

The Regulation of Smoky Fuels in Ireland: Assessing Options for Reform

**A Report to Asthma Society of Ireland
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1.0 Executive Summary

Air pollution is estimated to cause more than 1,000 premature deaths per year in Ireland. It is also estimated to cost in the region of €2 billion per year, including the burden on the health service and lost productivity. The vast majority of deaths are linked to particulate matter (PM) of less than 2.5 micrometres in diameter (PM_{2.5}). The primary source of PM pollution in Ireland is the burning of solid fuels for heating in a residential setting.

This report sets out the development of regulations on fuel use to date and assesses the legal validity of three potential avenues of reform: (1) a nationwide prohibition on bituminous coal; (2) a nationwide prohibition on smoky fuels; and (3) roll-out of the existing Low Smoke Zones. In addition, preliminary observations are made as to the likely impact of each reform on health, climate, and social justice in the context of a just transition.

A prohibition on the sale and use of bituminous coal was introduced in 1990 in Dublin to alleviate smog. The prohibition has been extended to other urban areas in the intervening decades. Approximately 50% of the population now resides within the geographic scope of the existing restrictions on bituminous coal and other specified fuels (Low Smoke Zones). Enforcement of the regulations is delegated to local authorities with oversight from the Environmental Protection Agency.

Reform (1) has been the preferred option for some time. However, due to threats of legal action from industry bodies, its introduction has been delayed. Additionally, recent scientific evidence reveals that other smoky fuels, including peat, wood and biomass, emit similarly harmful levels of PM_{2.5} as bituminous coal. In light of both of these developments, this report assesses the three potential reforms in terms of enforceability and compatibility with European Union (EU) law on the free movement of goods and competition.

Reform (3) might appear least problematic given the existing model has yet to face challenge. However, higher concentrations of air pollution may occur in areas with lower populations due to local factors. Additionally, distinguishing bituminous coal from other solid fuels is no longer justified in light of recent understanding.

Other significant problems with the existing regime include that prohibited fuels may be sourced from elsewhere for use within Low Smoke Zones and that air pollution may migrate from other areas. Reform (3) may mitigate existing issues with enforcement but Reform (1) would mitigate them further and Reform (2) would negate them entirely. Therefore, Reform (2) is found to be most acceptable in the enforcement context.

Crucial to both areas of EU law considered is the principle of proportionality. This principle provides a means of assessing the legitimacy of interference with fundamental freedoms of the EU, which have as their aim the facilitation of a single market. Any policy found to be a disproportionate means of achieving its purported objective will be invalid, and therefore unlawful.

Each of the proposed reforms will necessarily interfere with the free movement of goods. Both the 'protection of life and health of humans' and 'protection of the environment' are legitimate objectives that may justify restrictions on trade. Policy-makers must ensure that any reform is part of a seriously considered policy by engaging with relevant experts, conducting appropriate studies and ensuring coherence with other measures. Where a measure less restrictive on trade is likely to be as effective that will invalidate the more restrictive measure. Reform (2) is likely most acceptable in this context.

Competition law seeks to protect consumers from distortions of the market. As semi-State bodies, including Bord na Móna and Coillte, would likely benefit from reform (1), the State may be considered to be abusing a dominant position in the market. Reform (1) is least acceptable, while reform (2) is most acceptable in this context.

The constitutional right to life, and the recently recognised right to ‘an environment consistent with the human dignity and well-being of citizens at large’, place policy-makers under significant obligations to implement effective air quality measures. Further, both EU law and the World Health Organization call for precaution where there is uncertainty as to the precise impact of solid fuel burning on human health.

Any wide-scale change in fuel use is likely to have several impacts on the environment, including greenhouse gas emissions. Policy-makers must be cognisant of the climate and biodiversity crises, including the State’s related legal obligations.

Income-level is the primary influencing factor in fuel choice. Policy-makers must ensure that reforms do not perpetuate or exasperate fuel poverty. Additionally, changes in the regulation of fuel use will impact people employed in these industries. Policy-makers must ensure a just transition for both those dependent on smoky fuels for heating and those employed in these industries in a manner that does not promote dependency on other fossil fuels.

Reform (2) is most acceptable in the contexts of health, climate and social justice. However, particular caution should be exercised to ensure a just transition. This will likely include compensatory measures, which is consistent with the requirement that reform be part of a seriously considered policy.

Reform (2), i.e. a nationwide prohibition on smoky fuels, is found to be most acceptable on each ground considered. This is for the following reasons:

- (i) a geographically limited model poses significant obstacles to effective enforcement and disregards the fact that concentrations of air pollution may be influenced by factors other than population density;
- (ii) other smoky fuels emit similarly harmful levels of PM_{2.5};
- (iii) no other approach is likely to be as effective in pursuit of the objective of protection of human health and life, therefore, only this approach can be justified in restricting the free movement of goods;
- (iv) the prohibition of only one harmful fuel would be an unjustifiable distortion of competition;
- (iv) any other approach would not effectively vindicate the right to health of all those resident in the State;
- (v) other approaches would encourage the continuing use of environmentally harmful fuels and thus be inconsistent with the State’s climate and biodiversity obligations;
- (vi) as those on lowest income and those most rurally isolated are most dependent on smoky fuels they are disproportionately exposed to the health impacts of those fuels.

2.0 Introduction

2.1 Introduction to the Asthma Society of Ireland

The Asthma Society of Ireland (ASI) is ‘the national charity dedicated to empowering Ireland’s 380,000 people with asthma to take control of their asthma by providing them and their families with information, education, services and support’.¹ According to the ASI, it is ‘focused on representing people with asthma and working to improve their health outcomes’.² Further, according to the organisation, the ASI ‘advocate for the implementation of strategies and initiatives that benefit people with asthma, and speak out against any change in policy that will negative impact on their rights, health or well-being’.³ In its *Strategy 2015-2020: Vision 2020* the ASI notes that it seeks to ‘influence society and government’ and that one of its ‘2020 Goals’ is to ‘lead the way in understanding the challenges faced by people with Asthma in Irish Society and influence government and society for change’.⁴ Among other activities, the ASI have advocated on issues related to the health impacts associated with air pollution. In the ASI’s 2019 pre-Budget submissions to the Irish government the organisation outlined a number of concerns, including noting that ‘the Asthma Society welcomes the Government’s intention to introduce a national ban on smoky coal... However, we are concerned about emerging research which shows that solid fuels like wood and peat are also high in PM_{2.5} omissions’.⁵ The ASI’s General Election Manifesto 2020 then advocated that the incoming Government should ‘protect the right of Ireland’s residents to clean air’ and recommended that in order to achieve this the Government should, *inter alia*, ‘phase out the sale and use of smoky solid fuels’.⁶ As such, the ASI has asked University College Cork School of Law’s Environmental Law Clinic (hereinafter ‘the Clinic’) to examine the legal issues related to the implementation of restrictions on smoky fuels in Ireland.

2.2 Scope of Study

The ASI has asked the Clinic to investigate the legality of potential restrictions on the sale and use of smoky fuels including potential legal obstacles to restricting fuel use. The ASI are concerned about potential issues of social justice which may be associated with restrictions on fuel use and so have asked the Clinic to investigate these issues. These areas are the focus of the examination in the following report. In addition, this report also addresses some issues which are not of direct concern to the ASI such as the climate change context associated with smoky fuels.

2.3 Overview of Report

The Clinic has produced an evidence-based report to fulfil the Asthma Society of Ireland’s request. This report identifies three potential policy pathways which are available to the Irish authorities in amending Ireland’s legal relationship with smoky fuels. These comprise:

¹Asthma Society of Ireland, *Our Strategy*. Available online at: <https://www.asthma.ie/about-us/who-we-are/our-mission>.

²Asthma Society of Ireland, *Our Strategy*. Available online at: <https://www.asthma.ie/about-us/who-we-are/our-mission>.

³Asthma Society of Ireland, *Advocacy*. Available online at: <https://www.asthma.ie/about-us/what-we-do/campaigns-advocacy/advocacy>.

⁴Asthma Society of Ireland, *Strategy 2015-2020: Vision 2020*. Available online at <<https://www.asthma.ie/about-us/who-we-are/our-mission>>. See also:

https://www.asthma.ie/sites/default/files/files/document_bank/2018/Feb/Asthma%20Society%20of%20Ireland%20Strategy%20Vision%202020.pdf. For more information about ASI’s Vision 2020 see: <https://www.asthma.ie/about-us/who-we-are/our-direction/our-strategy>.

⁵Asthma Society of Ireland, *Let Me Breathe: Pre-Budget Submission 2019* (2019), page 15. Available online at <https://www.asthma.ie/sites/default/files/files/document_bank/2018/Jul/ASI%20-%20Pre-Budget%20Submission%202019%20%282%29.pdf>.

⁶Asthma Society of Ireland, *Our #AsthmaMatters Manifesto 2020*, 2020, Point 6, Infographic. Available online at <<https://www.asthma.ie/our-asthmamatters-manifesto>>.

- i) Implementing a nationwide prohibition on bituminous coal;
- ii) Implementing a nationwide prohibition on smoky fuels; or
- iii) Implementing a roll-out of low smoke zones.

This report analyses these three policy pathways and their associated considerations; and makes conclusions in terms of which policy options would be the least acceptable, moderately acceptable or the most acceptable. In publishing this report the Clinic seeks to support the ASI in its advocacy work related to air pollution in Ireland and to identify potential policy options for reform in this area.

3.0 Air Quality Legislation

3.1 Introduction

Human-kind has been associated with fire and smoke for millennia. It has long been known that a smoky atmosphere needs ventilation; otherwise negative consequences such as restricted breathing or ultimately morbidity may ensue. Where human populations are low and spread apart, ventilation is possible with ease. However, higher density living and conurbation can restrict adequate ventilation.

London, for example, has suffered poor air quality events for many hundreds of years.^{7,8,9} The city suffered the so-called 'Great Smog' in December 1952. On that occasion, smog (a combination of smoke and fog) covered the city for five days resulting in thousands of deaths, directly and indirectly^{10,11}.

The United Kingdom (UK) Clean Air Act 1956 was enacted primarily as a result of this event. Subsequent European Union (EU) Air Quality Directives, and the Irish Air Pollution Act 1987, have built upon both the regulatory knowledge acquired under the early UK Clean Air Acts; and the more recent developments in air quality analytical techniques and human epidemiology.

3.2 UK Clean Air Acts 1956 and 1968¹¹

The UK Clean Air Acts 1956 and 1968, whilst fundamentally born out of a pressing need to prevent the re-occurrence of smog in built up areas, did for the first time in these islands introduce the concepts of: dark smoke and dust control; smokeless fuel; smoke control areas; and authorised fuels. The key features of the 1956 Act are listed below:

- Section 1(1) of this Act states that, 'Subject to the provisions of this Act, dark smoke shall not be emitted from a chimney of any building, and if, on any day, dark smoke is so emitted, the occupier of the building shall be guilty of an offence.'
- Section 2 identifies temporary exemptions, whilst Section 3 states the 'Requirement that new furnaces shall be so far as practicable smokeless'.
- Section 4(1)(a) imposes a requirement as to 'providing and installing apparatus for the purpose of indicating or recording (or indicating and recording) the density or darkness of smoke emitted from any furnace ...'
- Section 7(2)(a) identifies the need for 'making and recording measurements from time to time of the grit and dust emitted from the furnace or oven'.
- Section 11(1) requires that, 'Any local authority may, by order confirmed by the Minister, declare the whole of the district of the local authority or any part thereof to be a smoke control area.' Within such smoke control areas, under Section

⁷Peter Brimblecombe, 'Attitudes and Responses Towards Air Pollution in Medieval England' [1976] 26(10) *Journal of the Air Pollution Control Association* 941–45.

⁸John Evelyn, *Fumifugium or the Inconvenience of the Aer and Smoak of London Dissipated* (first published 1661). Printed by W. Godbid, London.

⁹John Graunt, *Natural and Political Observations Mentioned in a following Index, and made upon the Bills of Mortality By Capt. John Graunt, Fellow of the Royal Society, With reference to the Government, Religion, Trade, Growth, Diseases, and the several Changes of the said City, the Fifth Edition, much Enlarged* (Printed by John Martyn, London, 1676).

¹⁰M.L. Bell, D. Davis, & T. Fletcher, 'A Retrospective Assessment of Mortality from the London Smog Episode of 1952: The Role of Influenza and Pollution' [2004] 112 (1, January) *Environ Health Perspectives*, 6–8 <doi:10.1289/ehp.6539>.

¹¹The UK Clean Air Act 1993 consolidated and amended the (UK) Clean Air Acts 1956 and 1968.

11(2), ‘... it shall be a defence to prove that the emission of smoke was not caused by the use of any fuel other than an authorised fuel.’¹²

It is clear that the take up of smoke control areas by local authorities under Section 11 of the principal Act was not to the satisfaction of the UK government as one of the key aspects of the 1968 Clean Air Act introduced a power of the appropriate Minister to require the creation of smoke control areas. Section 8(1) states:

If after consultation with a local authority the appropriate Minister is satisfied that it is expedient to abate the pollution of the air by smoke in the area or part of the area of the authority and that authority have not exercised, or have not sufficiently exercised, their powers under section 11 of the principal Act (smoke control areas) to abate the pollution, he may direct the authority to prepare and submit to him for his approval, within such period not being less than six months from the direction as may be specified in the direction, proposals for making and bringing into operation one or more orders under that section within such period or periods as the authority think fit.

The 1968 Clean Air Act for the first time identified that the acquisition and sale of unauthorised fuel in a smoke control area would be subject to a fine or summary conviction. Section 9(1) states:

Any person who—

- (a) acquires any solid fuel, other than an authorised fuel, for use in a building in a smoke control area otherwise than in a building or fireplace exempted from the operation of section 11 of the principal Act; or
- (b) acquires any solid fuel, other than an authorised fuel, for use in a boiler or plant to which this paragraph applies in a smoke control area, not being a boiler or plant so exempted; or
- (c) sells by retail any solid fuel, other than an authorised fuel, for delivery by him or on his behalf to a building in a smoke control area or to premises in such an area in which there is a boiler or plant to which paragraph (b) above applies;

shall be liable on summary conviction to a fine not exceeding £20.

The 1968 Clean Air Act also initiates the concept of emission control (of grit and dust) (Section 2(1) of the Act) and rates at which fuel can be burned (Section 3(1) of the Act). It is notable that the Minister of the day could increase the rate at which fuel may be burned; however, ‘no regulations shall be made under this subsection so as to reduce any such rate unless a draft of the regulations has been laid before Parliament and approved by each House of Parliament’ (see Section 3(2) of the Act).

3.3 EU Directives

A wide range of Directives on air quality have been adopted by the EU since 1980. The air quality Directives have responded to significant advances in air quality measurement techniques and epidemiology over the past 40 years. In the realm of smoke and dust, the Directives introduced limit values, first for sulphur dioxide and suspended particulates in 1980 (Directive 80/779/EEC), and some 20 years later, particulate matter, known as PM₁₀ and PM_{2.5} (Directive 1999/30/EC) (see definitions below). Relevant aspects of the key EU air quality Directives are outlined below.

Directive 80/779/EEC focused on limiting the level of sulphur dioxide (an active chemical component of smoke released upon burning fossil fuel) and suspended particulates (the grit and dust of the Clean Air Acts). Concern for human health is clear from the recitals of the Directive, viz. Recital 5:

¹²The UK Clean Air Acts 1956 and 1968 did not apply to Northern Ireland. A Clean Air Act (NI) was introduced in 1964. Regulations (1965 No. 75) under the NI Clean Air Act introduced a listing of authorised fuels for smoke control areas. These included: anthracite; briquetted fuels carbonised in the process of manufacture; coke; electricity; fluidised char binderless briquettes manufactured by the National Coal Board; gas; low temperature carbonisation fuels; low volatile steam coals.

Whereas the European Communities' programmes of action on the environment of 1973 (3) and 1977 (4) provide that priority is to be given to measures against sulphur dioxide and suspended particulates because of their toxicity and the current state of knowledge of their effects on human health and the environment.

and Recital 8 states:

Whereas, in order to protect human health in particular, it is necessary to set for these two pollutants limit values which must not be exceeded in the territory of the Member States during specified periods ; whereas these values should be based on the findings reached in the framework of the WHO, particularly with regard to the dose/effect relationships established for sulphur dioxide and suspended particulates taken together.

The limit values for sulphur dioxide and suspended particulates in Annex 1 of the directive are reproduced here in Appendix 1.

Directive 1999/30/EC takes into account the most up-to-date scientific data of the day and introduces the term 'particulate matter' for the first time. It defines PM₁₀ and PM_{2.5}, includes an action plan for PM₁₀ and seeks to generally reduce PM_{2.5} levels in the atmosphere.

Recital 6 of the directive states:

Whereas different types of particles can have different harmful effects on human health; whereas there is evidence that risks to human health associated with exposure to man-made particulate matter are higher than risks associated with exposure to naturally occurring particles in ambient air.

and Recital 8 states:

Whereas Directive 96/62/EC provides that the numerical values for limit values and alert thresholds are to be based on the findings of work carried out by international scientific groups active in the field; whereas the Commission is to take account of the most recent scientific-research data in the epidemiological and environmental fields concerned and of the most recent advances in metrology for re-examining the elements on which limit values and alert thresholds are based.

Article 2 of the 1999 Directive relates to definitions and identifies the following for PM₁₀ and PM_{2.5}:

11. "PM₁₀" shall mean particulate matter which passes through a size-selective inlet with a 50 % efficiency cut-off at 10µm aerodynamic diameter;
12. "PM_{2.5}" shall mean particulate matter which passes through a size-selective inlet with a 50 % efficiency cut-off at 2.5µm aerodynamic diameter.

The limit values for PM₁₀ as set out in Annex III of the directive are reproduced here in Appendix 2. Note the 1999 directive does not include specific limit values for PM_{2.5}; it provides a provisional reference method for sampling and measurement only.

Directive 2008/50/EC merged most of the existing EU air quality legislation in a single Directive, and established for the first time new air quality objectives for PM_{2.5} including limit values and exposure related objectives for such fine particles.

Article 15 of the 2008 Directive identifies national PM_{2.5} exposure reduction targets for the protection of human health by 2020 (see Annex XIV reproduced here as Appendix 3). Article 16 identifies target value and limit values for the protection of human health by 2010 and 2015 (see also Appendix 3).

3.4 Air Pollution Act 1987

The Air Pollution Act 1987 was the first comprehensive piece of legislation to deal with air quality in Ireland. Amending, for instance, the Victorian concept of black smoke as a nuisance (Public Health (Ireland) Act 1878), it was long overdue. Insofar

as it relates to smoke and suspended particulates, however, it relied on the preceding UK Clean Air Acts and the early EU Air Quality Directives in equal measure. It borrowed the controls upon smokeless fuels and zones of the former, and the air quality standards of the latter.

The Act in Section 4 defines ‘air pollution’, among others, as ‘a condition of the atmosphere in which a pollutant is present in such a quantity as to be liable to... be injurious to public health’. It is notable that the only specified ‘pollutant’ in the Act is smoke (all others are considered by regulation). Section 25(1) states, ‘[f]or the purpose of preventing or limiting air pollution, the Minister may, by regulations, prohibit or restrict the emission into the atmosphere of smoke from any premises.’

A substantial element of the Act is that of Part 4, which gives over some 14 sections to ‘Special Control Areas’. Section 39(1) allows a local authority to declare a special control area to prevent or limit air pollution within the administrative area. Learning from the UK experience in the 1950s, Section 39(4) allows the Minister, ‘if he considers it expedient so to do... direct a local authority to make a special control area order... if he thinks fit’.

Section 53 allows the Minister to make regulations in relation to fuel. Those parts of Section 53 with particular relevance are reproduced below, viz:

53.—(1) The Minister, for the purpose of preventing or limiting air pollution, may make regulations in relation to—

- (b) the standard, specification, composition and contents of any type of fuel which is burnt in fireplaces or in fireplaces of a particular class or description or in fireplaces in a particular area or particular class of areas;
- (c) the production, treatment, importation, placing on the market, distribution or sale of fuel of any type or description;
- (d) the burning, or the prohibition of burning, in fireplaces, or in fireplaces of a particular class or description of a fuel, or of a fuel which does not comply with such requirements as may be specified;

(2) Without prejudice to the generality of subsection (1), regulations under this section may—

- (a) prohibit the sale, distribution, use or burning of a fuel which does not conform with such standards as may be specified either generally or in a specified area or class of areas;
- (b) specify different standards in relation to different fuels;
- (c) specify the tests which shall be conducted to establish whether a fuel complies with the provisions of regulations made under this section;
- (d) provide for exemption in such circumstances or in such cases as may be specified from all or any of the provisions of the regulations.

Notwithstanding the fact that the Air Pollution Act is over 30 years in operation, it has not been amended. Instead, a considerable number of Regulations under the Act have been enacted (over 170 Statutory Instruments to date). Section 53 of the Act has had 15 implementing Regulations in the period 1988-2016. A number of these are considered further below.

3.5 Air Pollution Act Regulations (1988-2016)

The Regulations which implement Section 53 of the Air Pollution Act 1987 and which are relevant to this study are difficult to navigate. A summary of the evolution of these Regulations is considered here.

The Marketing, Sale & Distribution of Fuels Regulations (SI 118/1998) revoked and replaces with Amendments SI 123/1990; SI 274/1992; SI 297/1993; and SI 403/1994.

The 1998 Regulations were defined as the Principal Regulations in the amending Regulations in 2011 (SI 270/2011). The 2011 Regulations also identify that the Regulations 1996 to 2011 may be construed as one. The 2012 Regulations (SI 326/2012) subsequently revoke all Section 53 regulations between 1998 and 2011. The 2015 Regulations (SI 30/2015) are cited as Amendment Regulations. So also the Regulations of 2016 (SI 128/2016 and SI 571/2016). Consequently, the Regulations are currently known as the Air Pollution Act 1987 Regulations 2012 as amended.

For clarity of understanding, three key aspects of the Regulations are relevant to the purposes of this study, viz: (1) the definition of low smoke zones, (2) the regulatory evolution of restriction standards, and (3) the regulatory evolution of the definition of terms. Notwithstanding the revocation of earlier Regulations (i.e. pre-2012 as outlined above), for completeness the Regulations 1998-2016 are considered further below in terms of these aspects.

3.5.1 Low Smoke Zones

3.5.1.1 Prohibition

Section 5(1) of the Regulations (SI 326/2012 as amended) states that, '[a] person or body shall not place on the market, sell or distribute any specified fuel within a specified area.' Section 6 of the same Regulation states, '[t]he occupier of any private dwelling located within a specified area shall not burn at such private dwelling any specified fuel.' Section 6A extends the prohibition to licensed premises and Section 6B to any premises other than a private dwelling. Sections 6A and 6B were amendments to the Regulations over time to ensure compliance at all premises.

