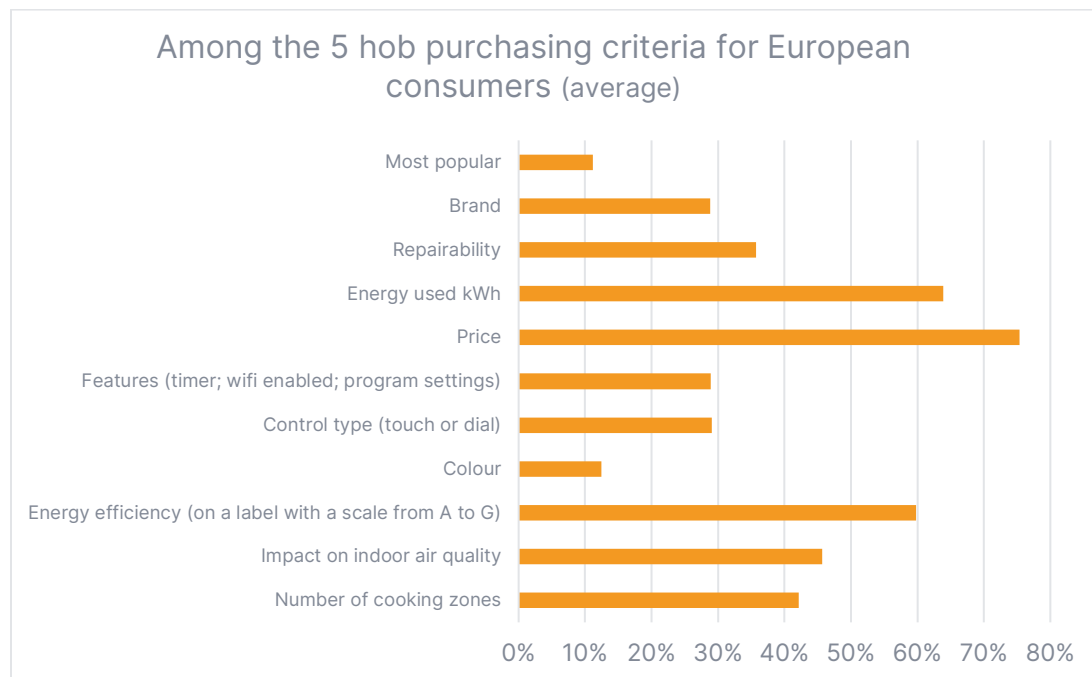
We recommend the EC explore this in the next revision of the regulation, if gas hobs continue to have a strong presence on the market.

8. CLASP's Recommendation on an Energy Label for Hobs

CLASP recommends that the EC consider an Energy Label for hobs in the next policy revision. As outlined above, we recommend that the EC deliver a report to the Consultation Forum by mid-2028 with updated information on the efficiency of gas and electric hobs, as well as emissions from gas hobs, based on a common and representative test method. Our research shows that consumers want to be able to compare the efficiency of gas and electric hobs with an energy label (60% Figure 8). On average, after price, energy use and energy efficiency rank as the second and third among the top 5 purchasing criteria chosen by consumers¹³.

¹³ CLASP, Unpublished, Gauging Consumer Attitudes and Policy Support for Hobs in Europe.

FIGURE 8: Q: IF YOU WERE TO BUY A NEW GAS OR ELECTRIC HOB EITHER IN A SHOP OR ONLINE, WHICH INFORMATION WOULD BE MOST IMPORTANT TO YOU TO INFORM YOUR DECISION? PLEASE RANK THE 5 MOST IMPORTANT THINGS FOR YOU.



The label would also be an ideal vehicle to display pollutant information to consumers. In the longer term, information on emissions should be incorporated into the Digital Product Passport under the Ecodesign for Sustainable Products Regulation.

9. Comments on Household Cooking Fume Extractors

There is currently no requirement or labelling indicator that promotes efficient pollutant capture by cooking fume extractors, while over a quarter of consumers believe that their fume extractor fulfils this function. CLASP supports Denmark's positioning on fume extractors and that they should also be effective in capturing pollutants.

Although we welcome the EC's proposal to address gas pollution on the energy label for cooking fume extractors, the currently proposed icon may be confusing to users and potentially lead them to turn off their extractor when cooking with gas. We recommend further exploring this icon to ensure that it is easy to understand and provides users with the accurate guidance when purchasing a cooking fume extractor.