Rialtas na hÉireann
Government of Ireland

Market Assessment

Solid Fuel Regulations
Sulphur Limit
2025

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Summary of Market Assessment (MA)			
Department:	Department of the Environment, Climate and Communications		
Title of Legislation:	AIR POLLUTION ACT 1987 (SOLID FUELS) REGULATIONS 2022		
Stage 1	For stakeholder engagement	Date: 09/12/2024	Consultation Completed January 2025
Stage 2	For review and decision	Date: 27/01/2025	Reviewed internally
Stage 3	Draft finalised for submission to the Minister	Date 27/02/2025	
Related Publications	SEAI Energy Balance 2024		
Available to view at:	n/a		
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1 Executive Summary

The Government and the Department of the Environment, Climate and Communications are committed to ensuring ongoing improvements in air quality across Ireland. This is reflected in the Programme for Government, the National Air Pollution Control Programme (NAPCP) and the Clean Air Strategy (CAS).

The burning of solid fuels in the home is a large contributor to our national emissions of particulate matter, sulphur and other pollutants, and it creates additional localised air pollution issues during the heating season.

Detailed historic maps of air pollution levels across the country are now available at https://www.airquality.ie/annual-maps

Much progress has already been made over the years in this area since the introduction of minimum standards for solid fuels culminating in the current Air Pollution Act 1987 (Solid Fuels) Regulations 2022.

While it is still too early to definitively assess the impact of the regulations, early indications are that they are having a positive impact on air quality.

However, it should also be noted that there is no safe level of air pollution, so it is important that we continue to work towards reducing our emissions in line with targets set out in the Clean Air Strategy and the revised Ambient Air Quality Directive.

2 Introduction

The current Air Pollution Act 1987 (Solid Fuels) Regulations 2022 (S.I. No. 529/2022) set specific technical standards for a number of solid fuels under Regulation 5 as set out below.

Requirements for approved solid fuel

5. (1) Solid fuel to be considered an approved solid fuel must conform with the requirements specified in the following paragraphs.
(2) Coal products and manufactured solid fuels must have a smoke emission rate of less than 10 grams per hour.
(3) Manufactured part biomass products must have a smoke emission rate of less than 5 grams per hour.
(4) Coal products and manufactured solid fuels, including manufactured part biomass products, must have sulphur content —

(a) less than 2% by weight on a dry ash-free basis, and

(b) subject to a market assessment, with effect from 1 September 2025, have sulphur content less than 1% by weight on a dry ash-free basis.

(5) Fuel products which are 100% biomass products, including wood products and wood logs, supplied in units of two cubic metres or less, must have a moisture content of —

(a) less than 25%, and

(b) with effect from 1 September 2025, less than 20%.

(6) Wood logs supplied in units of more than two cubic metres shall be accompanied by a notice containing the statement specified in Schedule 1.

Regulation 5 (b) states that a reduction in the allowable sulphur content from 2% to 1% by weight on a dry ash free basis from the 1st of September 2025 is subject to a market assessment.

To inform this market assessment, the Department contacted all producers of manufactured solid fuels in December 2024 to get feedback from that sector regarding the technical feasibility and potential consequences of moving to the 1% sulphur content level.

3 Solid Fuels and Air Pollution (emissions of SO_2)

The burning of solid fuels in the residential sector creates a number of pollutant emissions such as particulate matter, sulphur, PAHs, nitrogen oxides and black carbon. The amount of each pollutant released into the air is dependent upon the type and quality of the fuel, the type and maintenance of appliance, and householder practices.

In Ireland, there has been a 95% reduction in sulphur dioxide (SO_2) emissions between 1990 and 2019, largely due to the reduction in sulphur emissions generated by power stations.

The residential sector accounted for 57.28% of the 2022 total sulphur emissions, down by 42% from its 2010 level. This can be attributed to reductions in the use of solid fuels, greater use of oil/gas, increased regulation of solid fuel quality and improved energy efficiency of homes.