3.5.1.2 Urban Centres

Dublin City was the first Low Smoke Zone identified in the country in 1990. This was followed by Cork City in 1993. Other large urban centres were added episodically until 2015.

Today, a total of 29 urban centres have been identified as Low Smoke Zones (see Table 3.1).

Table 3.1. Urban Centres Identified as Low Smoke Zones.

Town	Year of Introduction	Air Pollution Act 1987 SI No.
Dublin	1990	123/1990
Cork	1993	294/1993
Arklow, Drogheda, Dundalk, Limerick, Wexford	1998	118/1998
Celbridge, Galway, Leixlip, Naas, Waterford	2000	278/2000
Bray, Kilkenny, Sligo, Tralee	2003	111/2003
Athlone, Carlow, Clonmel, Ennis	2011	270/2011
Greystones, Letterkenny, Mullingar, Navan, Newbridge, Portlaoise, Wicklow (and Rathnew)	2013	326/2012
Maynooth, Environs Wexford	2015	30/2015

From September 2020, the smoky coal ban will be extended to thirteen additional towns. As a result, smoky coal will be banned in all towns in the country with

populations over 10,000 people (announced by Minister for Communications, Climate Action & Environment Richard Bruton on 17th December 2019) (see Table 3.2).¹³

Table 3.2. Proposed Smoky Coal Ban for Irish Towns with Populations Over 10,000.

County	Town
County Cavan	Cavan Town
Cork	Cobh, Midleton and Mallow
Kerry	Killarney
Longford	Longford Town
Mayo	Castlebar and Ballina
Meath	Ashbourne and Laytown-Bettystown
Offaly	Tullamore
Waterford	Tramore
Wexford	Enniscorthy

3.5.1.3 Population

The locations and associated population of the current low smoke zones (February 2020) is shown in Table 1 (Appendix 4). The location and associated population of the proposed low smoke zones, September 2020, is shown in Table 2 (Appendix 4). The population of the top 100 urban settlements in Ireland is shown in Table 3 (Appendix 4). This includes the majority of urban sites of 4,000 persons and over. Table 4 (Appendix 4) shows a population comparison of the locations identified in Tables 1 to 3 above. In sum, as a result the current Low Smoke Zones account for 47% of the population – the proposed expansion (September 2020) would raise this by 3% to 50%.

3.5.2 Restriction Standards

A summary of the regulatory evolution of the ‘restriction standards’ as identified in the Regulations in the period 1990-2016 is set out in Table 3.3 below. A number of modifications to these standards reflect to varying degrees change in analytical techniques; their practical application; and the economic needs of industry. Some of the key features are considered further here.

Within Low Smoke Zones, it may be seen that the sulphur content restriction (by weight on a dry ash basis) was relaxed from 1.5% in 1990 (SI 123/1990) to 2% in 1992 (SI 274/1992). An additional calorific value standard established in 1990 (SI 123/1990) was revoked in 1998 (SI 118/1998).

The 90% by weight retention on a 12.5mm aperture sieve standard for Cork City (SI 294/2003) was also revoked in 1998 (SI 118/1998). Outside of Low Smoke Zones a separate standard was established in 2011 (SI 270/2011). Section 3A of this Regulation states, ‘[a] person or body shall not place on the market or sell ... bituminous coal having a sulphur content greater than 0.7 % by weight.’ This establishes the current regime of a standard for low smoke zones and a separate standard for all other areas. The Low Smoke Zone standard relates to ‘specified fuels’ whereas the external and general standard applies to ‘bituminous coal’ only. Additionally, the standards are unrelated in terms of sulphur content – the Low Smoke Zone standard is defined as ‘any solid fuel having a sulphur content greater than 2% by weight on a dry ash-free basis’. The external general standard specifies that the sulphur content of bituminous coal cannot exceed 0.7% by weight.

¹³Department of Communications, Climate Action & Environment, Press Releases 2019, ‘Smoky Coal Ban to be extended to 13 towns – Minister Bruton Extends Smoky Coal Ban’ published 17 December 2019 <<https://www.dccae.gov.ie/en-ie/news-and-media/press-releases/Pages/Minister-Bruton-Extends-Smoky-Coal-Ban.aspx>>.

Table 3.3. Regulatory Evolution of 'Restriction Standards' (1990-2016).

SI No.	SI Standard
123/1990 (Dublin)	3.(1) A person shall not place on the market, sell or distribute within the restricted area of Dublin— (a) any solid fuel having a sulphur content greater than 1.5% by weight on a dry ash-free basis, (b) any coal having a gross calorific value greater than, or equal to, 24 Megajoules per kilogram on a moist ash-free basis which contains more than 14% volatile matter by weight on a dry ash-free basis.
274/1992 (Dublin)	3. Article 3 of the 1990 Regulations is hereby amended by— (a) the substitution of '2 per cent' for '1.5 per cent' in sub-article (1) (a) of that article;
294/1993 (Cork)	4. (1) A person shall not, within the built-up area of Cork, place on the market, sell or distribute any bag of solid fuel unless at least 90 per cent of the contents of the bag by weight on an air-dried basis would be retained on a sieve with 12.5 millimetres square hole apertures. (2) The requirements of sub-article (1) shall not apply to a bag of solid fuel which does not contain any coal having a gross calorific value greater than or equal to 24 Megajoules per kilogram on a moist ash-free basis and having more than 14 per cent volatile matter by weight on a dry ash-free basis.
403/1994 (Cork)	3. (1) A person shall not place on the market, sell or distribute within the restricted area of Cork— (a) any solid fuel having a sulphur content greater than 2% by weight on a dry ash-free basis, (b) any coal having a gross calorific value greater than, or equal to, 24 Megajoules per kilogram on a moist ash-free basis which contains more than 14% volatile matter by weight on a dry ash-free basis, (c) any admixture of the coal referred to in paragraph (b) of this sub-article with any other coal or fuel, or (d) any manufactured fuel containing the coal referred to in paragraph (b) of this sub-article where such manufactured fuel contains more than 14% volatile matter by weight on a dry ash-free basis save where such fuel has a smoke emission rate of not more than 10 grams per hour.
118/1998	Revokes and replaces with amendments Regulation 1990-1994. The so-called 'Cork' restrictions now apply to any restricted area.
270/2011	The Principal Regulations ¹⁴ are amended— 4(b) By inserting after Regulation 3 the following Regulation: 3A. A person or body shall not place on the market or sell any bag, or other unit of sale of bituminous coal having a sulphur content greater than 0.7 % by weight.
326/2012	SI 118/1998, SI 278/2000, SI 111/2003, SI 713/2004, SI 270/2011 and SI 714/2011 are revoked. <i>Prohibition on the Marketing, Sale and Distribution of Specified Fuel within Specified Areas</i> 5. (1) A person or body shall not place on the market, sell or distribute any specified fuel within a specified area. <i>Restrictions on the Sale of Bituminous Coal outside Specified Areas</i> 7. (1) A person or body shall not place on the market, sell or distribute bituminous coal in a bag or any other unit of sale outside specified areas unless— (a) its sulphur content is not greater than 0.7% by weight.
571/2016	Part 3 (8) in Regulations 5, 6, 6A, 6B, 7, 10, Schedule 1, Schedule 2 and Schedule 4, by the substitution of 'Low Smoke Zone' for 'Specified Area', and by the substitution of 'Low Smoke Zones' for 'Specified Areas', in each place they occur.

3.5.3 Definitions

A summary of the regulatory evolution of definitions as identified in the Regulations in the period 1998-2016 is set out in Table 3.4 below. An unfortunate range of closely related terms defined and re-defined makes this subject extremely difficult to comprehend. Allied to this, two distinct and unrelated regulatory standards for fuel

¹⁴Means the Air Pollution Act, 1987 (Marketing, Sale and Distribution of Fuels) Regulations 1998 (SI 118/1998).

identification and restriction, within and outside of Low Smoke Zones, can lead to confusion in interpretation as outlined below.

Low Smoke Zones were identified as 'restricted areas' in SI 118/1998 and 'specified areas' in SI 326/2012. In SI 125/2016 a Low Smoke Zone was defined as having the same meaning as 'specified area'. In an attempt to clarify further, later in SI 571/2016 in section (8), 'low smoke zones' were substituted for 'specified areas' in each place they occurred in the Regulations (see also Table 3.3).

The Regulation Explanatory Note of SI 571/2016 states that the Regulations provide for a national sulphur standard of 2% for all solid fuels intended for domestic heating outside the current ban areas. This is clearly not the case as this general conception (a sulphur standard of 2%) relates to the Low Smoke Zones only.

The 2012 Regulations (SI 326/2012) refer to bituminous coal as a specified fuel within a Low Smoke Zone, whilst the 2016 Regulations (SI 571/2016) identify 'low smoke solid fuel' as a solid fuel which contains coal and which is permissible for sale in a low smoke zone. Consequently, of necessity, these Regulations require close reading at all times.

Table 3.4. Regulatory Evolution of the Definition of Terms (1998-2016).

SI No.	SI Standard Definition
118/1998	'restricted area' means an area specified in the First Schedule to these Regulations.
270/2011	'bituminous coal' means coal falling within CN Code 2701 12 placed on the market for residential heating;
326/2012	'Solid Fuel' means any solid substance that is burnt to produce heat and shall include specified fuels; 'Specified Area' means an area listed under Schedule 1 or Schedule 2 to these Regulations that has been designated by the Minister under section 53 of the Air Pollution Act 1987 for the purpose of prohibiting the marketing, sale, distribution and burning of specified fuels; 'Specified Fuel' means- (a) any bituminous coal, (b) any admixture of solid fuel containing bituminous coal, (c) any manufactured fuel containing bituminous coal where such manufactured fuel contains more than 14% volatile matter by weight on a dry ash-free basis save where such fuel has a smoke emission rate of not more than 10 grams per hour, or (d) any solid fuel having a sulphur content greater than 2% by weight on a dry ash-free basis. Regulation Explanatory Note: The Regulations require that all bituminous ('smoky') coal supplied for residential heating outside specified areas where the ban applies must have a sulphur content not greater than 0.7%.
571/2016	'Low smoke biomass product' has the same meaning as in the Fuel Regulations; 'Low smoke solid fuel' means a solid fuel which contains coal and which is permissible for sale in a Low Smoke Zone as defined in the Fuel Regulations; Regulation Explanatory Note: ... the regulations provide for a national sulphur standard of 2% for all solid fuels intended for domestic heating outside the current ban areas.
128/2016	'approved fuel' means a low smoke solid fuel for which a current certificate of conformity issued by a certification body exists; 'biomass' means the biodegradable fraction of products, waste and residues from biological origin from agriculture (including vegetal and animal substances), forestry and related industries, including fisheries and aquaculture as well as the biodegradable fraction of industrial and municipal waste; 'low smoke biomass product' means any solid fuel with a biomass content of at least 30% but less than 100% biomass, for which carbon tax relief for biomass content of solid fuel is sought under Section 82A of the Finance Act 2010 and where such fuel has a smoke emission rate of: (a) in the period ending 31 August 2018, not more than 7.5 grams per hour; (b) in the period commencing 1 September 2018, not more than 5 grams per hour; 'Low smoke solid fuel' means a solid fuel which contains coal and which is permissible for sale in a Low Smoke Zone, 'Low Smoke Zone' has the same meaning as 'specified area'.

3.6 Regulatory Initiatives

The concept of implementing national clean air strategies is philosophically different to that of the implementation of EU Air Quality Directives. The former puts the effects of air quality upon human beings central to its operation, the latter seeks to impose limit values which balance such needs with those of industry and the economy generally.¹⁵

3.6.1 UK Clean Air Strategy

The UK Clean Air Strategy, published in January 2019, outlines a proposal to extend the 2% sulphur limit from existing controlled areas to all of England.¹⁶ In February 2020, the UK government announced it plans to phase out the sale of house coal and wet wood between 2021 and 2023. The sale of all bagged traditional house coal will be phased out by February 2021 and the sale of loose coal direct to customers by way of general coal merchants will end by February 2023.¹⁷

3.6.2 Irish National Mitigation Plan

The Irish State's National Mitigation Plan (NMP) of 2017 described itself as 'a critical first step towards decarbonising our economy'.¹⁸ In relation to domestic fuel use, the NMP states that:

[i]n tandem with the development of the National Clean Air Strategy, a feasibility study should be undertaken in the implementation of a ban on the use of coal and/or peat in domestic heating systems. The study should consider the environmental implications in addition to the economic and technical implementation. The outcome of this study should be used to inform future iterations of the NMP.¹⁹

3.6.3 Irish Government Position

Minister Bruton (Department of Communications, Climate Action and Environment) confirmed in December 2019 that, in his view, a nationwide ban on smoky coal carries a serious risk of illegality, unless peat, wet wood and turf were also addressed.

The Minister in a press release stated:

I am not proceeding with a nationwide ban at this time as such a ban carries a serious risk of illegality unless turf, peat and wet wood are also addressed. We will proceed in a gradual and proportionate way and extend the current smoky coal ban to 13 new towns where there are particular air quality issues and to address immediate health concerns in these towns. This will come into effect from next September and will lead to immediate improvements in air quality...

To proceed with a nationwide ban regardless of circumstance would expose people in rural areas, who have traditional sources of logs and turf which they rely upon, to the risk of a sudden ban. I am not willing to do this. To pretend that a nationwide ban does not carry this probable outcome is to be dishonest ...

I am preparing the first ever Clean Air Strategy, and will come back to government in the New Year with further proposals to improve air quality.²⁰

¹⁵Professor John Sodeau, 'A Conversation on smoky fuels (UCC Environmental Law Clinic, March 2020).

¹⁶Department for Environment, Food and Rural Affairs, *Clean Air Strategy 2019*, <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/770715/clean-air-strategy-2019.pdf>.

¹⁷Department for Environment, Food & Rural Affairs Press Release, 'Government takes action to cut pollution from household burning' published 21 February 2020; <<https://www.gov.uk/government/news/government-takes-action-to-cut-pollution-from-household-burning>>.

¹⁸Department of Communications, Climate Action and Environment, *National Mitigation Plan, July 2017*, 8. Available online at <<https://www.dccae.gov.ie/en-ie/climate-action/publications/Documents/7/National%20Mitigation%20Plan%202017.pdf>>.

¹⁹*ibid*, 161.

²⁰Department of Communications, Climate Action & Environment, Press Releases 2019, 'Smoky Coal Ban to be extended to 13 towns – Minister Bruton Extends Smoky Coal Ban' published 17 December 2019 <<https://www.dccae.gov.ie/en-ie/news-and-media/press-releases/Pages/Minister-Bruton-Extends-Smoky-Coal-Ban.aspx>>.

3.7 Assessment

Key to any assessment of the alternative policy options under consideration is the length of time likely required for implementation. For the purposes of evaluation it is presumed here that the imposition of either a nationwide prohibition on bituminous coal (option 1) or a nationwide prohibition on smoky fuels (option 2) would occur in the short term (1-3 years); and that a roll out of the existing Low Smoke Zone regime (option 3) would be completed in the medium term (7-10 years). Clearly, if options 1 and 2 were to follow option 3, then this assessment would need to be revisited.

Secondly, it is presumed for the purposes of assessment that the nationwide prohibition on bituminous coal (in the meaning of the Regulations) would apply to all areas outside of the current Low Smoke Zones (i.e. that the requirement to utilise specified fuels would continue within Low Smoke Zones).

3.7.1 Nationwide Prohibition on Bituminous Coal

This option is considered only moderately acceptable in terms of meeting with the needs of (1) PM_{2.5} reduction targets of the EU Directives, (2) the simplification of the Regulations implementing the Irish Air Quality Act 1987, and (3) the needs of any proposed clean air strategy. This option allows for the continued use of peat, biomass and timber, fuel types which have been shown to potentially emit greater levels of PM_{2.5} than bituminous coal.²¹ The Regulations would also need modification to remove the bituminous coal standard (0.7%), and presumably a revised fuel regulation standard outside of Low Smoke Zones.

3.7.2 Nationwide Prohibition on Smoky Fuels

This option is considered the most acceptable in terms of meeting with the needs of (1) PM_{2.5} reduction targets of the EU Directives, (2) the simplification of the Regulations implementing the Irish Air Quality Act 1987, and (3) the needs of any proposed clean air strategy. This option would effectively extend the current prohibition of specified fuels only within Low Smoke Zones to the entire country. It would be the most efficient option at meeting the needs of EU Directives and a clean air strategy as it would remove from use all fuel types which produce high levels of PM₁₀ and PM_{2.5}. Equally, the Regulations would be much simplified as only one standard, that of specified fuel, would continue in use.

3.7.3 Roll-out of Low Smoke Zones

This option is considered the least acceptable in terms of meeting with the needs of (1) PM_{2.5} reduction targets of the EU Directives, (2) the simplification of the Regulations implementing the Irish Air Quality Act 1987, and (3) the needs of any proposed clean air strategy. Fundamentally, there is no timeframe limit on any proposal to roll out the existing practice of establishing Low Smoke Zones throughout the country. By September 2020, only 50% of the population will be subject to the use of specified fuels; with no plan in place to extend the restriction further. The option would also see the continued use of the current complex regulatory regime.

3.8 Conclusion

The negative health-related effects of smoky atmospheres have long been known. The UK Clean Air Acts 1956 and 1968 first introduced the concepts of smokeless fuel, smoke control areas, and authorised fuels. A wide range of EU Directives on air quality followed. In the context of smoke and dust, the Directives introduced limit values first for sulphur dioxide (the active component of smoke) and suspended

²¹ see Section 4.2.1.1.

particulates in 1980 (Directive 80/779/EEC); and introduced standards for particulate matter, known as PM₁₀ and PM_{2.5} in 1999 (Directive 1999/30/EC). The rationale for limiting the concentration of such constituents in air being the '[e]vidence that risks to human health associated with exposure to manmade particulate matter are higher than risks associated with exposure to naturally occurring particles in ambient air' (Recital 6, Directive 1999/30/EEC). The Irish Air Pollution Act 1987 relies on the UK Clean Air Acts and EU Air Quality Directives in equal measure. Section 39(1) of the Act allows a local authority to declare special control areas to prevent or limit air pollution within individual administrative areas. Section 53 allows for the control of sale and use of heating fuels. Section 53 of the Act has had 15 implementing Regulations in the period 1988-2016. These Regulations are highly complex and require close reading at all times.

A clean air strategy has been advanced in the UK (published in 2019) and a clean air strategy is under consideration in Ireland. Based on the current regulatory environment and the context of a proposed Irish Clean Air Strategy, it is considered that the option to establish a nationwide prohibition on smoky fuels is the most acceptable; a nationwide prohibition on bituminous coal only moderately acceptable; and a roll out of low smoke zones to be least acceptable.

4.0 Expert Reviews and Enforcement

4.1 Introduction

The Environmental Protection Agency (EPA) plays an important role in terms of air quality research, monitoring and recording environmental enforcement performance in Ireland. Consequently, consideration of reportage by the EPA is central to this section on expert reviews and enforcement. Early EPA research into the smoky coal regulations and the impact of domestic solid fuel burning is first presented. This is followed by an analysis of the PM₁₀ and PM_{2.5} monitoring network in the country and the air quality results for recent years. Lastly, the relevant enforcement aspects of leakage of fuel types (from one zone to another); the use of smokeless coal labelling and a recent environmental enforcement performance report are outlined.

4.2 Early Research

4.2.1 Review of the Smoky Coal Regulations

The EPA made an early submission to the Department of Environment, Community and Local Government's public consultation on a Review of the Smoky Coal Regulations in 2012.²²

The report identified that the greatest impact of the ban on the sale of bituminous coal in Low Smoke Zones was at that stage seen in Dublin and Cork (see Figure 1 of the report reproduced below as Figure 4.1).

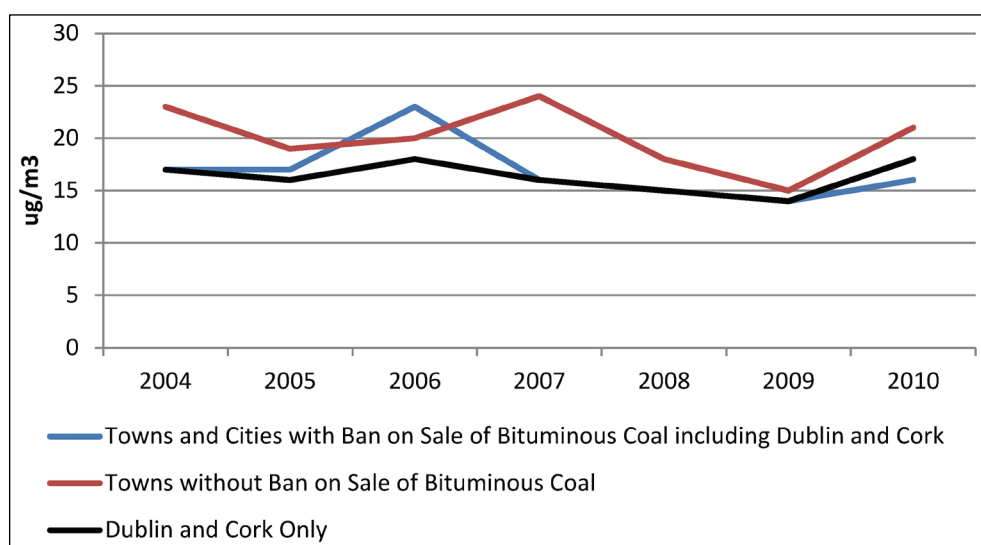


Figure 4.1. Annual Average PM₁₀ Levels in Towns and Cities with a Coal Ban and Those Without 2004-2010.

The report continues:

The length of time since the ban in these cities (20 years in Dublin and 15 years in Cork) along with the large size of the restricted areas means residents are accustomed to not using bituminous coal and are unlikely to travel outside the area to purchase it. The availability of natural gas also reduces the amount of solid fuel used for domestic heating. The black line in Figure 1 represents the average PM₁₀ at background stations in Dublin and Cork which are on average 15-20% less than PM₁₀ levels in towns without a ban on smoky coal. The results indicate that the use of smoky coal increases ambient PM₁₀ levels in smaller towns to greater than those in cities.

²²EPA, *Review of the Smoky Coal Regulations*, 2012 <<http://www.epa.ie/pubs/epasub/reviewofthesmokycoalregulations.html>>.

As a consequence, the EPA recommended that the prohibition be extended to other areas to reduce levels of PM₁₀ further.²³ The report also identified that the EPA was supportive of longer term progress towards a nationwide ban on the importation, sale and distribution of bituminous coal for domestic use, subject to a regulatory impact assessment and consultation with the authorities in Northern Ireland. This submission was made before the enactment of SI 326/2012 and its fuel definitions.

4.2.1.1 Other Fuel Sources of PM

The EPA has also analysed the production of PM₁₀ and PM_{2.5} from fuels such as peat, biomass and natural gas. The findings indicated that in 2010 the total emissions of PM₁₀ and PM_{2.5} from peat were approximately double that from coal; whilst biomass also produced double the level of PM_{2.5} than did coal.²⁴ In contrast, natural gas was found to produce over 100 times less PM₁₀ and PM_{2.5} than smokeless coal.²⁵ The main fuel used to heat homes in Ireland in 2014 on a regional basis is shown in Table 4.1.²⁶ It is notable that natural gas and electricity are the principal source of home heat in Dublin; whilst peat is a significant source of fuel in the Midlands and Western Regions.

Table 4.1. Main Fuel Used to Heat Homes (CSO Data 2014).

Region	% of row								
	Natural Gas	Diesel/Gas Oil	Kerosene	LPG	Electricity	Coal	Peat	Wood	Other
Border	11	18	42	1	2	15	7	2	1
Dublin	72	6	5	1	13	1	0	0	2
Mid-East	44	13	27	1	2	6	3	3	0
Mid-West	21	28	27	1	4	7	7	5	1
Midlands	12	4	38	1	3	4	34	2	1
South-East	14	31	30	1	4	11	0	6	1
South-West	29	19	27	1	6	9	2	5	1
Western	5	11	45	1	3	7	24	3	1
Total	35	15	25	1	6	7	7	3	1

4.2.2 Impact of Domestic Solid Fuel Burning

An early study into the impact of domestic solid fuel burning on ambient air quality in Ireland was completed in 2015. The study included measurement of black smoke, PM₁₀ and PM_{2.5} at four representative monitoring locations, in Navan, Letterkenny, Tralee and Killarney during 2011–2012. These towns were chosen as they did not have continuous air quality monitoring. Other selection criteria included similar population sizes, the availability or otherwise of natural gas and the presence or absence of a smoky coal ban.²⁷

The study found that, whilst at no time during the monitoring were any of the existing EU particulate air quality limits exceeded, ‘the highest pollution levels were observed

²³Monitoring for PM_{2.5} commenced in 2009, hence sufficient monitoring data was not available for analysis at the time of this report.

²⁴*supra* fn. 30, 11.

²⁵*ibid*.

²⁶Central Statistics Office, QNHS Module on Household Environmental Behaviours, Quarter 2, 2014.

²⁷EPA, *Assessing the Impact of Solid Fuel Burning on Ambient Air Quality in Ireland*. Authors: Patrick Goodman, Martin Fitzpatrick, Barry Foley, Michelle McNally, Tracey Healy, Sarah Middleton, Peter Brien and Doug Dockery. Research Report No. 158 [2015].

during the “heating season” in those locations that had the highest combined percentages of residential oil and coal heating.’²⁸

Among a number of recommendations the report sought that, ‘An assessment of the continued effectiveness of the bituminous coal ban should be carried out and, if deemed necessary, the possible introduction of a national prohibition on the usage of bituminous coal should be considered.’²⁹

4.2.2.1 EU Clean Air Dialogue

The EU Clean Air Dialogue with Ireland Report (2017) importantly identified that residential solid fuel heating is the largest source of PM_{2.5} and PAHs³⁰ (responsible for over 50% and 90% respectively) in Ireland – despite providing less than 5% of national energy demand.³¹ Consequently, there is a pressing need to significantly reduce emissions from this source at the earliest stage possible.

As to smoke free zones, the Clean Air Dialogue concluded that expanding the ban on smoky coal will reduce health costs from residential solid fuel use in Ireland.³² It stated that the government needs to ensure an ‘integrated policy approach’ is taken to avoid perverse effects, for example, to ensure that coal is replaced by cleaner, more efficient low carbon alternatives. The design and implementation of support measures would need to reflect this consideration.³³

4.3 Monitoring

The EPA reported in 2015 that a new national monitoring network (2017-2022) would be established which would extend the current Clean Air for Europe (CAFE) network to provide improved spatial coverage across rural and urban centres.³⁴ The siting of the stations would be based on the criteria of population size, vulnerability to air quality issues and spatial distribution. The network of sites would monitor a range of specified air quality parameters, including particulates among others. The network of monitoring sites as it stood in 2016 and those proposed in 2022 are shown in Figure 4.2 and Figure 4.3.

4.3.1 Air Quality (PM₁₀ and PM_{2.5})

The EPA is responsible for monitoring and issues a report on air quality in Ireland on an annual basis. The commentaries which relate to PM₁₀ and PM_{2.5} in the EPA annual air quality reports for 2017 and 2018 are considered below. It is noted for clarity, the World Health Organization (WHO) limit values are lower than the EU limit values in the context of particulates, and each body (WHO and EU) has both annual and daily limit values.

²⁸*ibid*, ‘Conclusions’, 17. Note: this is a non-specific reference to bituminous coal.

²⁹ *ibid*, ‘Executive Summary’, ix.

³⁰ Polycyclic aromatic hydrocarbons.

³¹ Department of Communications, Climate Action and Environment/European Commission, *Conclusions on the Clean Air Dialogue with Ireland*, 3.

³² *ibid*.

³³ *ibid*.

³⁴ EPA, *November 2017 – National Ambient Air Quality Monitoring Programme 2017-2022* [2015].

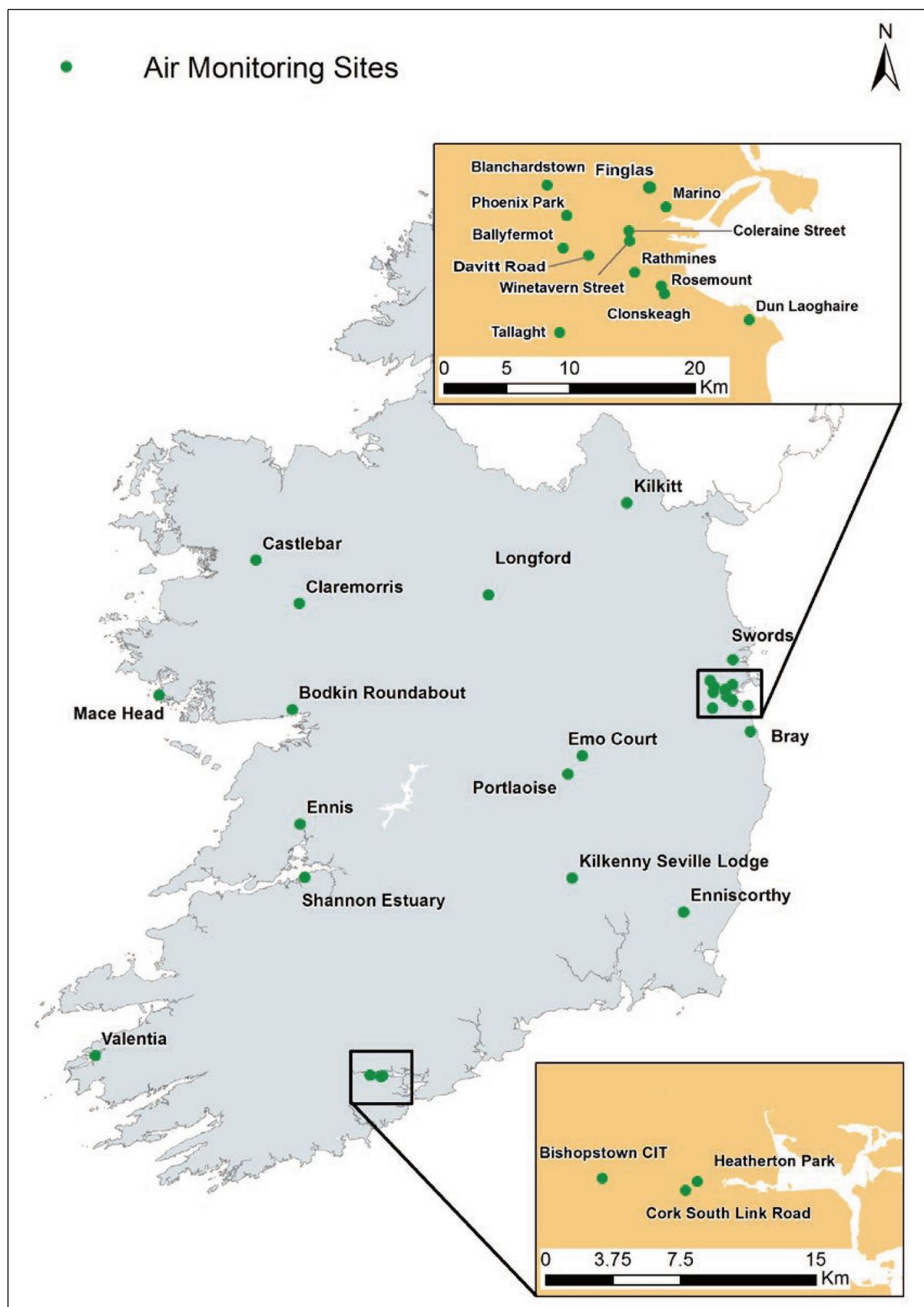


Figure 4.2. CAFE Air Monitoring Network in 2016 (from EPA (2015) *National Ambient Air Quality Monitoring Programme 2017-2022*).

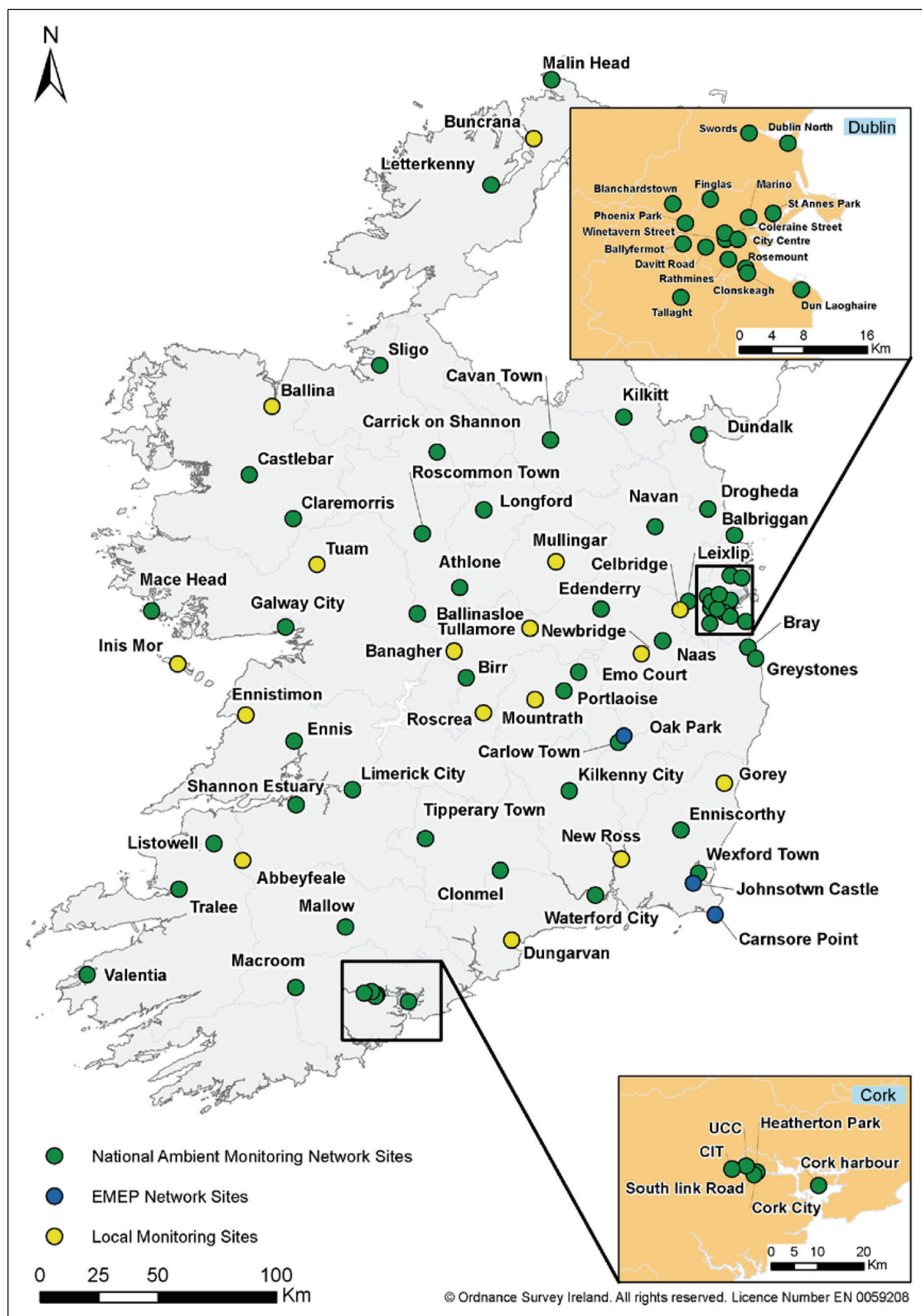


Figure 4.3. Future National Ambient Air Monitoring Programme Network 2022 (from EPA (2015) *National Ambient Air Quality Monitoring Programme 2017-2022*).

4.3.1.1 Air Quality Report 2017

The EPA *Air Quality Report 2017* identified that PM₁₀ was monitored at 15 sites in 2017. It reported that all observed concentrations were below the EU annual limit value and that there were no exceedances of the EU daily limit value. It further reported concentrations were also below the annual WHO air quality guideline value. However, 12 sites were above the daily WHO air quality guideline value.

The report illustrated the annual mean PM₁₀ concentrations at selected stations from 2007 to 2017. Concentrations were aligned about the WHO air quality guideline value over this period (see Figure 4.4).

PM_{2.5} was monitored at nine sites in 2017. All observed concentrations were below the EU annual limit value. Concentrations were above the annual WHO air quality guideline value at one monitoring stations in 2017 (Ennis). All nine monitoring stations had exceedances of the daily WHO air quality guideline value.

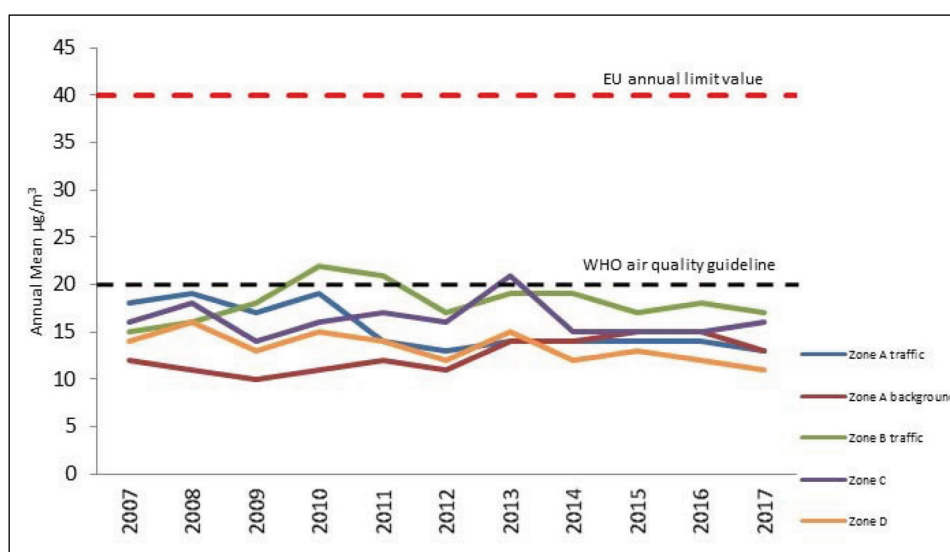


Figure 4.4. Annual mean PM₁₀ concentrations at selected monitoring stations 2007-2017 (From EPA (2018) *Air Quality in Ireland 2017 – Indicators of Air Quality*).

4.3.1.2 Air Quality Report 2018

In the EPA *Air Quality Report 2018*, the towns of Longford (Co. Longford) and Bray (Co. Wicklow) were used to highlight the impact that solid fuel use has on air quality. Bray has a ban on the sale and use of bituminous coal. It is also part of the gas network. In contrast, Longford has no ban on the sale and use of bituminous coal. It is also not connected to the gas network.

Figure 4.5 shows the concentration of PM_{2.5} measured during the winter heating season (January to March and October to December) for the years 2013–2018 at Bray Town, Longford Town and for comparison Marino (Co. Dublin), which is a suburban background location. The report identified that whilst the air at all three locations at times did not meet the WHO air quality guideline for PM_{2.5}, the levels were higher in the smaller town of Longford due to the increased use of solid fuel for home heating. The report suggested that, '[t]his situation is likely to be reflected across many towns in Ireland where solid fuel burning is prominent' (see Appendix 5 for EPA guide illustration on better ways to heat your home).

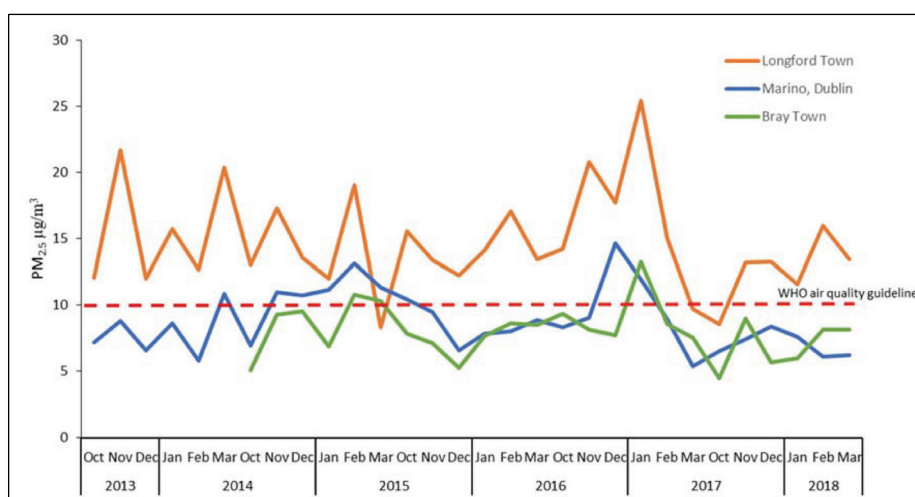


Figure 4.5. PM_{2.5} concentrations for winter heating season 2013-2018 at selected monitoring stations. (From EPA (2019) *Air Quality in Ireland 2018*).

4.3.2 Monitoring Sites

The location of some 55 current air quality monitoring sites in Ireland, with real-time data, is shown in Appendix 6.

The extent and evolution of PM₁₀ and PM_{2.5} monitoring at a number of these sites (in the period 2005-2018) is shown in Table 4.2 below.³⁵

As of Spring 2020, there are 34 urban sites (including Cork and Dublin) identified as smoke free zones. Eighteen of these urban sites have air quality monitors, of which 15 locations monitor PM₁₀ and PM_{2.5} (see Appendix 6 for listing). This results in over 50% of current smoke free zones without any PM₁₀ or PM_{2.5} monitors. Of the 13 urban sites proposed for inclusion as smoke free zones in September 2020, only three locations currently monitor PM₁₀ and PM_{2.5}.

Table 4.2. PM₁₀ and PM_{2.5} Monitoring Since 2005.

SI No. 271/2002 – Section 12(8): ‘The Agency shall measure, or cause to be measured, ambient concentrations of PM _{2.5} at such measuring stations as it considers necessary to be representative of concentrations of PM _{2.5} in the State and, where possible, such measuring stations shall be co-located with sampling points for PM ₁₀ .’		
2005	PM ₁₀ at 14 stations	PM _{2.5} at 1 station (Cork) (no PM _{2.5} limit value)
2006	PM ₁₀ at 17 stations	PM _{2.5} at 1 station (Cork) (no PM _{2.5} limit value)
2007	PM ₁₀ at 18 stations	PM _{2.5} at 1 station (Cork) (no PM _{2.5} limit value)
Directive 2008/EC, 21 May 2008, Ambient Air Quality & Cleaner Air for Europe		
2008	PM ₁₀ at 18 stations	PM _{2.5} at 1 station (Cork) (EU limit value 25µg/m ³)
2009	PM ₁₀ at 17 stations	PM _{2.5} at 5 stations (3 Dublin, 1 Cork, 1 Ennis)
2010	PM ₁₀ at 18 stations	PM _{2.5} at 5 stations (3 Dublin, 1 Cork, 1 Ennis)
2011	PM ₁₀ at 17 stations	PM _{2.5} at 7 stations (3 Dublin, 1 Cork, 3 countrywide)
2012	PM ₁₀ at 16 stations	PM _{2.5} at 7 stations (3 Dublin, 1 Cork, 3 countrywide)
2013	PM ₁₀ at 20 stations	PM _{2.5} at 7 stations (3 Dublin, 1 Cork, 3 countrywide)
2014	PM ₁₀ at 20 stations	PM _{2.5} at 9 stations (4 Dublin, 1 Cork, 4 countrywide)
2015	PM ₁₀ at 18 stations	PM _{2.5} at 9 stations (4 Dublin, 1 Cork, 4 countrywide)
2016	PM ₁₀ at 17 stations	PM _{2.5} at 9 stations (4 Dublin, 1 Cork, 4 countrywide)
2017	PM ₁₀ at 15 stations	PM _{2.5} at 9 stations (4 Dublin, 1 Cork, 4 countrywide)
2018	PM ₁₀ at 26 stations	PM _{2.5} at 20 stations (9 Dublin, 2 Cork, 9 countrywide)

³⁵EPA air quality report for 2019 not available at time of writing (May 2020).

4.3.2.1 Government Announcement

In December 2019, the government announced its intention to invest €5m to improve the network of air monitoring stations in Ireland over the next five years.³⁶ The press release noted that, '[t]his is vital to establishing hard, scientific evidence of the standard of air in different parts of the country.' It was proposed that this €5m investment will:

- Develop a greatly expanded national monitoring network;
- Enhance the provision of real-time, localised air quality information to local authorities and to the public;
- Assist local authorities in terms of enforcement within their areas, as well as providing a more accurate nationwide air quality picture for policy makers.