These figures refer to aggregate emissions across the entire State. However, the level of air pollution in any given location, and the related health impacts, will depend on the amount and type of residential solid fuel burning taking place locally or regionally. This is observed via the network of ambient air quality monitoring stations. There are 15 stations across the country which monitor sulphur dioxide (the full list is available in Annex 1).

The EPA report "Air Quality in Ireland 2023"[1] (published in September 2024) confirms that, there were no exceedances of the current EU limit values of the sulphur dioxide which is most commonly associated with solid fuel burning. However, though not legally binding, values for this pollutant was above the WHO guideline level and the new AAQD limit, at one station, Letterkenny, as outlined in Table 1.

Table 1: Sulphur Dioxide in 2023 compared to EU legal limit values and WHO guidelines (EPA, 2024)

Pollutant	Number of stations where monitored 2023	Current EU legal limit values (New AAQD)	WHO Air Quality Guideline (AQG) level
Sulphur dioxide(SO_2)	15	No exceedances (1 exceedance)	Above WHO AQG value at 1 station

[1] https://indd.adobe.com/view/5d24bd05-d1ac-43d1-abf6-facf243e6ad7

As already stated above, there is no safe level of air pollution. However, the air quality monitoring network results indicate that Ireland does not have a particular issue with SO_2 outside of one local area.

3.1 Regulations

The first regulations on the Marketing, Sale, Distribution and Burning of Specified Fuels (informally and colloquially known as the ‘smoky coal’ ban) were introduced in the 1990s. The regulations first applied in Dublin and were gradually extended across the country with modifications made to the regulations over time.

Up to 2022, the regulations prohibited the marketing, sale, distribution and burning of specified fuels in localised areas known as ‘Low Smoke Zones’, which covered approximately 50% of the population. Additionally, bituminous coal which was sold outside of a low smoke zone was required to have a sulphur content not greater than 0.7% by weight on a dry ash-free basis.

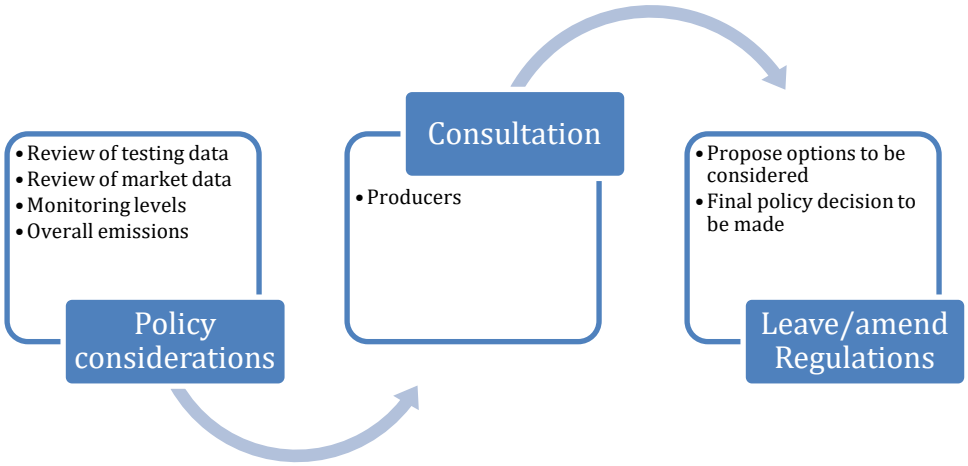
The current regulations, introduced in 2022 sought to move from the low smoke zone approach and instead set technical standards for solid fuels across the entire state and proposed the possibility of introducing reduced limits for sulphur content in certain fuels from 2025.

Testing of fuels for compliance with the Regulations is undertaken by individual local authorities and separately a national testing campaign took place in mid-2024.

The results of the above testing indicated that there are high levels of non-compliance with the existing 2% sulphur limit across a wide range of fuel products available on the market.