4.4 Enforcement

4.4.1 Leakage

In its 2012 submission on the smoky coal Regulations, the EPA identified that the ban was less effective where the Low Smoke Zone area is small as 'bituminous coal can be easily sourced outside the ban area and used within the ban area'.³⁷ By way of example, the report pointed to the town of Wexford where 'despite a ban on the sale of bituminous coal in the town, levels of PM₁₀ measured were similar to those found in towns without a coal ban'.³⁸ The report identified that the coal ban area in Wexford was too small for the size of the town leaving some new housing estates outside the ban area. In addition, 'anecdotal evidence suggests some residents were purchasing bituminous coal, available legally in local shops just outside the current ban area, to use within the coal ban area'.^{39,40}

More recently and in a similar fashion, it has been reported that Letterkenny, Co. Donegal (a Low Smoke Zone since 2013 – see Table 3.1) experienced poor air quality in late 2019, due to the use of bituminous coal.⁴¹

4.4.2 Smokeless Coal Label

It was reported in *The Irish Times* on 10th December 2019 that smoky coal is being labelled as smokeless coal and sold in areas where it is banned.⁴² The article noted:

Samples of fuel for sale, labelled as smokeless, in areas covered by the ban were tested by CPL Fuels, which has been pushing for the introduction of a long-delayed nationwide smoky coal ban by the Government.

The six tests, run at different points between January and December of this year [2019], show that sulphur content of the fuels tested ranged from 4 per cent to 5.74 per cent.

Under the Air Pollution Act, the sulphur content of a low-smoke solid fuel has to be less than 2 per cent. The fuel samples were purchased in areas with a smoky coal ban, including Ennis, Letterkenny, Cork city, Tralee and Sligo...

³⁶Department of Communications, Climate Action & Environment, Press Releases 2019, 'Smoky Coal Ban to be extended to 13 towns – Minister Bruton Extends Smoky Coal Ban' published 17 December 2019 <<https://www.dccae.gov.ie/en-ie/news-and-media/press-releases/Pages/Minister-Bruton-Extends-Smoky-Coal-Ban.aspx>>.

³⁷EPA, *Review of the Smoky Coal Regulations*, 2012, 6 <<http://www.epa.ie/pubs/epasub/reviewofthesmokycoalregulations.html>>.

³⁸*supra*, fn.37, 6.

³⁹*ibid*, 6.

⁴⁰The Environs of Wexford Town were later included as a low smoke zone in 2015 (see Table 3.1).

⁴¹Stephen, 'Surveys Show Damage on Letterkenny Air Quality Still Being Caused by Coal Burning' *Donegal Daily* (22 November 201).

⁴²Jack Horgan-Jones, 'Smoky coal labelled as smokeless to get around ban, says CPL' (*The Irish Times*, 10 December 2019) Available online at <<https://www.irishtimes.com/news/environment/smoky-coal-labelled-as-smokeless-to-get-around-ban-says-cpl-1.4109995>>.

CPL, the company that ran the tests, said 100,000 tonnes of high-sulphur fuel was being smuggled across the border from Northern Ireland, where it is not banned, and sold in the Republic as smokeless coal.

4.4.3 Environmental Enforcement Performance

The EPA also prepares a local authority environmental enforcement performance report on an annual basis. The air enforcement performance indicators examine, among others, the enforcement of the ban on the distribution and use of specified solid fuel. It measures the completion of planned local authority inspections. The controls on specified solid fuels are enforced by inspections of solid fuel merchants.

The 2018 report identifies that:

- The performance assessment for solid fuel inspections has decreased to 'Below Target' in 2018 from 'Target' in 2016). While this is above the 2014 baseline of 'Minimum' it is a concerning set-back. Inspection numbers have decreased by approximately 200 in 2018 compared with 2017 and 2016 levels.
- Enforcement of the air indicators examined continues to be inconsistent nationwide, with some local authorities completing all planned inspections and others having a very low percentage completion rate or not undertaking any inspections.⁴³

4.4.4 Government Announcement

In December 2019, the Minister for the Department of Communications, Climate Action and Environment announced that work is underway to strengthen enforcement of the current smoky coal ban. Options which are being considered include:

The development of a regional approach to air quality and noise enforcement, in line with other areas of environmental enforcement such as waste, which has proven to be very successful;

A multi-agency approach to enforcement would have greater impact on issues including the sale of high-sulphur content fuel imported from the UK and the Department is currently actively engaging with local authorities and the Revenue Commissioners in that context at present.⁴⁴

4.5 Assessment

There is a fundamental need to extend the current level of PM₁₀ and PM_{2.5} monitoring to all current and proposed Low Smoke Zones. Active monitoring of approximately 50% of these sites is not considered sufficient to adequately determine with any confidence whether the country is on track to meet with the 2020 PM_{2.5} exposure reduction targets as set out by EU Directive 2008/50/EC. Whilst the Government has announced its intention to invest €5m to improve the network of air monitoring stations, over the next five years, the detail of the proposals are not known. Consequently, it is not possible to assess the adequacy of the initiative.

It is clear that the current enforcement regime is hampered by the issues of leakage (in terms of prohibited fuels into Low Smoke Zones); the migration of air pollution; the application and abuse of fuel labelling; and a below target regime of solid fuel inspections by local authorities. As a result, it may be said that the current regime is

⁴³EPA Air Quality Report 2018.

⁴⁴Department of Communications, Climate Action & Environment, Press Releases 2019, 'Smoky Coal Ban to be extended to 13 towns – Minister Bruton Extends Smoky Coal Ban' published 17 December 2019 <<https://www.dccae.gov.ie/en-ie/news-and-media/press-releases/Pages/Minister-Bruton-Extends-Smoky-Coal-Ban.aspx>>.

sub-optimal in terms of enforcement. The options to hand are considered in terms of such enforcement issues, whilst bearing in mind that the assessment is set in a relative context at all times.

4.5.1 Nationwide Prohibition on Bituminous Coal

This option is considered the least acceptable in terms of enforcement as it opens up the real prospect of fuels which potentially emit high PM content (such as peat and biomass) filling the fuel vacuum – a ‘perverse effect’ in terms of the EU Clean Air Dialogue (see Section 4.2.1.1 above). The prospect exists, in this scenario, for a significant increase in use of peat and similar fuels. The current issue of mislabelling smokeless (or more accurately ‘less smoke’) coal would also subsist; both within and outside low smoke zones.

4.5.2 Nationwide Prohibition on Smoky Fuels

This option is considered the most acceptable in terms of enforcement as it would allow for the prohibition of specified fuels throughout the country. In that regard, the use of bituminous coal, peat and other high PM producing fuels would be illegal. As only smokeless coal would be allowed enter the country, the current issue of monitoring different types of coal would diminish. Clearly, wider environmental enforcement of the ban would be required by the local authorities; however, the identification of the sale or use of a non-specified fuel would be a more straightforward task than it is today.

4.5.3 Roll-out of Low Smoke Zones

This option is considered only moderately acceptable in the context of the options being assessed. This would, in essence, be a continuation of the current enforcement regime which, upon the review given above in this section, is considered to be sub-optimal.

4.6 Conclusion

The Environmental Protection Agency (EPA) plays an important role in terms of air quality results, monitoring and recording environmental enforcement performance in Ireland.

The EPA identified that in 2010 the total emissions of PM₁₀ and PM_{2.5} from peat were about double that from coal; whilst biomass also produced double the level of PM_{2.5} from coal. In contrast, natural gas was found to produce about 100 times less PM₁₀ and PM_{2.5} than smokeless coal. The CSO showed that in 2014 natural gas and electricity are the principal sources of home heat in Dublin; whilst peat is a significant source of fuel in the Midlands and Western regions of the country.

Early EPA air quality monitoring data for the period 2004-2020 showed that the greatest positive impact (in terms of a reduction in PM₁₀) of the ban on smoky fuels in low smoke zones was that seen in Dublin and Cork. This is because these cities were large and natural gas was available. Low Smoke Zones in smaller urban areas were likely to see leakage of fuel types and air pollution across boundaries.

On this basis the EPA were supportive of longer term progress towards a nationwide ban on the importation, sale and distribution of bituminous coal (pre SI 326/2012 fuel definitions) for domestic use, subject to regulatory impact assessment and consultation with the authorities in Northern Ireland.

The EU Clean Air Dialogue with Ireland (2017) identified that residential solid fuel heating is the largest source of PM_{2.5} (responsible for over 50%) in Ireland – despite

providing less than 5% of the national energy demand. Consequently, the Dialogue considered that there is a pressing need to significantly reduce this source at the earliest opportunity.

Annual monitoring of air quality conducted by the EPA in the years 2017 and 2018 showed that the specified monitoring stations did not meet WHO air quality guidance for PM_{2.5} and were higher in small towns without Low Smoke Zones. Key ongoing issues relate to leakage of fuel types, migration of air pollution, fuel labelling and below target solid fuel inspections by local authorities.

In the context of air quality monitoring and enforcement, a nationwide prohibition on smoky fuels is considered the most acceptable option; a roll-out of low smoke zones only moderately acceptable; and a nationwide prohibition on bituminous coal to be least acceptable.

5.0 Free Movement of Goods

5.1 Introduction

The free movement of goods is one of the four fundamental freedoms of the European Union (EU) necessary for the maintenance of a single internal market.⁴⁵ A nationwide prohibition on bituminous coal or other smoky fuels, or any product for that matter, would necessarily limit this freedom and therefore run contrary to the ultimate purpose of the EU. However, the Treaty on the Functioning of the European Union (TFEU) allows that restrictions on imports may be permissible where they are justified on grounds including ‘the protection of health and life of humans’.⁴⁶ Air pollution is estimated to have caused 1,180 premature deaths in 2016 alone, with PM_{2.5} accounting for the majority of these.⁴⁷ In 2013, the financial cost of air pollution, including 382,00 lost workdays, was estimated to be greater than €2 billion.⁴⁸ It is clear that there is a legitimate objective in measures designed to address the primary source of PM pollution.⁴⁹

While the grounds justifying a restriction on imports listed in the TFEU are exhaustive,⁵⁰ the Court of Justice of the European Union (CJEU) has accepted other grounds where measures are applied equally to both domestically produced and imported goods. These measures, termed ‘indistinctly applicable measures’, are subject to the ‘rule of reason’ as formulated in the *Cassis de Dijon* case.⁵¹ While the Luxembourg courts have not set out an exhaustive list of grounds justifying indistinctly applicable measures they have long accepted ‘protection of the environment’ as one such ‘mandatory objective’.⁵² As any widescale change of fuel use is likely to have an impact on the environment, including on green-house gas (GHG) emissions, the impact of any proposal should be estimated to the extent that is possible.⁵³ Where a proposal is likely to reduce GHG emissions it would be further justified in protecting the environment.

Although the purpose of further regulation would not be to restrict imports it might, depending on its form, amount to a ‘measure having an equivalent effect to quantitative restrictions’ (MEEQR).⁵⁴ To assess whether the purported benefits are an adequate justification for the restriction of free movement of goods the proposals must be considered in light of the overriding principle of proportionality in EU law.

⁴⁵Treaty on the Functioning of the European Union (TFEU) Arts. 26, 28. [26/10/2012] <<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:12012E/TXT>>.

⁴⁶TFEU Art.36.

⁴⁷EPA, *Air Quality in Ireland 2018* (EPA 2019), 25; see further Section 7.2 Health.

⁴⁸Department of Communications, Climate Action and Environment, *Air Quality Overview - Health effects of Air Pollution*, <<https://www.dccae.gov.ie/en-ie/environment/topics/air-quality/Pages/Air-Quality-Overview.aspx>>.

⁴⁹*supra* fn. 47, EPA *Air Quality in Ireland 2018*, 12.

⁵⁰*Commission v Ireland*, C-113/80 (17 June 1981) [hereinafter: *Irish Souvenirs*], [7]. <<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:61980CJ0113>>.

⁵¹*Rewe-Zentral AG v Bundesmonopolverwaltung für Branntwein*, C-120/78 (20 February 1979) [hereinafter: *Cassis de Dijon*]. <<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:61978CJ0120>>.

⁵²*Commission v Denmark*, C-302/86 (20 September 1988) [hereinafter: *Danish Bottles*], discussed below, <<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:61986CJ0302>>.

⁵³If any of the proposals are adopted they should make up part of the National Clean Air Strategy which would require such an assessment of the entirety of the plan prior to its adoption in accordance with Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment (SEA Directive). <<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32001L0042>>.

⁵⁴TFEU Art. 34; *Procureur du Roi v Benoît and Gustave Dassonville*, C-8/74 (11 July 1974) [hereinafter: *Dassonville*], [5] ‘All trading rules enacted by Member States which are capable of hindering, directly or indirectly, actually or potentially, intra-Community [now Union] trade are to be considered as measures having an effect equivalent to quantitative restrictions.’ <<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:61974CJ0008>>.

5.2 The Principle of Proportionality in European Union Law

The principle of proportionality is fundamental to the EU legal order. An early expression of the principle in the EU context states that ‘citizens may only have imposed on them, for the purposes of the public interest, obligations which are strictly necessary for those purposes to be attained.’⁵⁵ Therefore, in order to assess the compatibility of a policy or measure with EU law, particularly where it would or does encroach on any of the fundamental freedoms of the EU, it must be scrutinised on the basis of whether it is a legitimate means to a legitimate end and whether it unduly encroaches on personal freedoms.

Case law concerning the prohibition of quantitative restrictions on imports has consistently involved some form of proportionality test, as early as the *de Peijper* case⁵⁶ the court held that:

... it emerges from Article 36 that national rules or practices which do restrict imports of pharmaceutical products or are capable of doing so are only compatible with the Treaty to the extent to which they are necessary for the effective protection of health and life of humans.⁵⁷

The CJEU also clearly set out the application of a proportionality test where an indistinctly applicable MEEQR restricts a fundamental EU freedom in the case of *Cassis de Dijon*. The rule of reason is in essence a proportionality test as it reads:

...obstacles to movement within the Community resulting from disparities between the national laws relating to the marketing of the products in question must be accepted *in so far as those provisions may be recognized as being necessary* in order to satisfy mandatory requirements.⁵⁸

In *Cassis de Dijon*, German legislation which precluded the sale of fruit liqueur with an alcohol content of less than 25% was found to be disproportionate in pursuit of the objective protecting the fairness of commercial transactions. The German government argued that permitting the sale of lower alcohol content liqueurs would give those beverages an unfair competitive advantage.⁵⁹ The Court was not persuaded and considered that competitive fairness might easily be protected by clear labelling.⁶⁰

The proportionality test is commonly set out in three parts:

- (i) the measure must be appropriately aimed at a legitimate objective;
- (ii) the measure must be necessary, with no less restrictive means of achieving the objective available;
- (iii) the measure must be proportionate or balanced, in that any injury or restriction caused should be offset by the benefits gained without the measure being discriminatory.

⁵⁵*Internationale Handelsgesellschaft v Einfuhr- und Vorratsstelle für Getreide und Futtermittel*, C-11/70 Opinion of Advocate-General Duthuillet de Lamothe (2 December 1970), 1146. <<http://curia.europa.eu/juris/showPdf.jsf?text=&docid=87990&pageIndex=0&doclang=EN&mode=lst&dir=&occ=first&part=1&cid=8104387>>.

⁵⁶*Adriaan de Peijper*, C-104/75 (20 May 1976) [hereinafter: *de Peijper*]. <<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:61975CJ0104>>.

⁵⁷*ibid*, *de Peijper* [16].

⁵⁸*supra* fn. 50, *Cassis de Dijon* [8] (emphasis added).

⁵⁹*ibid*, *Cassis de Dijon* [12].

⁶⁰*ibid*, *Cassis de Dijon* [13].

5.3 Relevant Decisions of the Court of Justice of the European Union

There has been a marked decline in the number of cases before the CJEU concerning the free movement of goods over the lifetime of the EU. This can be attributed to the internal market having been largely completed. However, the case law concerning attempts to introduce minimum unit pricing for alcoholic drinks reaffirms the influence of proportionality and the need to consider measures less restrictive on trade and competition.

5.3.1 Measures Having an Equivalent Effect to Quantitative Restrictions

The foundational decision of the CJEU relating to MEEQRs comes from the *Dassonville* case⁶¹ which provides a clear definition of a MEEQR:

... [a]ll trading rules enacted by Member States which are capable of hindering, directly or indirectly, actually or potentially, intra-community trade are to be considered as measures having an effect equivalent to quantitative restrictions.⁶²

The judgment of the court in *Cassis de Dijon* confirms certain circumstances where a MEEQR may be permissible despite restricting trade:

... those provisions may be recognized as being necessary in order to satisfy mandatory requirements relating in particular to the effectiveness of fiscal supervision, *the protection of public health*, the fairness of commercial transactions and the defence of the consumer.⁶³

A significant indication of a more relaxed approach by the court came in the *Keck* judgment⁶⁴ where the court expressly reversed the position of previous decisions and held that:

... the application to products from other Member States of national provisions restricting or prohibiting certain selling arrangements is not such as to hinder directly or indirectly, actually or potentially, trade between Member States within the meaning of the *Dassonville* judgment (Case 8/74 [1974] ECR 837), so long as those provisions apply to all relevant traders operating within the national territory and so long as they affect in the same manner, in law and in fact, the marketing of domestic products and of those from other Member States.⁶⁵

As all of the proposals considered by this report would be applied equally to both imports and domestically produced goods, so-called ‘indistinctly applicable measures’, they would *prima facie* appear to be lawful in this regard. However, a nationwide prohibition on bituminous smoky coal alone would likely increase the market share of domestically produced wood and peat. Therefore, in fact it would prejudice goods imported from other Member States and favour domestically produced goods.

For the avoidance of doubt, it was clearly stated in the *Italian Trailers* case⁶⁶ that a regulation on the use of a product may qualify as a MEEQR:

... a prohibition on the use of a product in the territory of a Member State has a considerable influence on the behaviour of consumers, which, in its turn, affects the access of that product to the market of that Member State. ... [T]o the extent that its effect is to hinder access to the Italian market for trailers ... lawfully produced and marketed in Member States other than the Italian Republic, [it] constitutes a measure having equivalent effect to quantitative

⁶¹*supra* fn. 53, *Dassonville*.

⁶²*ibid*, *Dassonville* [5].

⁶³*supra* fn. 50, *Cassis de Dijon* [8] (emphasis added).

⁶⁴*Criminal proceedings against Bernard Keck and Daniel Mithouard*, joined cases C-267/91 and C-268/91 (24 November 1993) [hereinafter: *Keck*] <<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:61991CJ0267>>.

⁶⁵*ibid*, *Keck* [16].

⁶⁶*Commission v Italian Republic*, C-110/05 (10 February 2009) [hereinafter: *Italian Trailers*].

<<http://curia.europa.eu/juris/document/document.jsf?text=&docid=72844&pageIndex=0&doclang=EN&mode=lst&dir=&occ=first&part=1&cid=2305811>>.

restrictions on imports within the meaning of Article 28 EC [now Article 34 TFEU], unless it can be justified objectively.⁶⁷

5.3.2 Grounds Justifying a Restriction on Trade

There are a number of grounds which may justify a restriction on trade.

5.3.2.1 The Protection of Health and Life of Humans, Animals or Plants

In September 1981 the UK government introduced an effective ban on the import into Great Britain of poultry and eggs from all Member States other than Denmark and Ireland with the purported intention of preventing the spread of an avian virus known as Virulent Newcastle Disease (VND). The European Commission (hereinafter 'the Commission') initiated enforcement proceedings against the UK alleging that the ban amounted to a disguised restriction on trade (a MEEQR) and was beyond what was necessary for the protection of animal and human health.⁶⁸ The UK contended that similar licensing regimes had been permitted in response to foot-and-mouth disease and swine fever. The court took account of a number of contextual facts including a significant increase in imports of poultry from France in the years leading up to the ban. The entry into force of the revised licensing regime also coincided with a seasonal uptick of turkey imports and had been welcomed by the poultry industry in Great Britain for this reason. The measures were also not in response to any outbreak or similar emergency situation. The measures were in fact a reversion to the policy of the UK up to 1964. At that time the UK government had engaged in a thorough consideration of the policy options including committee reports, studies and consultation with relevant experts. The absence of such a process in 1981 led the court to conclude that the 'measures did not form part of a seriously considered health policy'.⁶⁹ The court ultimately held that the licensing regime was not compatible with EU law as measures less restrictive on trade had proven to be effective in preventing the spread of VND⁷⁰ and the prevalence of the disease was in decline across the EU.

In 2012 the devolved Scottish Government sought to introduce a minimum price per unit (MPU) for alcoholic drinks. The validity of this measure was challenged by various industry bodies and the Scottish court referred several questions of EU law to the CJEU.⁷¹ The Luxembourg court found that the introduction of an MPU was potentially an appropriate means of addressing the objective of reducing consumption of alcohol, both generally and amongst problematic drinkers, and that the measure would do so in a consistent and systematic manner.⁷² The CJEU also reaffirmed that where a Member State seeks to introduce a measure which will clearly restrict trade the national authorities must demonstrate that it would be proportionate. In doing so they must provide evidence or analysis of the appropriateness and proportionality. The national authorities will not be required to demonstrate that the proposed measure is the only means by which the objective could be achieved.⁷³ When assessing the proportionality of a measure, courts may also take into account information not available to the legislature at the time of drafting or entering into effect.⁷⁴

⁶⁷*ibid*, *Italian Trailers* [56-58].

⁶⁸*Commission of the European Communities v United Kingdom of Great Britain and Northern Ireland*, C-40/82 (15 July 1982) [hereinafter: *Commission v UK*], [14].

<<https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1585670021448&uri=CELEX:61982CJ0040>>.

⁶⁹*ibid*, *Commission v UK* [38].

⁷⁰*ibid*, *Commission v UK* [26].

⁷¹*Scotch Whiskey Association v Lord Advocate, Advocate General for Scotland*, C-333/14 (23 December 2015) [hereinafter: *Scotch Whiskey Association*], <<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A62014CJ0333>>.

⁷²*ibid*, *Scotch Whiskey Association* [36-38].

⁷³*ibid*, *Scotch Whiskey Association* [55].

⁷⁴*ibid*, *Scotch Whiskey Association* [63-64].

However, the CJEU then turned to the question of whether a measure less restrictive on trade, in this case an increase of excise duties, might achieve the same objective. The CJEU considered that it could not be presumed that an increase in excise duties would be less effective but that it was a matter for the national court to determine in light of the full factual circumstances available to it.⁷⁵ Where a less restrictive measure was available, and it could not be shown that the alternative would be less effective, that would render the introduction of an MPU unlawful.

5.3.2.2 Protection of the Environment

Although ‘protection of the environment’ is not explicitly listed as grounds potentially justifying a restriction on trade under Article 36 of the TFEU in some circumstances it might reasonably be imputed from ‘protection of health and life of humans, animals or plants’.⁷⁶ The CJEU has also developed a body of case law concerning indistinctly applicable restrictions on the free movement of goods justified by reason of protection of the environment.

In 1981 Denmark introduced legislation requiring certain drinks to be sold in reusable containers, with such containers requiring prior approval by national authorities. Amending legislation later allowed the sale of drinks in non-approved containers provided that a deposit-and-return scheme was established, that the container was not metal and that only a limited quantity was made available to market. The Commission initiated enforcement proceedings on the grounds that these measures were a disproportionate interference with the free movement of goods.⁷⁷ Applying the *Cassis de Dijon* rule of reason in the *Danish Bottles* case, the court clearly stated that ‘the protection of the environment is a mandatory requirement which may limit the application of Article 30 [now Article 34 TFEU] of the Treaty’,⁷⁸ i.e. the prohibition on measures restricting imports.

A nationwide prohibition on bituminous coal alone is likely to increase demand for alternative solid fuels including peat. Given peatlands well-documented ability to act as a carbon sink⁷⁹ (i.e. a natural means of trapping carbon dioxide) and their vital importance to biodiversity in Ireland,⁸⁰ such a policy would exasperate the climate and biodiversity crises and would therefore not further the objective of protecting the environment. Similar considerations apply to the likely increase in demand for wood and biomass that would result from a nationwide prohibition on bituminous coal. While there are a number of variables at play, domestically produced wood and biomass may cause net carbon emissions.⁸¹ Existing and expanding commercial forestry often has a very negative impact on biodiversity as commercial forestry is typically made up of a monoculture of non-native species.⁸² The EPA has clearly stated that, ‘... [t]he management of peatlands is a particular concern with respect

⁷⁵*ibid*, *Scotch Whiskey Association* [49-50].

⁷⁶The importance of environmental protection in the EU is also highlighted by Article 114(4),(5) TFEU which envisages protection of the environment as a potential ground for Member States’ divergence from legal harmonisation.

⁷⁷*supra* fn. 52, *Danish Bottles*.

⁷⁸*ibid*, *Danish Bottles* [9].

⁷⁹See e.g. Environmental Protection Agency, *Network Monitoring Rewetted and Restored Peatlands/Organic Soils for Climate and Biodiversity Benefits (NEROS)*, Renou-Wilson *et al.* (EPA 2018) [hereinafter: *EPA NEROS Study*], 1 [1.1.1] <http://www.epa.ie/researchandeducation/research/researchpublications/researchreports/Research_Report_236.pdf>.

⁸⁰*ibid*, *EPA NEROS Study*, 1 [1.1.1]

⁸¹Chatham House, *The Impacts of the Demand for Woody Biomass for Power and Heat on Climate and Forests*, Brack (Chatham House 2017), 10 ‘The harvesting of whole trees for energy will in almost all circumstances increase net carbon emissions very substantially compared to using fossil fuels, both because of the loss of future carbon sequestration from growing trees and because of the release of soil carbon consequent upon the disturbance.’ <<https://www.chathamhouse.org/sites/default/files/publications/research/2017-02-23-impacts-demand-woody-biomass-climate-forests-brack-final.pdf>>.

⁸²FORESTBIO, Management of biodiversity in a range of Irish forest types, O’Halloran *et al.* (UCC/TCDCoillte - Report for Dept Agriculture, Fisheries and Food 2011), iii <<https://www.ucc.ie/en/media/research/planforbio/pdfs/FORESTBIOFinalProjectReport.pdf>>.

to potential for loss of carbon. Peat extraction and change of use of drained peatland to grassland or forestry leads to high rates of carbon loss.⁸³

5.4 Assessment

Before considering the compatibility of each of the proposed reforms to the free movement of goods under EU law there are some points of note which are relevant to each of the policy options. These will now be considered:

- Each proposal satisfies the first limb of the proportionality test in that air quality measures seek to address a legitimate objective. Measures for the prevention of air pollution clearly have a legitimate objective in ‘protection of life and health of humans’ in the terms of the TFEU. To the extent that it is possible to estimate, the potential impact of each proposal on greenhouse gas (GHG) emissions should be assessed. Any proposal which would likely reduce GHG emissions would be further legitimised on the grounds of environmental protection, as accepted in *Danish Bottles*.
- Any reform must be preceded by engagement with relevant experts to evidence that it is part of a seriously considered policy. Consultation with epidemiological and enforcement experts in particular would be essential to proving the legitimacy or superiority of any proposed measure.
- The decision of the CJEU in the *Scotch Whiskey Association* case makes clear that policy makers must opt for measures less restrictive on trade where they are likely to be equally effective. Each proposal considered in this report likely represents a greater restriction on trade than for instance the introduction of a graduated ‘air pollution tax’ applied to all fuels used in domestic heating based on the type and quantity of particulate matter (PM) and other pollutants emitted. Therefore, any move to reform must provide evidence that such methods of economic persuasion would be less effective, disproportionate or perhaps that a more immediate response is necessary given the impact on health.

For ease of reference the proportionality test is repeated below:

- (i) the measure must be appropriately aimed at a legitimate objective;
- (ii) the measure must be necessary, with no less restrictive means of achieving the objective available;
- (iii) the measure must be proportionate or balanced, in that any injury or restriction caused should be offset by the benefits gained without the measure being discriminatory.

5.4.1 Nationwide Prohibition on Bituminous Coal

A nationwide prohibition on bituminous coal would likely fail the second limb of the proportionality test unless it can be evidenced that no less restrictive measure could protect human health from its pollutants. In particular, such an approach would require evidence that the current geographically limited approach is ineffective, for instance, due to a lack of effective enforcement.⁸⁴

⁸³Frank McGovern, ‘Climate Change’ in Brendan Wall, Jonathan Derham and Tadhg O’Mahony (eds), *Ireland’s Environment 2016 An Assessment* (EPA 2016) [hereinafter: *EPA Ireland’s Environment 2016*] 46.
<<http://www.epa.ie/ebooks/soe2016/index.html#50/z>>.

⁸⁴See Section 4.4 Enforcement.

This proposal might fail the third limb of the proportionality test as it discriminates between bituminous coal and other fuels. To avoid this, it would need to be evidenced that the emissions from bituminous coal are particularly harmful, due to quantity or quality. This evidence would need to be particularly robust given that other solid fuels in common use, peat and wood, are produced domestically and this policy would benefit these industries.

The Conclusions of the Clean Air Dialogue between the Government and the Commission make reference to ‘expanding the ban on smoky coal’⁸⁵ but do not raise any concerns as to compatibility with the free movement of goods or EU competition law. It might be inferred that the Commission foresaw no issues in this regard.

In the context of free movement of goods a nationwide prohibition on bituminous coal would be least acceptable.

5.4.2 Nationwide Prohibition on Smoky Fuels

Similarly to 5.4.1, this reform would require evidence that the current geographically limited model is ineffective. While this option would likely be amongst the most effective in addressing air pollution it faces significant hurdles in proving its necessity as there are a wide array of options which would be less restrictive on trade.

That this model would discriminate between smoky fuels and others would likely not be an issue where it can be shown that those fuels which are not subject to the ban do not have a similar impact on human health.

In the context of free movement of goods a nationwide prohibition on smoky fuels would be most acceptable.

5.4.3 Roll-out of the Existing Low Smoke Zones

The existing model would seem to have been accepted as necessary by the Commission and has yet to face legal challenge from private actors in the decades since its introduction. However, there may be even less restrictive measures, such as a tax, that would need to be addressed in justifying a progression of the geographical approach.

There is a possibility that the model is discriminatory as to which citizens have their health protected as it addresses pollution levels in certain areas but may not cover areas which have smaller populations but similar concentrations of pollutants due to local factors. However, there is a significant gap in the data on air pollution which leaves this possibility difficult to either prove or disprove.⁸⁶ Were the data available, this might be addressed by the Minister including any area shown to have a particular pollution issue in the areas under the controls.

In the context of free movement of goods a roll-out of the existing low smoke zones would be moderately acceptable.

5.5 Conclusion

A nationwide prohibition on all smoky fuels, subject to a number of qualifications, would appear to be the most acceptable policy despite being the most restrictive on

⁸⁵ *Conclusions on the Clean Air Dialogue with Ireland* (Department of Communications, Climate Action and the Environment - European Commission, 13 March 2017), [3]; see also Section 4.2.2.1 EU Clean Air Dialogue. <https://ec.europa.eu/environment/air/pdf/conclusions_CleanAirDialogue_Ireland.pdf>.

⁸⁶ See Directorate-General for Environment, European Commission, *Environmental Implementation Review 2019 Country Report – Ireland* (European Union 2019), 15.

trade. The broader policy impacts of reform are discussed later in this report⁸⁷ but some observations should be made at this point.

Firstly, given that there were no less than 1,180 preventable deaths attributable to air pollution in 2016 there is clearly an urgent need to address this issue. The experience of the limited bituminous coal ban has provided strong scientific evidence that the prohibition of certain residential fuels is effective in reducing the health impact of air pollution.⁸⁸ Recent studies have shown that burning other fuels including wet wood and peat are equally as harmful to human health.⁸⁹ Further, the WHO advises that there is no level of air pollution which does not adversely affect human health.⁹⁰ Accordingly, there is no other approach which is likely to be as effective in pursuit of the protection of public health.

Secondly, in light of the strong associations between income level, rural location and fuel choice, policy-makers must introduce measures to ensure that further regulation of residential fuel use does not exasperate or perpetuate fuel poverty.⁹¹

Thirdly, in accordance with *Scotch Whiskey Association*, policy-makers must engage with relevant experts and ensure coherence within the National Clean Air Strategy.

Finally, policy-makers must be cognisant of the climate crisis and avoid any perverse consequence such as a significant expansion of gas infrastructure or widescale conversion to oil heating. It should be noted that the EPA identified 'reducing our dependence on fossil fuels for energy, heating and transport' as a key action in 2016.⁹² Such alternatives would entail several decades of dependency on GHG-intensive means of heating and thus be inconsistent with the State's obligations under national, EU and international law.⁹³

⁸⁷See Section 7.0 Policy Considerations: Health, Climate and Social Justice.

⁸⁸See Section 4.2.1 Review of the Smoky Coal Regulations.

⁸⁹See Section 4.2.1.1 Other Fuel Sources of PM.

⁹⁰See Section 7.2 Health.

⁹¹See Section 7.4.2 Just Transition.

⁹²*supra* fn. 81, Brendan Wall, Jonathan Derham 'Environmental Challenges and Emerging Issues for Ireland' in *EPA Ireland's Environment 2016*, 213 [Key Action 2].

⁹³See Section 7.3 Climate.

6.0 Competition

6.1 Introduction

This section seeks to examine the barriers to reform under EU law which Ireland is bound to adhere to due to its status as an EU Member State.

6.2 Competition Law

Firstly, it must be understood how this aspect of EU law operates. Competition law is deeply rooted in the foundations of the European Union and was initially incorporated under the Treaty of Rome in 1957. The ethos behind competition law is primarily to ensure competitive prices for consumers, better quality of product and greater choice within the market. It also seeks to deter the operation of anti-competitive or 'cartel' practices which may disrupt the fair trade of the market. In order for it to work effectively, 'competition law requires companies to act independently of each other, but subject to the competitive pressure exerted by others.'⁹⁴ The primary aspects of competition law are covered by Articles 101-109 of the Treaty on the Functioning of the European Union (TFEU). For the purposes of legitimising a smoky fuel ban in correlation with this area of law, particular reference will be made to Article 101, pertaining to cartels and anti-competitive practices, and Article 102 which relates to market dominance and abuse of a dominant position.

6.2.1 Article 101 TFEU – 'Undertakings' and State Actors

The primary function of Article 101 is to prevent anti-competitive behaviour by cartels or similar organisations. The common understanding of the term cartel under competition law is 'a combination of independent commercial or industrial enterprises designed to limit competition or fix prices.'⁹⁵ Article 101 states that the following is deemed prohibited or incompatible with the internal market: '...all agreements between undertakings, decisions by associations of undertakings and concerted practices which may affect trade...'. This may involve directly or indirectly fixing purchase prices; limiting or controlling production or applying dissimilar conditions to equivalent transactions. One will note the reference to the term 'undertakings', which is of key significance in terms of implementing a smoky fuel ban. The term is not directly dealt with under the Treaty. This has left it open to interpretation in judgements which have been handed down by the Court of Justice of the European Union (CJEU). In the case of *Höfner*⁹⁶, involving the German Federal Office for Employment, the court held that the term undertaking should include '...any entity engaged in an economic activity regardless of its legal status and the way in which it is financed.'⁹⁷ This is significant from an Irish context as the wording of this judgment would seem to suggest that in order for a smoky fuel ban to be implemented it would have to come directly from the government. State or semi-state actors such as Coillte or Bord Na Móna would appear to be classified as 'undertakings' due to the fact they receive economic funding from the state.

To further understand the term 'undertaking' from an Irish perspective the *Panda Waste Services* case is also worth noting.⁹⁸ It was argued before the High Court by Panda Waste that a variation to the Waste Management Plan by Dublin City Council to exclude private waste collectors from the domestic waste collection market constituted an abuse of a dominant position. It was also alleged that there were

⁹⁴M. Lorenz, *An Introduction to EU Competition Law*, 1 (Oxford: Oxford University Press: 2013).

⁹⁵Merriam-Webster <<https://www.merriam-webster.com/dictionary/cartel>>.

⁹⁶Case C-41/90 *Höfner and Elser v Macroton GmbH* [1991] ECR I – 1979.

⁹⁷P. Craig and G. De Búrca, *EU Law: Texts, Cases and Materials* 5th Edition (New York: Oxford University Press: 2011) 961 [Hereinafter Craig and De Búrca].

⁹⁸*Nurendale Ltd (t/a Panda Waste Services) v Dublin City Council & Ors* [2009] IEHC 588.

efforts to 'wholly or primarily...grant the respondents total control over domestic waste in the Dublin region for the purpose of economic benefit to the detriment of competition.'⁹⁹ In his ruling, McKechnie J. found that:

The undertakings involved are unlike private dominant undertakings in that not only do they have a significant share of the market, but more importantly, they have the power to regulate it: to decide entry or no entry, to decide conditions of entry, and if allowed, to decide operative conditions.¹⁰⁰

The authorities in this case clearly had a dominant position within the market and attempted to use such dominance to alter it to the detriment of private waste collectors. Therefore, '...where an undertaking influences the structure of the market or seeks to strengthen its position on that market, either... may constitute abuse.'¹⁰¹ Based upon the reasoning of McKechnie J., an Irish state actor imposing a ban on smoky fuel with economic interests in mind would constitute abuse of their position due to their ability to exercise control over the entirety of the sector. Therefore, to avoid complicity, it is preferable that a prohibition on smoky fuels should come directly from government.

6.2.2 Government Imposition of a Smoky Fuel Ban

While state actors may be classified as undertakings for the purposes of Article 101, there is scope to argue that the action of the government may not. The case of *Poucet and Pistre*¹⁰² is relevant to this point. This case, of French origin, concerned requests for payment contributions to insurance schemes. The crux of the plaintiffs' argument was that they '... [had] no choice as to whom they contract with or the terms of the contract...' and that '...the services offered by the different bodies or funds which an insured person can use are substantially the same, merely being provided by different offices...'¹⁰³ The court noted that '...French law provides that any contract concluded outside the French system must be regarded as void, the applicants in the main proceedings consider that the system restricts competition on the insurance market in question.'¹⁰⁴ In responding to the two questions posed to it¹⁰⁵, the European court stated:

Sickness funds, and the organisations involved in the management of the public social security system, fulfil an exclusively social function. That activity is based on the principle of national solidarity and is entirely non-profit-making. The benefits paid are statutory benefits bearing no relation to the amount of the contributions.¹⁰⁶

Accordingly, the court found this to not be an economic activity in line with the reasoning in *Höfner* and therefore it determined that '...the concept of undertaking within the meaning of Articles [101] and [102] of the Treaty does not encompass organizations charged with the management of social security schemes of the kind referred to in the judgments of the national court'.¹⁰⁷ The reasoning here determines that an objective which is social in nature cannot be deemed to be an undertaking for the purposes of Article 101 as such objectives serve the interests of individuals and groups and society as a whole.

⁹⁹*ibid*, [1].

¹⁰⁰*ibid* [133].

¹⁰¹*ibid* [138].

¹⁰²Case 159 and 160/91 *Poucet and Pistre v Assurances Générales de France* [1993] ECR I – 637.

¹⁰³*ibid*, 639.

¹⁰⁴*ibid*.

¹⁰⁵Whether an organization charged with managing a special social security scheme is to be regarded as an undertaking for the purposes of Articles 85 and 86 of the Treaty. Whether the dominant position attributed by the national legislation of a Member State to an organization charged with the management of a special social security scheme is compatible with the Common Market.' See <<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:61991CJ0159>> (date accessed 25/2/20).

¹⁰⁶*ibid*, [18].

¹⁰⁷*ibid*.

6.3 ‘Vulnerable Citizens’

The points have previously been made in this report that an estimated 1180 premature deaths resulted from air pollution in 2016 alone with PM_{2.5}, the primary particle emitted from smoky coal, accounting for 1100 of these.¹⁰⁸ The financial cost of air pollution in 2013 also stood at over €2 billion.¹⁰⁹ As noted by academics Craig and De Búrca, ‘State-owned corporations can be undertakings when they operate in a commercial context, but not when they exercise their public law powers.’¹¹⁰ It can potentially be argued that the Government of Ireland is pursuing a social objective of overriding public importance with the introduction of a nationwide smoky fuel ban. There is scope to argue that it is protecting some of the more ‘vulnerable citizens’ of Irish society. This may include individuals with underlying health conditions which are exacerbated as a result of exposure to smoke-filled air. Particles emitted from smoky fuels which are less than 10 micrometres in diameter may penetrate deep into the lungs and bloodstream. According to the US EPA, ‘Of these, particles less than 2.5 micrometres in diameter, also known as fine particles or PM_{2.5}, pose the greatest risk to health.’¹¹¹ It has also been found that ‘people with heart or lung diseases- such as coronary artery disease, congestive heart failure...and asthma...are at an increased risk’¹¹² due to particulate matter having the capacity to aggravate such conditions. In December of 2019, County Cork recorded the worst air quality in Europe, with PM_{2.5} levels of more than 430 on the Environmental Protection Agency Air Quality Index (AQI).¹¹³ The need for the imposition of a national ban on smoky fuel can be legitimised on public health grounds in line with EU competition law. The government cannot be seen to be acting in the manner of an ‘undertaking’ under Article 101 in the pursuit of this social objective. The health impacts of particulate matter are discussed further in Section 7.2 of this report.

6.3.1 Article 102 TFEU – Abuse of a Dominant Position

While there is a strong argument to be made that a prohibition on smoky fuels could be implemented in accordance with Article 101, in turn Article 102- in relation to abuse of a dominant position- must also be satisfied. Under Article 102 (a), it is not permissible to ‘directly or indirectly [impose] unfair purchase or selling prices or other unfair trading conditions.’ In recent times, there have been calls to extend the ban on smoky coal nationwide. In 1990, a ban was implemented for the Dublin region in response to episodes of severe smog. According to figures published by the Department of Communications, Climate Action and Environment, ‘...the ban in Dublin resulted in over 350 fewer annual deaths. An estimate of these benefits in monetary terms put the value at over €20 million.’¹¹⁴ Outgoing Minister Richard Bruton has recently extended this ban to ‘all Irish towns with a population of over 10,000.’¹¹⁵ While this is welcomed, he reiterated the viewpoint that the imposition of a nationwide prohibition on bituminous coal would lead to ‘a serious risk of illegality’.¹¹⁶ The illegality which Minister Bruton is referring to may include, *inter alia*, ‘directly or indirectly imposing unfair purchase or selling prices...limiting production...

¹⁰⁸See: S.2.5.3 of Report.

¹⁰⁹*ibid.*

¹¹⁰Craig and De Búrca, 962.

¹¹¹USA Environmental Protection Agency <<https://www.epa.gov/pm-pollution/particulate-matter-pm-basics>> (date accessed: 23/03/20)

¹¹²USA Environmental Protection Agency, ‘Particle Pollution and Your Health’ (September 2003), EPA-452/F-03-001 <<https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P1001EX6.txt>>.

¹¹³Darragh Bermingham, ‘Cork Among The Most Polluted Places On Earth’, *The Evening Echo* (21 January 2020) <<https://www.echolive.ie/corknews/Cork-among-the-most-air-polluted-places-on-earth-30a5ce83-aef0-4db7-84a5-f62600072c7c-ds>>.

¹¹⁴Department of Communications, Climate Action and Environment, ‘Background to the Ban’ <<https://www.dccae.gov.ie/en-ie/environment/topics/air-quality/smoky-coal-ban/Pages/Background-to-the-ban.aspx>>.

¹¹⁵Shamim Malekmian, ‘Smoky coal ban extended but no nationwide ban yet’, *Green News* <<https://greennews.ie/smoky-coal-extension/>> (date accessed: 17/02/2020).

¹¹⁶*ibid.*

[And] applying dissimilar conditions to equivalent transactions...'.¹¹⁷ A nationwide prohibition on bituminous coal alone is not optimal: it is likely that smoky coal suppliers would mount a challenge against the imposition of such legislation under EU competition law, specifically in relation to the government imposing unfair trading conditions on one sector of the smoky fuel market. The government's efforts to apply dissimilar conditions to equivalent transactions would likely result in a breach of Article 102. Hence, a nationwide prohibition on all forms of smoky fuels is necessary. Such a ban seeks to address the market as a whole and apply homogenous conditions to all suppliers.

To further dispel doubt over the legitimacy of a ban in accordance with Article 102, the variable of 'product market' must be examined. When examining the product, the Court will generally look at the interchangeability of products to determine whether a firm has a dominant position. The imposition of a nationwide prohibition on smoky fuels would naturally result in consumers switching to smokeless fuel alternatives. It may be possible to argue however, that this may pose issues for rurally isolated consumers, for example in the West of Ireland, who rely primarily on smoky fuels such as turf due to ease of access. There is also potential scope to argue that there may be an insufficient interchangeability between smokeless and smoky fuels within these isolated rural areas. This could potentially see a distinct product market being identified. As an example of this, the case of *France Télécom*¹¹⁸ is applicable. Here, it was determined that the market for internet in France was distinct- given various availability in different areas- thereby leading to the establishment of distinct markets. Those opposed to the imposition of a smoky coal ban may challenge it on the grounds that the sale and supply of turf in rural Ireland is a distinct product market. A counter-argument of this nature is relatively weak, particularly given that infrastructure within Ireland is sufficient enough to allow ample supplies of smokeless fuel to reach rural areas. The government could also potentially provide subsidies for rurally isolated individuals to accommodate the transition from fuels such as turf to smokeless fuel. It is unlikely that the Irish courts or European court would be satisfied that a challenge of this nature is enough to prevent a prohibition being practicable in line with competition law.