4 Market Assessment Process

The Department undertook this market assessment using the following methodology.

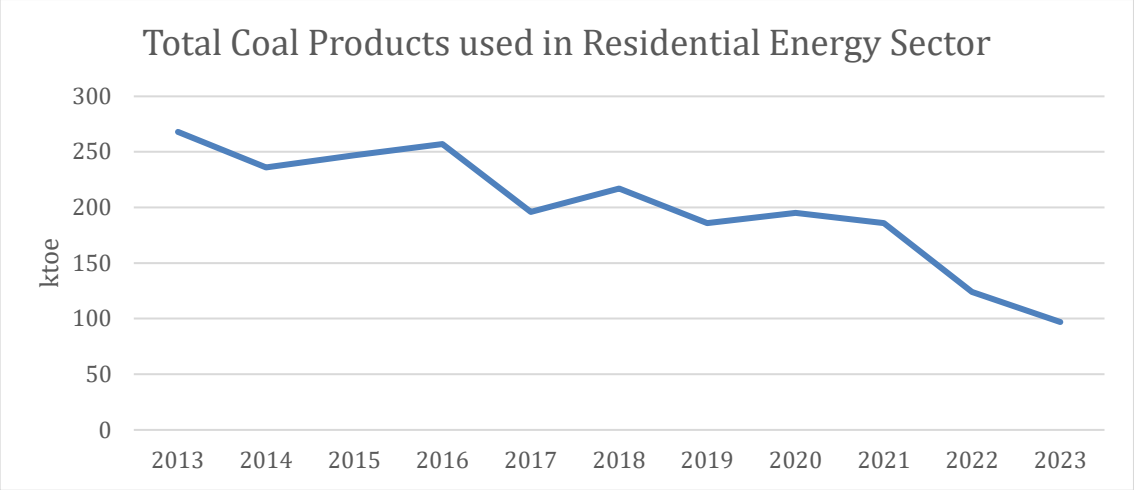


4.1 Policy Considerations

4.1.1 Review of Market Data

Data on energy consumption by fuel type for the residential sector is prepared each year by the SEAI and published in the national energy balance[2]. Over the past ten years, since 2013 total use of coal products for residential heating has reduced by approximately 64%. As such it seems that the use of coal/ coal-based products for domestic use has decreased significantly over time. This is likely related to improvements in energy efficiency in the homes, improvements in the efficiency of solid fuel burning appliances and increased use of other heating sources within the home as well as the application of the solid fuel carbon tax (SFCT).

[2] https://www.seai.ie/data-and-insights/seai-statistics/key-publications/national-energy-balance