In examining the legitimisation of a ban, the CJEU may also look at the variable of the geographic market. The geographic market is defined as '...the territory in which all traders operate in the same or sufficiently homogenous conditions of competition in relation to the relevant product or services...'.¹¹⁹ In this instance, it is quite clear that the market is the Republic of Ireland and that the proposed ban is intended to effectuate change in this market only. As per *United Brands*¹²⁰: '...import arrangements vary considerably from one member state to another and reflect a specific commercial policy to the states concerned'.¹²¹ For a firm/dominant firm, if it can be established that there is an objective justification for dominant behaviour, then it may be possible for it to escape condemnation. 'The decision...whether a refusal to supply is objectively justified and proportionate will often reflect certain assumptions concerning the relative importance of protecting competitors and consumers, or the relative significance of single market integration and consumer welfare.'¹²² The 'relative importance' of a smoky fuel ban, as previously stated, relates to the protection of human health and in particular those whose illnesses are exacerbated by poor air quality.

¹¹⁷Art. 102 TFEU (a-c).

¹¹⁸Case T-340/03 *France Télécom SA v Commission* [2007] ECR II – 107.

¹¹⁹Craig and De Búrca, 1015.

¹²⁰Case 27/76 *United Brands Company and United Brands Continental BV v Commission* [1978] ECR 207.

¹²¹*ibid*, [46].

¹²²Craig and De Búrca, 1041.

Furthermore, there have been suggestions from the EU Commission- which is responsible for competition policy- that a possible 'efficiency defence' should be made available under Article 102. This proposal suggests that '...efficiencies should outweigh the negative effects of the conduct concerned. This means that we balance the pro- and anti-competitive effect of the conduct and ensure that, in the final analysis, consumers are not harmed by the conduct.'¹²³ In the instance of a nationwide prohibition on smoky fuels, the efficiencies of improving overall public health and adhering to environmental targets set by EU Directives¹²⁴ far outweigh the current need for use of smoky fuel. In line with the referenced case law above; with necessary efforts to improve human health going forward; with adherence to EU directives; and with global efforts to mitigate global warming¹²⁵ a nationwide prohibition on smoky fuels within the Republic of Ireland can be justified under Article 102.

6.4 Assessment

6.4.1 General Comment

- In line with *Höfner* and *Panda Waste*, an Irish state actor imposing a ban on smoky fuel with economic interests in mind would constitute abuse of their position. This is primarily due to their ability to exercise control over the entirety of the sector. Therefore, to avoid complicity, it is preferable that a prohibition on smoky fuels should come directly from government.
- The need for the imposition of a nationwide prohibition on smoky fuels can be legitimised on public health grounds in line with EU competition law. The government cannot be seen to be acting in the manner of an 'undertaking' under Article 101 in the pursuit of this social objective.
- As per *United Brands*, 'import arrangements vary considerably from one member state to another and reflect a specific commercial policy to the states concerned.' For a firm/dominant firm, if it can be established that there is an objective justification for dominant behaviour, then it may be possible for it to escape condemnation.
- The decision '...whether a refusal to supply is objectively justified and proportionate will often reflect certain assumptions concerning the relative importance of protecting competitors and consumers, or the relative significance of single market integration and consumer welfare.' The 'relative importance' of a nationwide prohibition on smoky fuels, as previously stated, relates to the protection of human health and those whose illnesses are exacerbated by poor air quality. In line with the referenced case law above as well as with efforts to improve human health; with adherence to EU directives; and with global efforts to mitigate global warming a nationwide prohibition on smoky fuels within the Republic of Ireland can be justified under Article 102.

¹²³Neelie Kroes, 'Preliminary thoughts on policy review of Article 82' Speech at the Fordham Corporate Law Institute (September 2005) 5, <https://ec.europa.eu/commission/presscorner/detail/en/SPEECH_05_537> (date accessed: 26/02/20).

¹²⁴See for example: Directive 2008/50/EC of the European Parliament and of the Council on ambient air quality and cleaner air for Europe 2008 OJ (L152) <<https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1486474738782&uri=CELEX:02008L0050-20150918>>.

¹²⁵See generally: Intergovernmental Panel on Climate Change, an IPCC special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty, Summary for Policy Makers (2018) <http://report.ipcc.ch/sr15/pdf/sr15_spm_final.pdf>.

6.4.2 *Nationwide Prohibition on Smoky Coal*

- A nationwide prohibition on bituminous coal alone would be the least acceptable policy option. It is likely that smoky coal suppliers would mount a challenge against the imposition of such legislation under EU competition law, specifically relating to the government imposing unfair trading conditions on one sector of the smoky fuel market. The government's efforts to apply dissimilar conditions to equivalent transactions would likely result in a breach of Article 102. Hence, a prohibition on all forms of smoky fuels is necessary. Such a ban would seek to address the market as a whole and apply the same conditions to all suppliers.

6.4.3 *Nationwide Prohibition on Smoky Fuels*

- A nationwide prohibition on smoky fuels is the most acceptable policy option.
- In accordance with *Poucet and Pistre*, an objective which is social in nature cannot be deemed to be an undertaking for the purposes of Article 101. Such objectives serve the interests of individuals, groups and society in general.
- It can potentially be argued that the Government of Ireland is pursuing a social objective of overriding public importance in introducing a nationwide prohibition on smoky fuels. There is scope to argue that it is protecting some of the more 'vulnerable citizens' of Irish society.
- Particles emitted from smoky fuels that are less than 10 micrometres in diameter may penetrate deep into the lungs and bloodstream. According to the US EPA, 'Of these, particles less than 2.5 micrometers in diameter, also known as fine particles or PM2.5, pose the greatest risk to health.' It has also been found that 'people with heart or lung diseases – such as coronary artery disease, congestive heart failure...and asthma...are at an increased risk'¹²⁶. These health grounds must be considered by policy-makers.

6.4.4 *Progressive Roll-out of the Existing Controls to Areas with Lower Populations*

- This option is only moderately acceptable as it does not do enough to address issues pertaining to smoky fuels. As referenced above, segregating bituminous coal from the rest of the smoky fuels market may lead to contraventions of EU competition with suppliers of said fuel taking legal action. As a result, the expansion of existing measures to lower populated areas cannot be considered an optimal solution.

6.5 *Conclusion*

A nationwide prohibition on smoky fuels is the most acceptable policy option in relation to adherence to EU competition law. The partial smoky coal ban which has been implemented in parts of the country has failed to make any significant impact on air quality. This can be seen, for example, from figures collected by Purple Air from Cork County in December 2019. Secondly, the 1180 deaths which have occurred as a result of poor air quality show the urgent and pressing social need to ban smoky fuels. It is also not possible to legitimise a smoky coal ban under competition law.

As per *Poucet and Pistre*, an objective which is social in nature cannot be deemed an undertaking for the purposes of Article 101. The pursuit of improvement of public health and adherence to EU and global environmental policies satisfy this ground.

¹²⁶

The government cannot be seen to be acting in the manner of an ‘undertaking’ in pursuit of objectives of this nature. Accordingly, there is no breach of Article 101.

As regards Article 102 and abuse of a dominant position, the government can once again defend the legitimacy of a nationwide prohibition on smoky fuels. As per *United Brands*, import arrangements vary considerably from one member state to another and reflect certain policies which are relevant to that state. The proposed policy of a nationwide prohibition on smoky fuels is not intended to hurt consumers within the Irish market but, rather, to protect them from the health effects of, *inter alia*, particulate matter. As per advice from the World Health Organisation, there is no level of air pollution which does not affect human health.¹²⁷ Mitigating the impacts of this as much as possible is highly advisable.

Whilst a legal challenge in the form of turf being identifiable as a distinct market under the reasoning of *France Télécom* is unlikely to carry enough weight to successfully overrule a fuel prohibition, those individuals who rely on such smoky fuel and are rurally isolated should not be ignored. For example, appropriate subsidies and fuel grants should be implemented to avoid cases of ‘fuel poverty’, as is discussed in Section 7 of this report.

¹²⁷World Health Organisation, ‘Ambient Air Pollution’ [2 May 2018] <[https://www.who.int/en/news-room/fact-sheets/detail/ambient-\(outdoor\)-air-quality-and-health](https://www.who.int/en/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health)>.

7.0 Health, Climate and Social Justice

7.1 Introduction

The preceding chapters of this report have discussed the legal issues relating to the implementation of prohibitions on smoky fuels in Ireland. Moreover, there are also a number of important policy considerations to which due regard should be given by the Irish authorities in the implementation of any increased prohibitions on smoky fuels. These comprise the substantive issues of health; climate; and social justice. These key policy considerations will now be assessed.

7.2 Health

7.2.1 Introduction

The residential use of smoky fuel is a cause of poor air quality.¹²⁸ Air pollution is estimated to have caused 1,180 premature deaths in Ireland in 2016 alone with PM_{2.5} accounting for the majority of these.¹²⁹ The negative impact this has on human health is of particular concern to the Asthma Society of Ireland.

7.2.2 Particulate Matter

The Environmental Protection Agency (EPA) has described particulate matter as ‘one of the main types of pollutant that impacts people’s health in Ireland’.¹³⁰ The EPA has also noted that, ‘In Ireland the main source – especially of the smaller and more dangerous PM_{2.5} particles – is solid fuel burning for home heating.’ Indeed, the detrimental health consequences of pollutants caused by the use of smoky fuels are vast. According to the World Health Organisation (WHO):

The health risks associated with particulate matter [PM] of less than 10 and 2.5 microns in diameter (PM₁₀ and PM_{2.5}) are especially well documented. PM is capable of penetrating deep into lung passageways and entering the bloodstream causing cardiovascular, cerebrovascular and respiratory impacts... In children and adults, both short- and long-term exposure to ambient air pollution can lead to reduced lung function, respiratory infections and aggravated asthma.¹³¹

Asthma is one such respiratory condition which is impacted by air pollution. According to the Asthma Society of Ireland, asthma costs the Irish state €472 million per year.¹³² The implementation of increased measures to prohibit the use of smoky fuels therefore has the potential to improve respiratory health and reduce the annual

¹²⁸Environmental Protection Agency, *Air Quality in Ireland 2018 Report* (2019). Available online at <<https://www.epa.ie/pubs/reports/air/quality/Air%20Quality%20In%20Ireland%202018.pdf>>.

See also: Luke Clancy, Pat Goodman, Hamish Sinclair, Douglas W. Dockery, *Effect of air-pollution control on death rates in Dublin, Ireland: an intervention study* (2002). *The Lancet*, Vol 360: 1210-14.

See also: Patrick G. Goodman, David Q. Rich, Ariana Zeka, Luke Clancy & Douglas W. Dockery, *Effect of Air Pollution Controls on Black Smoke and Sulfur Dioxide Concentrations across Ireland* (2009). *Journal of the Air & Waste Management Association*, 59:2, 207-213. Available online at: <https://www.tandfonline.com/doi/abs/10.3155/1047-3289.59.2.207>.

See also: Effect of Air Pollution Control on Mortality in County Cork, Ireland. Rich David, George Prethibha, Goodman, Patrick, Ohman-Strickland, Pamela, Clancy, Luke, Kotlov, Tanya, Dockery, Douglas.

2009. <https://journals.lww.com/epidem/Fulltext/2009/11001/Effect_of_Air_Pollution_Control_on_Mortality_in.174.aspx>

See also: Douglas W. Dockery, David Q. Rich, Patrick G. Goodman, Luke Clancy, Pamela Ohman-Strickland, Prethibha George, Tania Kotlov, *Effect of Air Pollution Control on Mortality and Hospital Admissions in Ireland* (2013). Health Effects Institute Research Report Number 176, Available online at: <https://www.healtheffects.org/system/files/Dockery-176.pdf>.

¹²⁹EPA, *Air Quality in Ireland 2018* (EPA 2019), 25.

¹³⁰Environmental Protection Agency, *Air Quality in Ireland 2018 Report* (2019). Available online at <<https://www.epa.ie/pubs/reports/air/quality/Air%20Quality%20In%20Ireland%202018.pdf>>.

¹³¹World Health Organisation, *Air Pollution – Ambient Air Pollution: Health Impacts*. Available online at <<https://www.who.int/airpollution/ambient/health-impacts/en/>>.

¹³² Asthma Society of Ireland (ASI), *Asthma Facts & Figures*. Available online at <<https://www.asthma.ie/get-help/resources/facts-figures-asthma>>. For more information on the impacts of pollution on asthma see ASI’s Pre-Budget Submission 2019 available online at <https://www.asthma.ie/sites/default/files/files/document_bank/2018/Jul/ASI%20-%20Pre-Budget%20Submission%202019%20%282%29.pdf> and at <<https://www.asthma.ie/about-us/what-we-do/campaigns-advocacy/advocacy/pre-budget-submissions>>.

cost to the Irish health service of treating respiratory-related conditions. In fact, in relation to the current smoky coal ban the EPA has stated that, 'Any measure that extends the area of the ban would improve ambient air quality and thus improve health. The EPA recommends extending the ban to other areas to reduce levels of PM₁₀ further.'¹³³ To go further and extend a ban to all smoky fuels would therefore have an even more significant impact on human health¹³⁴. Regarding human health impacts WHO:

... has stated in relation to particulate matter that 'there is little evidence to suggest a threshold below which no adverse health effects would be anticipated'... thus any measure that is adopted to decrease concentrations of PM in ambient air should result in positive health effects for the general population.¹³⁵

Resultantly, a measure such as the introduction of a prohibition on the use of smoky fuels rather than merely expanding the scope of the existing smoky coal restrictions would more significantly contribute to the reduction of respiratory health conditions. In fact, other countries- such as the UK- have already announced bans on use of the most polluting fuels.¹³⁶

The Department of Communications, Climate Action & Environment (DCCAE) has said, at EU level, that 'Reducing levels of illness, including respiratory and cardiovascular diseases, and premature death is the main priority.'¹³⁷ Further, the European Commission has recognised that:

... in most Member States, the quality of life of EU citizens remains hampered, as air quality standards are still not being met. The situation is especially severe in urban areas, where a majority of Europeans live. Air pollution is a cause of both chronic and serious diseases such as asthma, cardiovascular problems and lung cancer.¹³⁸

In 2017 the DCCAE and the European Commission noted in their *Conclusions on the Clean Air Dialogue with Ireland* that, 'air pollution still has a significant health impact in Ireland and projected economic trends will likely increase emissions and thus push Ireland closer to prescribed limits'. In the same report it was noted that 'regular review of the monitoring network is needed'; and that:

Expanding the ban on smoky coal will reduce health costs from residential solid fuel use in Ireland... Residential solid fuel heating is the largest source of PM_{2.5} and PAHs (responsible for over 50% and 90% respectively) in Ireland - despite providing less than 5% of national energy demand - so there is a need to tackle this source.¹³⁹

The Irish authorities have therefore recognised at EU level that there is a need to take action against the health impacts associated with fuel use and air quality.

¹³³ Environmental Protection Agency, *EPA Submission to the Department of Environment, Community and Local Government's Public Consultation on the Review of the Smoky Coal Regulations* (2012), page 5. Available online at <<https://www.epa.ie/pubs/epasub/EPA%20Response%20on%20Smoky%20Coal%20Regs%20Consultation.pdf>>.

¹³⁴ See also Section 6.3 of this report in relation to 'vulnerable citizens'.

¹³⁵ Environmental Protection Agency, *EPA Submission to the Department of Environment, Community and Local Government's Public Consultation on the Review of the Smoky Coal Regulations* (2012), page 5. Available online at <<https://www.epa.ie/pubs/epasub/EPA%20Response%20on%20Smoky%20Coal%20Regs%20Consultation.pdf>>.

¹³⁶ BBC News, *Wood burners: Most polluting fuels to be banned in the home*, 21 February 2020. Available online at <<https://www.bbc.com/news/uk-51581817>>.

¹³⁷ Department of Communications, Climate Action & Environment, *EU Clean Air Policy*. Available online at <<https://www.dccae.gov.ie/en-ie/environment/topics/air-quality/eu-clean-air-policy/Pages/default.aspx>>.

¹³⁸ European Commission, *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: A Europe that protects: Clean air for all (COM 2018 330 final)*, 17 May 2018, page 1. Available online at <<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52018DC0330&from=FR>>.

¹³⁹ Department of Communications, Climate Action & Environment and European Commission, *Conclusions on the Clean Air Dialogue with Ireland*, 13 March 2017. Available online at <<https://www.dccae.gov.ie/documents/CAD%20conclusions%20%20Final.pdf>>.

7.2.3 Migratory Pollution and ‘Leakage’

Scientific evidence indicates that pollution from the use of smoky fuels spreads through the air. As such, pollution released by smoky fuel use in unregulated areas migrates from these locations into areas which are designated as low-smoke zones. In interview with Professor John Sodeau of UCC’s Centre for Research into Atmospheric Chemistry the Irish Times noted that:

Many small Irish rural towns and villages have no ban, and the particulates that enter the atmosphere there can move across the country. One of the main problems people don’t understand about air pollution is that it floats and moves... So-called trans-boundary events could occur between countries, so “without a doubt”, it would move between Irish towns.¹⁴⁰

Due to the transmission of pollution from unregulated areas into designated low-smoke zones it is clear that the present system in Ireland of designating low-smoke zones is insufficient to prevent the health consequences associated with the use of smoky fuels. Therefore, implementing further restrictions on smoky fuels would be an effective way to prevent the health consequences associated with pollution (including migratory pollution) from the use of smoky fuels.

In addition, where only certain specified locations are covered by a prohibition on fuels then issues of ‘leakage’ arise. This involves the movement of prohibited fuels from unregulated locations into restricted zones for use in these zones. Measures to prevent ‘leakage’ of fuels are virtually unenforceable. Therefore, the designation of particular zones for restriction is ineffective. For example, there is reported to currently be a ‘black market’ illegal trade for smoky coal whereby it is incorrectly labelled as being smokeless coal before being smuggled across the border from Northern Ireland and sold in designated low-smoke zones in the Republic of Ireland¹⁴¹. The existence of such a practice highlights the difficulty in enforcing location-based fuel bans and emphasises the need for strict monitoring to be effectively carried out in order to oversee any prohibition on fuels.

7.2.4 Environmental Rights and Precaution

Moreover, the High Court of Ireland has recently recognised that there exists an unenumerated constitutional right under Article 40.3.1° of Bunreacht na hÉireann (the Irish Constitution) to ‘a personal constitutional right to an environment that is consistent with the human dignity and well-being of citizens at large’.¹⁴² Given that Article 40.3.1° of Bunreacht na hÉireann outlines that ‘the state guarantees in its laws to respect, and, as far as practicable, by its laws to defend and vindicate the personal rights of the citizen’ it would therefore be prudent of policy-makers to respect this unenumerated right when considering the health impacts of policy decisions relating to smoky fuels.¹⁴³

Furthermore, while there is some data available, there is currently insufficient monitoring of levels of particulate matter in the Irish context. In relation to the need for governments to adopt policies in the interest of human health a report by the World Health Organisation has noted that the precautionary principle ‘seeks to shift health and environmental policy from a strategy of “reaction” to a strategy of

¹⁴⁰ Jack Horgan-Jones, ‘Severe consequences for areas not covered by smoky coal ban – expert’ *The Irish Times* (11 June 2019). Available online at <<https://www.irishtimes.com/news/ireland/irish-news/severe-consequences-for-areas-not-covered-by-smoky-coal-ban-expert-1.3921099>>.

¹⁴¹ Jack Horgan-Jones, ‘Smoky coal labelled as smokeless to get around ban, says CPL’ *The Irish Times* (10 December 2019). Available online at <<https://www.irishtimes.com/news/environment/smoky-coal-labelled-as-smokeless-to-get-around-ban-says-cpl-1.4109995>>.

¹⁴² *Merriman & Ors v Fingal County Council & Ors; Friends of the Irish Environment CLG v Fingal County Council & Ors* [2017] IEHC 695 per Barrett J. at 264. See also: This constitutional right was recently upheld per MacGrath J at 133. in *Friends of the Irish Environment CLG -v- The Government of Ireland, Ireland and the Attorney General* [2019] IEHC 747.

¹⁴³ Bunreacht na hÉireann, Article 40.3.1°.

“precaution”.¹⁴⁴ There is a resultant need for the Irish authorities to exercise regulatory precaution in the context of air pollution. Therefore, the lack of data available due to monitoring shortages in Ireland should in fact act as an added incentive to introduce increased prohibitions on smoky fuel use due to the applicability of the precautionary principle.

7.3 Climate

7.3.1 Introduction

In the context of the global climate and biodiversity crises it is advisable that Ireland should give due consideration to the impacts of permitting the use of smoky fuels on climate change and biodiversity loss. The World Health Organisation has noted that:

Increasing efficiency and tightening restrictions on emissions from wood and coal heating throughout the world would both slow down the current rapid speed of global warming... and reduce the burden of disease caused by combustion-derived particles ... The public needs to be better educated about the facts that... coal heating should be discontinued for both health and climate reasons.¹⁴⁵

Increased measures to reduce the use of smoky fuels in Ireland would have important impacts on the State's climate policy in the context of climate change and emissions reduction.

7.3.2 National Commitments

Ireland's national climate commitments have been set out in sources such as the Climate Action and Low Carbon Development Act 2015 and the Climate Action Plan 2019.¹⁴⁶ Indeed, the State's National Mitigation Plan (NMP) of 2017 describes itself as 'a critical first step towards decarbonising our economy'.¹⁴⁷ The NMP can be considered as a statement of concern regarding the Government's policy concerns in the climate context. The NMP states that:

In tandem with the development of the National Clean Air Strategy, a feasibility study should be undertaken in the implementation of a ban on the use of coal and/or peat in domestic heating systems. The study should consider the environmental implications in addition to the economic and technical implementation. The outcome of this study should be used to inform future iterations of the NMP.¹⁴⁸

Therefore, the Irish authorities have recognised that the possibility of phasing out smoky fuels should be examined. This need is reflected by the recommendations of the Climate Change Advisory Council who recalled in their Annual Review 2019 that:

In assessing the most cost-effective manner to achieve reductions in greenhouse gas emissions, the Council's 2017 Annual Review found that action to reduce greenhouse gas

¹⁴⁴World Health Organisation Regional Office for Europe, *The precautionary principle: protecting public health, the environment and the future of our children*, Marco Martuzzi and Joel A. Tickner (eds), 2004, Page 55; 57-58. Available online at <<http://www.euro.who.int/en/publications/abstracts/precautionary-principle-the-protecting-public-health,-the-environment-and-the-future-of-our-children>>.

¹⁴⁵World Health Organisation, *Residential heating with wood and coal: health impacts and policy options in Europe and North America*, 2015, Page 33. Available online at <http://www.euro.who.int/__data/assets/pdf_file/0009/271836/ResidentialHeatingWoodCoalHealthImpacts.pdf>.