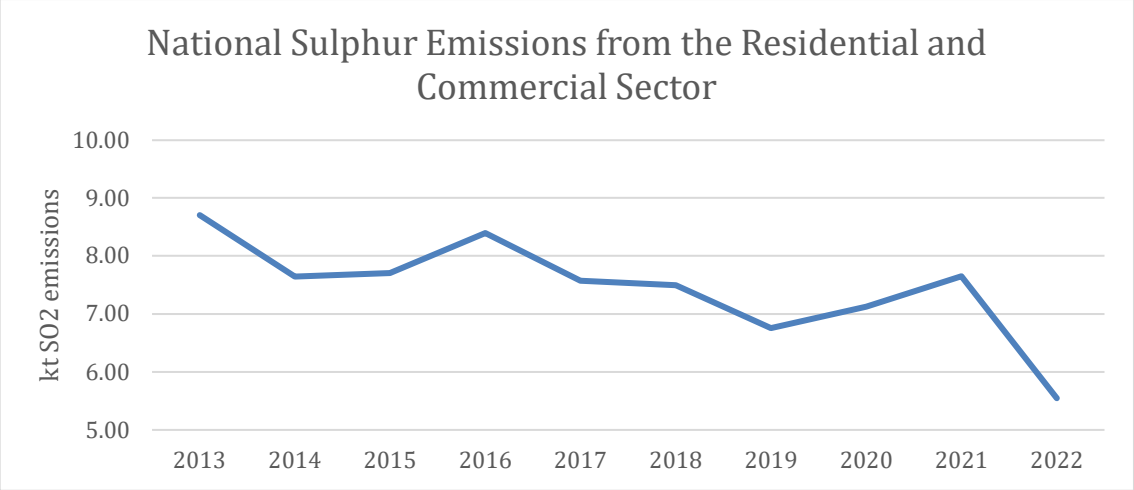


Of course, the above data does not capture any 'grey market' (non tax compliant) trade in coal-based products, it is not possible to get accurate or reliable data on the potential levels of this contribution to overall coal use, given the nature of the type of trade.

4.1.2 Overall emissions levels

The EPA prepare an inventory report[3] of Ireland's national pollutant emissions for a range of pollutants each year, including sulphur. These are national totals based on activity levels and are not the same as data captured at monitoring stations. Overall sulphur dioxide levels have decreased by approximately 60% between 2013 and 2022[4], and by 36% from the residential and commercial sector over the same period. This decrease can be linked to the overall reduction in the use of coal-based products within the sector. However, it is important to note that other home heating fuels also contribute to sulphur emissions and that the emissions figure includes sulphur emissions from the non-residential (commercial) sector (less than 2%) .

[3] https://www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/irelands-unece-submissions-2024.php
[4] Latest data available, 2023 data will be available from April 2025.



4.1.3 Monitored sulphur levels

The EPA manages the network of ambient air quality stations across the country. There are 15 stations across the country that monitor the local levels of sulphur dioxide. The data was examined for these stations from 2020 to 2023.

No exceedances of our current EU legal limits were observed in the period 2020-2023. The data was separately assessed against the most stringent WHO air quality guideline limits, which are not legally binding but reflect the targets Ireland has committed to achieve by 2040 as per the Clean Air Strategy. There is a recommended daily limit but no recommended annual average.

The analysis as set out in the table below, shows that while the number of days exceeding the WHO AQG limit for sulphur dioxide across the network has reduced significantly since 2020, levels in Letterkenny remain of considerable concern.

Table 1: Stations with days in exceedance of the WHO AQG sulphur dioxide levels (no of days) 40 ug/m3)

2020	**2021**	**2022**	**2023**
Dublin Port (2) Winetavern Street (12) Ennis (6) Cobh (1) Letterkenny (38)	Ennis (1) Letterkenny (12)	Letterkenny (5)	Ennis (1) Letterkenny (19)

4.1.4 Review of Testing Data

Local authorities have responsibility for enforcement of the solid fuel regulations. Over the last few years many local authorities have sampled and tested coal and manufactured solid fuel products to determine compliance with the sulphur limits as set out in the regulations. Many of these were just indicative tests carried out at a non-accredited laboratory while some were tested at a fully accredited laboratory.

In 2023, the Department requested that the local authorities submit their tests results for the past few years to get an overall indication of compliance levels with the regulations. From the unvalidated data provided it appears that about 63% of the 392 samples were above the 2% limit and 65 samples were above 3.5% sulphur content.

In 2024 in addition to local authority testing, the Department decided to carry out a national sampling and testing campaign, with 150 samples taken across the country and tested in an accredited laboratory.

From that testing, 88% of samples were found to be over the sulphur limit of 2% with 17% samples above 3.5% sulphur content.

Following on from that programme, letters of the results were sent to all producers whose products were tested and all retailers from where product was sampled. The results were also sent to the local authority for further follow up action.

The Department is now in the process of carrying out another sampling and testing programme in the coming months to assess if there has been an improvement in compliance levels.