¹⁴⁶Climate Action and Low Carbon Development Act 2015. Available online at <<http://www.irishstatutebook.ie/eli/2015/act/46/enacted/en/pdf>>.

Climate Action Plan 2019. Available online at: <<https://www.dccae.gov.ie/documents/Climate%20Action%20Plan%202019.pdf>>.

¹⁴⁷Department of Climate Action, Communications & Environment, National Mitigation Plan, July 2017, Page 8. Available online at <<https://www.dccae.gov.ie/documents/National%20Mitigation%20Plan%202017.pdf>>.

¹⁴⁸Department of Climate Action, Communications & Environment, National Mitigation Plan, July 2017, Page 8. Available online at <<https://www.dccae.gov.ie/documents/National%20Mitigation%20Plan%202017.pdf>>.

emissions would have significant co-benefits such as improved air quality, reduced congestion and reduced nitrate pollution to be important factors.¹⁴⁹

As such, the improvement of air quality which would result from decreasing the use of smoky fuels would have a positive impact on greenhouse gas emission reduction.

7.3.3 EU and International Commitments

Implementing some form of prohibitions on smoky fuels – and pursuing more renewable and sustainable energy options instead – would represent concrete action by Ireland towards fulfilling climate obligations at EU and international level.

At EU level, the European Commission has said that, ‘the European Union has set itself the goal to achieve levels of air quality that do not give rise to significant negative impacts on, and risks to, human health and the environment’.¹⁵⁰

Ireland is bound by EU goals and legislation regarding air pollution such as the *EU Directive on ambient air quality and cleaner air for Europe*;¹⁵¹ and the EU Clean Air Package.¹⁵²

Ireland has also made international commitments to climate policy. By being a signatory to the UN Framework Convention on Climate Change (UNFCCC) Paris Agreement in 2015 Ireland agreed to act on climate change by:

Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change.¹⁵³

The Inter-Governmental Panel on Climate Change (IPCC) then agreed in 2018 that states need to reduce greenhouse gas emissions by 45% by 2030 compared to 2010 levels and to reach net zero emissions by 2050.¹⁵⁴

If increased action is not taken on the use of smoky fuels in Ireland it may be impossible for the State to fulfil its national, European and international commitments in the context of climate change and greenhouse gas emissions reduction.

7.4 Social Justice

7.4.1 Introduction

The implementation of increased measures restricting the use of smoky fuels in Ireland would represent a drastic change from current practice and would be to implement aspects of a new energy regime for Ireland. Such policy change on the part of the Irish authorities would entail broad impacts: including for the public, for businesses and in terms of a general shift in cultural attitudes. In order to fairly and

¹⁴⁹Climate Change Advisory Council Annual Review 2019. Available online at <<http://www.climatecouncil.ie/media/Climate%20Change%20Advisory%20Council%20Annual%20Review%202019.pdf>>.

¹⁵⁰European Commission, *Clean Air*. Available online at <https://ec.europa.eu/environment/air/index_en.htm>.

¹⁵¹Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe (as amended and corrected). Available online at <<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:02008L0050-20150918&from=EN>>.

¹⁵²Department of Communications, Climate Action & Environment, *EU Clean Air Policy*. Available online at <<https://www.dccae.gov.ie/en-ie/environment/topics/air-quality/eu-clean-air-policy/Pages/default.aspx>>.

¹⁵³Article 2 (1) (a) Paris Agreement 2015. Available online at <https://unfccc.int/sites/default/files/english_paris_agreement.pdf>. See also: United Nations Climate Change, *The Paris Agreement*. Available online at <<https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>>.

¹⁵⁴Intergovernmental Panel on Climate Change, *Global warming of 1.5°C: An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty-Summary for Policymakers*, 2018, Page 14. Available online at <https://www.ipcc.ch/site/assets/uploads/2018/10/SR15_SPM_version_stand_alone_LR.pdf>.

comprehensively apply policy developments related to smoky fuel use there are social justice considerations to which due regard must be given by policy-makers.

7.4.2 Just Transition

Implementing increased restrictions on the use of smoky fuels would involve challenges including critical issues of social justice. Addressing these would be essential in order for the realisation of an inclusive and fair transition away from smoky fuels which is not burdensome on ordinary people and which does not cause harm to vulnerable people in society. The concept of just transition recognises that there are socio-economic factors which can determine the extent of people's ability to make decisions regarding fuel choices (including to choose options which are better for human health or are more environmentally sustainable); and involves progressing away from industries and practices which negatively impact the environment towards more sustainable alternatives while supporting the individuals and communities affected by such a transition.¹⁵⁵ Heffron *et al.* have defined a just transition as:

... "a fair and equitable process of moving towards a post-carbon society". This process must seek fairness and equity with regards to the major global justice concerns such as (but not limited to) ethnicity, income, gender within both developed and developing contexts... It involves the development of principles, tools and agreements that ensure both a fair and equitable transition for all individuals and communities.¹⁵⁶

Similarly, the Just Transition Alliance has explained that, 'a Just Transition aims to secure the future and livelihoods of workers and their communities in the transition to a low-carbon economy'.¹⁵⁷ The United Nations Sustainable Development Goals (SDGs)- which Ireland has committed to- include such aims. For example, SDGs 7 and 12 respectively deal with issues related to just transition.¹⁵⁸ SDG 7 pledges to 'Ensure access to affordable, reliable, sustainable and modern energy for all'; while SDG 12 commits to 'Ensure sustainable consumption and production patterns'.

The implementation of increased measures restricting the use of smoky fuels would likely result in vast socio-economic impacts in the Irish context. People with lower economic means and/or those living in rural areas of Ireland are more likely to be dependent on the use of smoky fuels for energy purposes and not to have access to alternative forms of residential heating. Similarly, issues of just transition may be particularly relevant terms of rural employment. With the extraction and use of peat concentrated predominantly in the midlands and in western regions of Ireland increased restrictions on the use of smoky fuels would have the effect of disproportionately impacting people in these locations. Local workers from smoky fuel industries, and their communities, must be supported during the transition away from smoky fuels to enable people to re-skill and continue to be meaningfully employed. Those who cannot do so must especially be assisted by the authorities. The International Labour Organisation (ILO)'s 'Guidelines for a just transition towards environmentally sustainable economies and societies for all' lists a number of important points in this context. For example:

In the transition to environmentally sustainable economies and societies, the world of work can benefit from some major opportunities, for example: ... social inclusion through

¹⁵⁵ United Nations, United Nations Sustainable Development Goals. Available at <<https://sustainabledevelopment.un.org/sdgs>>.

¹⁵⁶ Pg. 2, Darren McCauley and Raphael Heffron, 'Just transition: Integrating climate, energy and environmental justice' [2018] 119 Energy Policy. Available online at: <https://www.sciencedirect.com/science/article/pii/S0301421518302301>.

¹⁵⁷ The Just Transition Alliance Joint Declaration. Available online at <https://www.foe.ie/assets/files/pdf/joint_declaration_on_just_transition_-_ictu_siptu_forsa_foe_scc.pdf>.

¹⁵⁸ Pg. 366, Leonie Reins, 'Understanding the nexus of environment, energy and human rights' in James R May and Erin Daly (eds), *Human Rights and the Environment: Legality, Indivisibility, Dignity and Geography* (Edward Elgar Publishing Limited, 2019).

See also: United Nations, United Nations Sustainable Development Goals. Available at: <https://sustainabledevelopment.un.org/sdgs>.

improved access to affordable, environmentally sustainable energy and payments for environmental services, for instance, which are of particular relevance to women and residents in rural areas; ... and faces some major challenges, for example: ... adverse effects on the incomes of poor households from higher energy and commodity prices.¹⁵⁹

Consideration must be paid to the reality that extending fuel restrictions to areas which were not previously designated under the current system of low-smoke zones would present difficulties for such areas. Cultural issues must also be considered in a just transition as people and communities in certain regions may feel culturally connected to the use of fuels such as peat. Further, regarding social protection policies ILO notes that:

Governments in consultation with social partners should: ... when designing and reviewing social protection in the context of the adoption of clean energy measures, consider compensating low income households which spend a significantly higher proportion of their income on energy and on goods and services that have large amounts of energy embedded in them.¹⁶⁰

Socio-economic protections must be put in place by the Irish authorities in the event of the introduction of increased restrictions on the use of smoky fuels in Ireland in order to ensure that everyone can be positively included in a just transition away from smoky fuels.

7.4.3 Fuel Poverty and Energy Justice

Socio-economic vulnerabilities and the issue of fuel poverty must be given due regard by policy-makers when implementing policies in the energy context. As discussed in Section 7.4.2 of this report, fuel choices can be determined by income and means. Households may already be struggling to provide for their fuel needs and restrictions on the use of smoky fuels may then present further challenges to such households. Indeed, fuel restrictions may force rural households to install new heating systems- such as connecting to gas networks- which may not be an affordable or a practical solution. Switching to environmentally friendly heating solutions such as retrofitting homes or using renewable energy may similarly not be affordable or practical options for many households. Social Justice Ireland has commented regarding retrofitting that:

Energy efficient homes help reduce our carbon footprint as they require less fuel to heat. Despite two Government strategies specifically aimed at tackling energy poverty, barriers persist to accessing grants for low income households. These are the households who are most likely to use solid fuels such as coal and peat; the very households that policy should be targeting. The upfront costs associated with accessing sustainable energy grants can act as a barrier for those on low incomes. Yet with almost 58,500 homes having the lowest BER rating of G, it is imperative that Government support these households by redesigning these schemes to make them more accessible.¹⁶¹

Heffron *et al.* have stated that, 'Energy justice is a conceptual framework, which seeks to identify when and where injustices occur and how best law and policy can

¹⁵⁹ 12 (c) and (f), International Labour Organisation, 'Guidelines for a just transition towards environmentally sustainable economies and societies for all', 2015. Available online at <https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_ent/documents/publication/wcms_432859.pdf>.

¹⁶⁰ 28 (i), International Labour Organisation, 'Guidelines for a just transition towards environmentally sustainable economies and societies for all', 2015. Available online at <https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_ent/documents/publication/wcms_432859.pdf>.

¹⁶¹ Pg. 307, Social Justice Ireland, *Social Justice Matters: 2020 guide to a fairer Irish society*, March 2020. Available online at: <https://www.socialjustice.ie/sites/default/files/attach/publication/6254/socialjusticematters2020.pdf?cs=true>.

respond'.¹⁶² Further, energy justice demonstrates the 'climate change and human rights nexus'.¹⁶³ Indeed:

Article 11 of the International Covenant on Economic, Social and Cultural Rights, for example, 'recognises the right of everyone to an adequate standard of living for himself and his family, including adequate food, clothing and housing, and to the continuous improvement of living conditions'. The fulfilment of the above-mentioned rights is dependent on access to reliable, affordable and sustainable energy. Energy hence indirectly plays an essential role in the attainment of these rights, stressing the indivisibility of human rights.¹⁶⁴

Due consideration should thus be paid by policy-makers to issues relating to fuel poverty and socio-economic factors. The Irish authorities should consider introducing amendments to the provision of the Fuel Allowance social welfare payment such as a potential widening of the scope of applicants who can apply for this; and should also consider the potential creation of new grant or support schemes.¹⁶⁵ The enforcement of increased smoky fuel restrictions could present issues in the context of social justice. Any potential enforcement measures which might involve criminalising or implementing taxes for the use of prohibited fuels could present issues of social justice and conflict with the principles of energy justice. Instead, solutions which should be pursued by policy-makers include ensuring that renewable or cleaner energy is affordable and readily available; and providing economic incentives for its use to people with lower incomes. It must be noted that any attempt to combat social justice issues such as fuel/energy poverty through the use of fossil fuel subsidies would be flawed because doing so would not fulfil the demands of energy justice or just transition.¹⁶⁶ The submission of the *Society of Saint Vincent de Paul* to the *Joint Committee on Climate Action regarding carbon tax and energy poverty* explains that:

If Ireland is to be successful in addressing both climate change and energy poverty, the Government need to see both issues as being on two sides of the same coin and, critically, of equal importance. Without addressing energy poverty, it will not be possible to meet our climate obligations, as energy poor households will be unable to change their behaviours in response to measures such as an increase in carbon tax. This will lead to longer term social, health, environmental and economic costs in the future.¹⁶⁷

In addition to the issues above due consideration should also be paid by the Irish authorities to issues related to the global human rights implications of energy use in Ireland such as human rights issues related to the fossil fuel industry (e.g. in the extraction of coal, gas, oil). For example, a recent report has condemned practices in a coal mine in Columbia from which Ireland purchases coal for electricity generation¹⁶⁸; and much has been said about the negative impacts on communities

¹⁶² Pg 169, Raphael Heffron, Darren McCauley and Benjamin K. Sovacool, 'Resolving society's energy trilemma through the Energy Justice Metric' [2015]. *Energy Policy* Volume 87. Available online at: <https://www.sciencedirect.com/science/article/abs/pii/S030142151530077X>.

¹⁶³ Pg. 367, Leonie Reins, 'Understanding the nexus of environment, energy and human rights' in James R May and Erin Daly (eds), *Human Rights and the Environment: Legality, Indivisibility, Dignity and Geography* (Edward Elgar Publishing Limited, 2019).

¹⁶⁴ Pg. 367, Leonie Reins, 'Understanding the nexus of environment, energy and human rights' in James R May and Erin Daly (eds), *Human Rights and the Environment: Legality, Indivisibility, Dignity and Geography* (Edward Elgar Publishing Limited, 2019).

¹⁶⁵ Department of Employment Affairs and Social Protection, *Fuel Allowance*. Available online at: <https://www.gov.ie/en/service/00aa38-fuel-allowance/>.

¹⁶⁶ The Irish Times, *€4bn subsidies may harm environment – Social Justice Ireland*, 02 September 2019. Available online at: <https://www.irishtimes.com/news/environment/4bn-subsidies-may-harm-environment-social-justice-ireland-1.4004238>; Social Justice Ireland, *Subsidising our own destruction*, 20 September 2019. Available online at: <https://www.socialjustice.ie/content/policy-issues/subsidising-our-own-destruction>.

¹⁶⁷ Pg. 2, Society of Saint Vincent de Paul, *Submission to the Joint Committee on Climate Action regarding carbon tax and energy poverty*, September 2019. Available online at: https://data.oireachtas.ie/ie/oireachtas/committee/dail/32/joint_committee_on_climate_action/submissions/2019/2019-09-25_opening-statement-dr-tricia-keilthy-head-of-social-justice-and-policy-the-society-of-saint-vincent-de-paul_en.pdf.

¹⁶⁸ Christian Aid, *Undermining Human Rights: Ireland, the ESB and Cerrejón coal*, February 2020. Available online at: https://www.christianaid.ie/sites/default/files/2020-02/Cerrejon%20Report_0.pdf. See also: Peter Hamilton, 'ESB called out

where fracking occurs.¹⁶⁹ There are also issues relating to supporting extractive industries which engage in the destruction of the lands of Indigenous peoples (such as in Australia).¹⁷⁰

Overall, it will be essential that concepts of social justice in terms of just transition, energy justice and combatting fuel poverty are employed as complimentary policy responses to the implementation of any restrictions on the use of smoky fuels.

7.5 Assessment

7.5.1 General Comment

This section assesses each potential policy option in relation to the substantive topics of health, climate and social justice. For the purposes of complying with Ireland's commitments and legal obligations relating to health, climate and social justice the Irish authorities should implement the policy measure which would most significantly align with these ends.

In analysing the potential policy approaches available to the Irish authorities it is clear that implementing a nationwide prohibition on smoky fuels is the only measure which has the capacity to sufficiently impact on the reduction of particulate matter. Less comprehensive measures- such as extending the current smoky coal ban or continuing only to designate specific low-smoke zones- would not go far enough for the purposes of improving human health.

For the purposes of complying with Ireland's commitments and legal obligations relating to climate change the Irish authorities should implement the policy measure which would most significantly align with these ends. As it would most significantly reduce emissions from the use of smoky fuels it is the option of introducing a nationwide prohibition on smoky fuels which would best assist Ireland to fulfil its national, regional and international climate obligations.

Any introduction of increased measures restricting the use of smoky fuels in Ireland must be carefully approached so as to ensure that principles of just transition, fuel poverty and energy justice are applied with priority. Otherwise, there is a risk that social justice problems will arise. The more strict of the policy options- such as a nationwide prohibition on smoky fuels- have greater scope for creating social justice issues if not implemented in a manner which incorporates and prioritises social justice considerations.

7.5.2 Nationwide Prohibition on Smoky Coal

7.5.2.1 Health

Less comprehensive policy measures such as a nationwide prohibition on bituminous coal would be insufficient for the purposes of achieving the aim of preventing harm to human health. Therefore, this is the least acceptable policy option.

for 'contributing to human rights violations', *The Irish Times* (20 February 2020). Available online at <<https://www.irishtimes.com/business/energy-and-resources/esb-called-out-for-contributing-to-human-rights-violations-1.4178686>>.

¹⁶⁹Brian Bienkowski, 'Poor Communities Bear Greatest Burden from Fracking', *Scientific American*, 06 May 2015. Available online at <<https://www.scientificamerican.com/article/poor-communities-bear-greatest-burden-from-fracking/>>

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7.5.2.2 Climate

The policy option of introducing a nationwide prohibition on bituminous coal would be insufficient as a means of reaching Ireland's climate targets. A nationwide prohibition on bituminous coal only would be the least acceptable policy option as it does not go far enough towards the attainment of Ireland's climate obligations.

7.5.2.3 Social Justice

From a social justice perspective the policy option of implementing a nationwide prohibition on bituminous coal is the least acceptable option. This option would create economic hardship without, on balance, providing sufficient benefits in terms of health or the environment to justify its implementation.

7.5.3 Nationwide Prohibition on Smoky Fuels

7.5.3.1 Health

As outlined in Section 7.2.1 above, the World Health Organisation has stated that there is no minimum threshold in relation to the detrimental effects of particulate matter on human health. Therefore, in analysing the potential policy approaches to fuel use available to the Irish authorities from the perspective of health it is clear that implementing a nationwide prohibition on smoky fuels is the only measure which has the capacity to sufficiently impact on the reduction of particulate matter. It also is the only option which prevents the issue of migratory pollution and fuel 'leakage' and is most likely to respect legal environmental rights and the precautionary principle. Therefore, the option of implementing a nationwide prohibition on smoky fuels is the most acceptable policy option from the point of view of health concerns.

7.5.3.2 Climate

The policy option of introducing a nationwide prohibition on smoky fuels would best assist Ireland to fulfil its national, regional and international climate obligations as it would most significantly reduce emissions from the use of smoky fuels. Therefore, a nationwide prohibition on smoky fuels would be the most acceptable policy option.

7.5.3.3 Social Justice

The policy option of implementing a nationwide prohibition on smoky fuels is the most comprehensive and strict of the policy options. As such, it could have greater scope for creating or worsening social justice issues if not implemented in a manner which incorporates and prioritises social justice considerations. Any introduction of increased measures restricting the use of smoky fuels in Ireland must be carefully approached so as to ensure that principles of just transition, fuel poverty and energy justice are applied. Otherwise, there is a risk that social justice issues will arise. In order for social justice issues to be adequately addressed concepts of just transition, energy justice and combatting fuel poverty must be central to any plan to prohibit fuel use. Affected workers and communities must be included and supported, including economically, with the transition by governmental support which is sustainable in nature. Policy-makers must seek to avoid injustice and remedy social justice issues where they arise. However, despite the social justice implications as have been outlined, the alternative (of not implementing strict national measures) would in the long-term worsen issues for affected populations: including the impacts of climate change and future economic problems. As such, a nationwide prohibition on smoky fuels should be implemented sooner in time so that supports will be in place and available for those who need assistance in the future. Therefore, implementing a nationwide prohibition on smoky fuels, so long as it is implemented

in the spirit of just transition, is the most acceptable policy option from a social justice perspective.

7.5.4 Progressive Roll-out of Existing Controls

7.5.4.1 Health

Less comprehensive policy measures such as extending the current smoky coal ban, designating specific low-smoke zones only and/or rolling such zones out over time are insufficient for the purposes of achieving the aim of preventing harm to human health. As such, this is the least acceptable policy option.

7.5.4.2 Climate

The policy option of introducing a roll-out of low-smoke zones would be insufficient as means to achieve Ireland's climate targets. A roll-out of low-smoke zones- in which all smoky fuels were prohibited- could be moderately acceptable as a policy option if implemented as a step towards a nationwide prohibition on smoky fuels. However, if implemented unilaterally this would ultimately be insufficient towards achieving Ireland's climate commitments.

7.5.4.3 Social Justice

The policy option of rolling out low-smoke zones is moderately acceptable- if it were to be implemented in a way which respects social justice principles- as a step towards a greater nationwide prohibition of smoky fuels as a long-term aim. Policy-makers must be mindful that applying prohibitions to locations which have not previously been subject to such restrictions may give rise to social justice-related problems for the communities in these areas. Indeed, a roll-out could be used to monitor impacts on communities to inform and improve further roll-out stages. However, this policy option does not go far enough to sufficiently address future social justice harm and so remains only moderately acceptable if implemented as outlined.

7.6 Conclusion

Following from the above assessments relating to health, climate and social justice respectively it is the recommendation of this report that, of the potential policy pathways as discussed, the Irish authorities should pursue the policy option of *implementing a nationwide prohibition on smoky fuels*. Based on the research conducted during the course of this report it is concluded that this option would be the most conducive towards achieving the policy aims of the Asthma Society of Ireland in the field of health; and would also have the greatest beneficial impact on the environment. It has been identified that extended prohibitions on smoky fuel use could present social justice issues: these issues have been addressed above.

This report concludes that implementing a nationwide prohibition on smoky fuels should be pursued by the Irish authorities because this option has the greatest potential to improve respiratory health and reduce the annual cost to the health service of treating respiratory-related conditions (such as asthma); solve the issues associated with migratory pollution and economic 'leakage' of prohibited fuels; respect the unenumerated right to an environment in the Irish Constitution; and comply with Ireland's national, European and international commitments and legal obligations related to the context of climate change. Other policy options simply do not go far enough towards combatting the harmful effects of particulate matter on human health; or to support the mitigation of the impacts of climate change. This report has recognised that any prohibition on smoky fuels leaves scope for issues of

social justice to present; and has acknowledged that the policy option of introducing a nationwide prohibition on smoky fuels may present additional challenges for issues related to just transition, fuel poverty and energy justice when compared to other options. While cognisant of these potential challenges this report nonetheless concludes that the option of a nationwide prohibition on smoky fuels should be implemented: but in a manner which engages with these aforementioned challenges, which supports vulnerable people and which prioritises ensuring a just transition and energy justice.