5 Stakeholder Consultation

The Department sought feedback from the sector to determine what market conditions the sector thought should be considered in relation to the proposed 2025 limit of 1% sulphur and invited all interested stakeholders to provide detailed feedback to help with this assessment. 11 responses were received by the deadline of the 20th of January, with one additional response received on the 21st of January which has also been considered.

The following three questions were set out in the consultation document and a summary of the responses is provided below.

5.1.1 Should the limit of 2% be reduced to 1% in September 2025?

The responses to this question largely depended on whether or not the respondent was:

- directly involved in the production of products to which the limits apply, who would prefer that the limit remains at 2%; or
- producing other fuel types not affected and would prefer that the limit be reduced to 1% or that a complete ban on sulphur content would apply.

5.1.2 What evidence or information can you provide to support this answer?

The main feedback received was a concern of the lack of availability of the materials required to make low smoke products that would also meet the sulphur limits.

Overall, respondents commented that the 2% limit is already proving a challenge for the legitimate trade to achieve which is reflected in the test results outlined above.

The respondents cited that the main reason for this is related to difficulties in sourcing the raw materials with low enough sulphur to ensure that the products meet the 2% sulphur limit while also meeting the smoke emissions rates set out in the legislation. There is concern that bituminous coal would be used to reduce the sulphur content which would lead to an increase in the smoke emissions from the product.

It was stated that there is '*no economically viable 1% raw material available in Europe'* as there is competition from other sectors such as smelting operations for low sulphur product. *'What we mean by this, the 1% sulphur Material is approx. 150-200USD more expensive.'*

Another stated that ‘a*nthracite can be sourced at 1%, but this product will not burn on a domestic appliance and can only be added to petcoke in small volumes. Lignite can also be added as it has a low sulphur content, but again it is in short supply due to only 1 producer being left in Europe.*

5.1.3 What are the potential impacts of a change to 1%?

One of the main concerns is that ‘f*or those of us in legitimate trade, and who strive to meet the limits set, it will simply mean that more of our business goes to those who make no effort at all to meet the sulphur limit and will result in dramatic increases in sulphur emissions from solid fuel, which has the opposite impact of that intended.’*

Many of the respondents also noted that the use of solid fuel is still important, particularly for rural areas especially when electricity supply is compromised, for example during storms and people have no alternative to heat their homes.

The increase in the number of storms and the impact on supply chains was also noted where ‘*the market producers have reduced greatly in recent years and no existing producer can afford to hold significant stocks to see through periods of maximum demand or exterior shocks (War or Storms).’ And ‘with climate change creating havoc with supply routes and the need to ship material of this nature from South America (for example) then there could be large delays in the supply chain’*

Fuel poverty was also mentioned as a key concern, where those who have no alternatives to solid fuel from a cost perspective may be unduly penalised from an increase in the price of coal products.

At present the sulphur limit is the same in Northern Ireland and the rest of the UK, however a change to the limits between jurisdictions could lead to increased issues around enforcement and assessment of compliance.

Finally, another key possible impact was on the increase in the cost of fuels and how that would lead to greater disparity between jurisdictions where there are lower VAT rates and no carbon tax being applied. It was feared that this may lead to an increase in non-compliant low-cost product coming into the state from other jurisdictions.

6 Summary of Assessment

In general, the key issues arising can be summarised into the following key points.

From the feedback from the sector, it is clear there are concerns regarding the following issues,

- Meeting current 2% limit is already a challenge.
- Changing the sulphur content may lead to increased smoke emissions
- Availability of raw materials
- Increased instances of non-compliant product on the market
- Possible issues with security of supply and the need to ensure availability of compliant solid fuel products where energy security is a concern with increased number of storms and power outages in rural areas.
- Having a different sulphur limit to Northern Ireland increases enforcement issues and could increase supply of non-compliant material from outside the State.
- Cost of raw materials – no economically viable 1% material available in Europe
- The impact of potential increase prices to the consumer and potential for increasing fuel poverty

While a significant contributor, coal based solid fuels are not the only contributor to sulphur levels and it is not clear that the move to a 1% sulphur limit would have a measurable impact on air quality at the local level.

Overall, the national emissions of sulphur dioxide are significantly reduced and the evidence from the monitoring network does not demonstrate widespread levels of exceedances above the WHO recommended guideline levels across the monitoring network, with the exception of (i) Letterkenny in Co. Donegal and (ii) possibly an emerging issue in Ennis in Co. Clare.

In addition, overall levels of emissions of sulphur from the residential sector have reduced by over 40% in the last 12 years as use of coal based solid fuels is decreasing across the country with many producers shifting to alternative biomass and wood-based products which have much lower sulphur emissions.

Surveillance and enforcement of compliance with the existing limits needs to be strengthened and enhanced and the outcome of the next round of testing will be a key indicator if compliance with the existing 2% level is increasing.

7 Recommendation

Assessment

The Department notes that there are no safe levels of air pollution and that there is no solid fuel that is completely emission free. All solid fuel burning produces pollutants, however the amount released depends on the fuel type and the appliance it is being burned in.

To ensure continuous improvements in air quality, it is important that we continue to develop measures that ensure reductions in emissions from solid fuels which will be necessary to achieve the ambition set out in our Clean Air Strategy to improve health outcomes.

This assessment indicates that at present it is not clear that moving to a 1% sulphur limit will significantly improve air quality at the local level where the monitored results are of concern due to the prevalence of non-compliant products. In fact, the sector has flagged the possibility of an increase in other pollutants which may result from changes to production methods to meet the proposed new limit. Other concerns include those set out above in section 6.

Other considerations

Ireland is currently preparing for the transposition of the EU Ambient Air Quality Directive (EU 2024/2881), which sets more stringent legal limits for all pollutants compared to the current CAFÉ Directive and will involve the implementation of new actions and measures to reduce air pollution from the residential sector.

The Department is also preparing amendments to the Air Pollution Act, to support enhanced enforcement powers for local authorities and greater scope for the introduction of local measures to reduce air pollution in areas of concern.

Recommendations

Given the levels of non-compliance with current sulphur levels noted in this report, it is essential that there be an increase in sampling and testing activity to better assess overall compliance levels with the existing standards and that any non-compliances are dealt with quickly and effectively.

Special additional support should be given to Donegal County Council to address the specific issues arising in Letterkenny. The Department has supported a specific pilot project

in the area in 2024 and is awaiting the final report to determine what extra resources and supports will be required to see sustained reduction in the sulphur levels in that area.

Given the potential issues of access to raw materials and security of supply, increased cost to the consumer and the potential for fuel poverty, the potential for the measure to actually increase smoke emissions and given that the overall reduction of sulphur emissions from the sector of the market, it does not seem justified or practical to reduce the sulphur limit given that is expected to have an extremely limited impact upon localised sulphur emissions.

In light of the potential negative consequences and potential for very limited improvements that would result from the reducing the sulphur content of coal, it is recommended that the 1% limit is not be introduced in September 2025. However this matter should be assessed again in 2030, if not before, particularly if there are any significant changes in the levels of sulphur monitored across the country which are related to solid fuel burning.

8 Next Steps

Subject to the Minister's approval, the Department will amend the current regulations and change the proposed introduction date from 1st September 2025 to the 1st September, 2030, subject to another market assessment.

All relevant producers will need to be informed of the changes to ensure that they can make appropriate purchasing decisions in advance of the next heating season.

9 Annex 1

List of stations where sulphur dioxide is measured.

1. Dublin Port
2. Dublin Airport Authority
3. Rathmines
4. Ringsend
5. Winetavern Street
6. Munster Technological University
7. Cork South Link Road
8. Portlaoise
9. Dundalk
10. Ennis
11. Askeaton
12. Cobh
13. Edenderry
14. Kilkitt
15. Letterkenny