8.0 Key Issues and Policy Recommendations

8.1 Introduction

This section considers a summary of the conclusions arrived at in the report in the context of air quality legislation, expert reviews and enforcement; law relating to the free movement of goods; competition law; and health, climate and social justice issues. The overall preferences for each policy option are then presented and specific recommendations relating to each substantive topic of this report are outlined in sequence. Finally, policy recommendations are made to the Asthma Society of Ireland.

8.2 Air Quality Legislation

The negative health related effects of smoky atmospheres have long been known. The UK Clean Air Acts 1956 and 1968 introduced the concepts of smokeless fuel, smoke control areas, and authorised fuels. A wide range of EU Directives on air quality followed. In the context of smoke and dust, the Directives introduced limit values first for sulphur dioxide (the active component of smoke) and suspended particulates in 1980 (Directive 80/779/EEC); and introduced standards for particulate matter, known as PM₁₀ and PM_{2.5} in 1999 (Directive 1999/30/EC). The rationale for limiting the concentration of such constituents in air being the '[e]vidence that risks to human health associated with exposure to manmade particulate matter are higher than risks associated with exposure to naturally occurring particles in ambient air' (Recital 6, Directive 1999/30/EEC). The Irish Air Pollution Act 1987 relies on the UK Clean Air Acts and EU Air Quality Directives in equal measure. Section 39(1) of the Act allows a local authority to declare special control areas to prevent or limit air pollution within individual administrative areas. Section 53 allows for the control of sale and use of heating fuels. Section 53 of the Act has had 15 implementing regulations in the period 1988-2016. These regulations are highly complex and require of necessarily close reading at all times.

A clean air strategy has been advanced in the UK (published 2019) and a clean air strategy is under consideration in Ireland.

8.3 Expert Reviews and Enforcement

The Environmental Protection Agency (EPA) plays an important role in terms of air quality results, monitoring and recording environmental enforcement performance in Ireland.

The EPA identified that in 2010 the total emissions of PM₁₀ and PM_{2.5} from peat were about double that from coal; whilst biomass also produced double the level of PM_{2.5} from coal. In contrast, natural gas was found to produce about 100 times less PM₁₀ and PM_{2.5} than smokeless coal. The CSO showed that in 2014 natural gas and electricity are the principal sources of home heat in Dublin; whilst peat is a significant source of fuel in the Midlands and Western regions of the country.

Early EPA air quality monitoring data for the period 2004-2020 showed that the greatest positive impact (in terms of a reduction in PM₁₀) of the ban on smoky fuels in Low Smoke Zones was seen in Dublin and Cork. This is likely due to the size of these cities and the ready availability of gas for heating. Low Smoke Zones in smaller urban areas were likely to see leakage of fuel types and migration of air pollution across boundaries.

On this basis the EPA were supportive of longer term progress towards a nationwide ban on the importation, sale and distribution of bituminous coal (pre SI 326/2012 fuel

definitions) for domestic use, subject to regulatory impact assessment and consultation with the authorities in Northern Ireland.

The EU Clean Air Dialogue with Ireland (2017) identified that residential solid fuel heating is the largest source of PM_{2.5} (responsible for over 50%) in Ireland – despite providing less than 5% of the national energy demand. Consequently, the Dialogue considered that there is a pressing need to significantly reduce this source at the earliest stage possible.

Annual monitoring of air quality conducted by the EPA in the years 2017 and 2018 showed that the specified monitoring stations did not meet WHO air quality guidance for PM_{2.5} and were higher in small towns without low smoke zones. Key ongoing issues relate to leakage of fuel types, and migration of air pollution; fuel labelling, and below target solid fuel inspections by local authorities.

8.4 Free Movement of Goods

Despite being the most restrictive option in terms of trade, a nationwide prohibition on smoky fuels, would be most acceptable in the context of free movement of goods. However, this reform would first require evidence that the current geographically limited model is ineffective. It has been identified that measures for the prevention of air pollution clearly have a legitimate objective in ‘protection of life and health of humans’ in the terms of the TFEU; and that any proposal which would likely reduce GHG emissions would be further legitimised on the grounds of environmental protection. Therefore, it is recommended that, to the extent that it is possible to estimate, the potential impact of each proposal on greenhouse gas (GHG) emissions should be assessed. Further, policy-makers should engage with relevant experts and ensure coherence within the National Clean Air Strategy. Consultation with epidemiological and enforcement experts in particular would be essential to proving the legitimacy or superiority of any proposed measure. In the context of the free movement of goods, this report recommends implementing a nationwide prohibition on smoky fuels.

8.5 Competition

A nationwide prohibition on smoky fuels is the most acceptable option in relation to adherence to EU competition law. It has been identified that the need for the implementation of a nationwide prohibition on smoky fuels can be legitimised on public health grounds in line with EU competition law; and further that the government cannot be seen to be acting as an “undertaking” under Article 101 in the pursuit of this social objective. It has also been outlined that the Irish authorities could defend the legitimacy of a nationwide prohibition on smoky fuels in relation to Article 102 and abuse of a dominant position. Overall, from the perspective of EU competition law it is recommended by this report that a nationwide prohibition on smoky fuel should be introduced.

8.6 Health, Climate and Social Justice

Following from the above assessments relating to health, climate and social justice respectively it is the recommendation of this report that - of the potential policy pathways as discussed - the Irish authorities should pursue the policy option of implementing a nationwide prohibition on smoky fuels. Based on the research conducted during the course of this report it is concluded that this option would be the most conducive towards achieving the policy aims of the Asthma Society of Ireland in the field of health; and would also have the greatest beneficial impact on

the environment. It has been identified that extended prohibitions on smoky fuel use could present social justice issues: these issues have been addressed above.

This report concludes that the policy option of implementing a nationwide prohibition on smoky fuels should be pursued by the Irish authorities. This is because this option has the greatest potential to improve respiratory health and reduce the annual cost to the health service of treating respiratory-related conditions (such as asthma); to solve the issues associated with migratory pollution and 'leakage' of prohibited fuels; to respect the unenumerated right to an environment in the Irish Constitution; and to comply with Ireland's national, EU and international commitments and legal obligations related to climate change as it would most significantly reduce the emissions from the use of smoky fuels. This option is also the most acceptable policy option from the perspective of respecting the precautionary principle relating to health. Other policy options simply do not go far enough towards combatting the harmful effects of particulate matter on human health; or to support the mitigation of the impacts of climate change. Therefore, this report recommends that the option of implementing a nationwide prohibition on smoky fuels is the most acceptable policy option from the point of view of health concerns. Further to achieving this end, this report recommends that the Irish authorities should replace the Air Pollution Act 1987 with a new Clean Air Act to be driven by a priority for health issues. For example, such an act should adhere to World Health Organisation pollution limits which are stricter than EU limits.

This report has recognised that any prohibition on smoky fuels would leave scope for issues of social justice to present; and has acknowledged that the policy option of introducing a nationwide prohibition on smoky fuels may present additional challenges for issues related to just transition, fuel poverty and energy justice when compared to other options. While cognisant of these potential challenges this report nonetheless concludes that the policy option of a nationwide prohibition on smoky fuels should be implemented: but in a manner which engages with these aforementioned challenges, which supports vulnerable people and which prioritises ensuring a just transition and energy justice. This report recommends that concepts of just transition, energy justice and combatting fuel poverty must be central to any plan to prohibit fuel use; and that affected workers and communities must be included and supported- including economically- with the transition by governmental support which is sustainable in nature. This report also recommends that policy-makers must seek to avoid injustice and remedy social justice issues where they arise including with a particular awareness of vulnerable people in rural communities; and the Traveller community. It is noted that any of the alternative policy options outlined would worsen issues in the long-term for vulnerable populations: including the impacts of climate change and future economic problems. As such, it is recommended that a nationwide prohibition on smoky fuels should be implemented- and sooner in time- so that supports will be in place and available for those who need assistance in the future. In conclusion, it is the recommendation of this report that a nationwide prohibition on smoky fuels should be implemented in a manner which prioritises principles of just transition, fuel poverty and energy justice and ensures that such principles are applied. Social justice issues are of primordial and paramount importance and must be central to the implementation of a nationwide prohibition on smoky fuels.

8.7 Nationwide Bituminous Coal Ban

- Air quality legislation: This option is considered only moderately acceptable in terms of meeting with the needs of (1) PM_{2.5} reduction targets of the EU Directives, (2) the simplification of the Regulations implementing the Irish Air Quality Act 1987, and (3) the needs of any proposed clean air strategy. This

option allows for the continued use of peat, biomass and timber, fuel types which have been shown to potentially emit greater levels of PM_{2.5} than bituminous coal. The Regulations would also need modification to remove the bituminous coal standard (0.7%), and presumably a revised fuel regulation standard outside of low smoke zones.

- **Enforcement:** This option is considered the least acceptable in terms of enforcement as it opens up the real prospect of fuels which potentially emit high PM content (such as peat and biomass) filling the fuel vacuum – a ‘perverse effect’ in terms of the EU Clean Air Dialogue (see Section 4.2.1.1 above). The prospect exists, therefore, in this scenario, for a significant increase in use of peat and similar fuels. The current issue of mislabelling smokeless coal would also subsist; both within and outside low smoke zones.
- **Free movement of goods:** Likely an illegitimate restriction on the free movement of goods as it discriminates between coal and other smoky fuels. To avoid this it would need to be evidenced that the emissions from smoky coal are particularly harmful, due to quantity or quality but recent science suggests otherwise. Reasoning would need to be particularly robust given that it would likely benefit domestically produced peat and wood.
- **Competition:** A ban on smoky coal alone is not optimal. It is likely that smoky coal suppliers would mount a challenge against the imposition of such legislation under EU competition law, specifically on the government imposing unfair trading conditions on one sector of the smoky fuel market. The Government’s efforts to apply dissimilar conditions to equivalent transactions would likely result in a breach of Article 102. Hence why a ban on all forms of smoky fuels is necessary. Such a ban seeks to address the market as a whole and apply the same conditions to all suppliers.
- **Health:** Less comprehensive policy measures such as a nationwide prohibition on bituminous coal would be insufficient for the purposes of achieving the aim of preventing harm to human health. Therefore, this is the least acceptable policy option.
- **Climate:** The policy option of introducing a nationwide prohibition on bituminous coal would be insufficient as a means of reaching Ireland’s climate targets. A nationwide prohibition on bituminous coal only would be the least acceptable policy option as it does not go far enough towards the attainment of Ireland’s climate obligations.
- **Social Justice:** From a social justice perspective the policy option of implementing a nationwide prohibition on bituminous coal is the least acceptable option. This option would create economic hardship without, on balance, providing sufficient benefits in terms of health or the environment to justify its implementation.

8.8 Nationwide Smoky Solid Fuel Ban

- **Air quality legislation:** This option is considered the most acceptable in terms of meeting with the needs of (1) PM_{2.5} reduction targets of the EU Directives, (2) the simplification of the Regulations implementing the Irish Air Quality Act 1987, and (3) the needs of any proposed clean air strategy. This option would effectively extend the current prohibition of specified fuels within low smoke zones to the entire country. It would be the most efficient option at meeting the needs of EU Directives and a clean air strategy as it would remove from use all fuel types which produce high levels of PM₁₀ and PM_{2.5}. Equally, the Regulations would be

much simplified as only one standard, that of specified fuel, would continue in use.

- **Enforcement:** This option is considered the most acceptable in terms of enforcement as it would allow for the prohibition of specified fuels throughout the country. In that regard, the use of bituminous coal, peat and other high PM producing fuels would be illegal. As only smokeless coal would be allowed enter the country, the current issue of monitoring different types of coal would diminish. Clearly, wider environmental enforcement of the ban would be required by the local authorities; however, the identification of the sale or use of a non-specified fuel would be a more straightforward task than it is today.
- **Free movement of goods:** Most readily justified approach despite being the most restrictive on free movement. Recent science shows all smoky fuels near equally harmful to human health. To prove superior to geographically limited approach would need to provide some evidence or need for precaution as to unenforceability and discrimination of that policy as described above. Further justified by protection of the environment in preventing a simple switch to environmentally harmful peat, wood and biomass.
- **Competition:** In accordance with *Poucet and Pistre*, an objective which is social in nature cannot be deemed an undertaking for the purposes of Article 101. Such objectives serve the interests of individuals, groups and society in general.

It can potentially be argued that the Government of Ireland is pursuing a social objective of overriding public importance with the introduction of a nationwide smoky fuel ban. There is scope to argue that it is protecting some of the more 'vulnerable citizens' of Irish society.

Particles emitted from smoky fuels that are less than 10 micrometres in diameter may get deep into the lungs and bloodstream. According to the US EPA, 'Of these, particles less than 2.5 micrometers in diameter, also known as fine particles or PM_{2.5}, pose the greatest risk to health.' It has also been found that 'people with heart or lung diseases – such as coronary artery disease, congestive heart failure...and asthma...are at an increased risk.'

- **Health:** As outlined in Section 7.2.1 above, the World Health Organisation has stated that there is no minimum threshold in relation to the detrimental effects of particulate matter on human health. Therefore, in analysing the potential policy approaches to fuel use available to the Irish authorities from the perspective of health it is clear that implementing a nationwide prohibition on smoky fuels is the only measure which has the capacity to sufficiently impact on the reduction of particulate matter. It also is the only option which prevents the issue of migratory pollution and fuel 'leakage' and is most likely to respect legal environmental rights and the precautionary principle. Therefore, the option of implementing a nationwide prohibition on smoky fuels is the most acceptable policy option from the point of view of health concerns.
- **Climate:** The policy option of introducing a nationwide prohibition on smoky fuels would best assist Ireland to fulfil its national, regional and international climate obligations as it would most significantly reduce emissions from the use of smoky fuels. Therefore, a nationwide prohibition on smoky fuels would be the most acceptable policy option.
- **Social Justice:** The policy option of implementing a nationwide prohibition on smoky fuels is the most comprehensive and strict of the policy options. As such, it could have greater scope for creating or worsening social justice issues if not

implemented in a manner which incorporates and prioritises social justice considerations. Any introduction of increased measures restricting the use of smoky fuels in Ireland must be carefully approached so as to ensure that principles of just transition, fuel poverty and energy justice are applied. Otherwise, there is a risk that social justice problems will arise. In order for social justice issues to be adequately addressed concepts of just transition, energy justice and combatting fuel poverty must be central to any plan to prohibit fuel use. Affected workers and communities must be included and supported, including economically, with the transition by governmental support which is sustainable in nature. Policy-makers must seek to avoid injustice and remedy social justice issues where they arise. However, despite the social justice implications as have been outlined, the alternative (of not implementing strict national measures) would in the long-term worsen issues for affected populations: including the impacts of climate change and future economic problems. As such, a nationwide prohibition on smoky fuels should be implemented sooner in time so that supports will be in place and available for those who need assistance in the future. Therefore, implementing a nationwide prohibition on smoky fuels, so long as it is implemented in the spirit of just transition, is the most acceptable policy option from a social justice perspective.

8.9 Roll-out of Low Smoke Zones

- **Air quality legislation:** This option is considered the least acceptable in terms of meeting with the needs of (1) PM_{2.5} reduction targets of the EU Directives, (2) the simplification of the Regulations implementing the Irish Air Quality Act 1987, and (3) the needs of any proposed clean air strategy. Fundamentally, there is no timeframe limit on any proposal to roll out the existing practice of establishing low smoke zones throughout the country. By September 2020, only 50% of the population will be subject to the prohibition of specified fuels; with no plan in place to extend the restriction further. The option would also see the continued use of the current complex regulatory regime.
- **Enforcement:** This option is considered only moderately acceptable in the context of the options being assessed. This would, in essence, be a continuation of the current enforcement regime, which, upon the review given above in this section, is considered to be sub-optimal.
- **Free movement of goods:** Existing Low Smoke Zones seems to have been accepted as necessary by the Commission and have yet to face legal challenge from private actors. However, there may be even less restrictive measures, such as a tax, that would need to be addressed in justifying a progression of the geographical approach. There is a possibility that it discriminates as to which citizens have their health protected as it addresses pollution levels in certain areas but may not cover areas with smaller populations but similar concentrations of pollutants due to local factors. If so, it would likely not be a legitimate interference with the free movement of goods.
- **Competition:** The roll-out of existing controls to lower populated areas does not do enough to address issues pertaining to smoky fuels. As referenced above, segregating smoky coal from the rest of the smoky fuels market may lead to contraventions of EU competition with suppliers of said fuel taking legal action. As a result, the expansion of existing measures to lower populated areas cannot be considered an optimal solution.
- **Health:** Less comprehensive policy measures such as extending the current smoky coal ban, designating specific Low Smoke Zones only and/or rolling such

zones out over time are insufficient for the purposes of achieving the aim of preventing harm to human health. As such, this is the least acceptable policy option.

- **Climate:** The policy option of introducing a roll-out of Low Smoke Zones would be insufficient as means to achieve Ireland's climate targets. A roll-out of Low Smoke Zones - in which all smoky fuels were prohibited - could be moderately acceptable as a policy option if implemented as a step towards a nationwide prohibition on smoky fuels. However, if implemented unilaterally this would ultimately be insufficient towards achieving Ireland's climate commitments.
- **Social Justice:** The policy option of rolling out Low Smoke Zones is moderately acceptable - if it were to be implemented in a way which respects social justice principles - as a step towards a greater nationwide prohibition of smoky fuels as a long-term aim. Policy-makers must be mindful that applying prohibitions to locations which have not previously been subject to such restrictions may give rise to social justice-related problems for the communities in these areas. Indeed, a roll-out could be used to monitor impacts on communities to inform and improve further roll-out stages. However, this policy option does not go far enough to sufficiently address future social justice harm and so remains only moderately acceptable if implemented as outlined.

8.10 Policy Recommendations

8.10.1 General Comment

Based on the research conducted for the purposes of this report it is recommended that a nationwide prohibition on smoky fuels should be implemented. This report has identified that a nationwide prohibition on smoky fuels would be the most legally robust option (i.e. least open to legal challenge); would be most conducive towards achieving the policy aims of the Asthma Society of Ireland in the field of health; and would have the greatest beneficial impact on the environment. Social justice issues associated with extended prohibitions on smoky fuel use have been addressed in this report.

8.10.2 Proposals for Reform

This report recommends that the Irish authorities should implement the following proposals for reform:

- (i) To implement a nationwide prohibition on smoky fuels;
- (ii) To prioritise social justice and just transition in the context of the global climate and biodiversity crises and streamline inclusion of these issues into all energy policies;
- (iii) To replace the Air Pollution Act 1987 with a new Clean Air Act which is driven by a priority for health issues and which adheres to World Health Organisation pollution limits which are stricter than EU limits;
- (iv) To liaise with the authorities in Northern Ireland regarding issues of transboundary air pollution (with a particular focus on the context of Brexit); and of the smuggling of prohibited fuels; and co-operation at EU level;
- (v) To clarify the law relating to air pollution (for example, there are currently different definitions in use for defining fuels there does not appear to be an adequate reason for this);

- (vi) To strengthen enforcement related to air pollution and smoky fuel use (with particular regard to EU legislation);
- (vii) To improve air quality monitoring capacity and publish reports on results obtained; and to increase efforts to reduce air pollution and its health impacts.

8.10.3 Conclusion

The implementation of the above measures would be effective towards reducing the harmful impacts associated with smoky fuels and progressing towards a fair and sustainable energy future for Ireland.

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Appendices

Appendix 1

Annex I of EU Directive 80/779/EC Limit Values for Sulphur Dioxide and Suspended Particulates

ANNEX I

LIMIT VALUES FOR SULPHUR DIOXIDE AND SUSPENDED PARTICULATES

(As measured by the black-smoke method)

TABLE A

Limit values for sulphur dioxide expressed in $\mu\text{g}/\text{m}^3$ with the associated values for suspended particulates (as measured by the black-smoke method ⁽¹⁾) expressed in $\mu\text{g}/\text{m}^3$

Reference period	Limit value for sulphur dioxide	Associated value for suspended particulates
Year	80 (median of daily mean values taken throughout the year)	> 40 (median of daily mean values taken throughout the year)
	120 (median of daily mean values taken throughout the year)	≤ 40 (median of daily mean values taken throughout the year)
Winter (1 October to 31 March)	130 (median of daily mean values taken throughout the winter)	> 60 (median of daily mean values taken throughout the winter)
	180 (median of daily mean values taken throughout the winter)	≤ 60 (median of daily mean values taken throughout the winter)
Year (made up of units of measuring periods of 24 hours)	250 ⁽²⁾ (98 percentile of all daily mean values taken throughout the year)	> 150 (98 percentile of all daily mean values taken throughout the year)
	350 ⁽²⁾ (98 percentile of all daily mean values taken throughout the year)	≤ 150 (98 percentile of all daily mean values taken throughout the year)

⁽¹⁾ The results of the measurements of black smoke taken by the OECD method have been converted into gravimetric units as described by the OECD (see Annex III).

⁽²⁾ Member States must take all appropriate steps to ensure that this value is not exceeded for more than three consecutive days. Moreover, Member States must endeavour to prevent and to reduce any such instances in which this value has been exceeded.

TABLE B

Limit values for suspended particulates (as measured by the black-smoke method ⁽¹⁾)
expressed in $\mu\text{g}/\text{m}^3$

Reference period	Limit value for suspended particulates
Year	80 (median of daily mean values taken throughout the year)
Winter (1 October to 31 March)	130 (median of daily mean values taken throughout the winter)
Year (made up of units of measuring periods of 24 hours)	250 ⁽²⁾ (98 percentile of all daily mean values taken throughout the year)

⁽¹⁾ The results of the measurements of black smoke taken by the OECD method have been converted into gravimetric units as described by the OECD (see Annex III).

⁽²⁾ Member States must take all appropriate steps to ensure that this value is not exceeded for more than three consecutive days. Moreover, Member States must endeavour to prevent and to reduce any such instances in which this value has been exceeded.

Appendix 2

Annex III of EU Directive 1999/30/EC Limit Values For Particulate Matter (PM₁₀)

ANNEX III

LIMIT VALUES FOR PARTICULATE MATTER (PM₁₀)

	Averaging period	Limit value	Margin of tolerance	Date by which limit value is to be met
STAGE 1				
1. 24-hour limit value for the protection of human health	24 hours	50 µg/m ³ PM ₁₀ , not to be exceeded more than 35 times a calendar year	50 % on the entry into force of this Directive, reducing on 1 January 2001 and every 12 months thereafter by equal annual percentages to reach 0 % by 1 January 2005	1 January 2005
2. Annual limit value for the protection of human health	Calendar year	40 µg/m ³ PM ₁₀	20 % on the entry into force of this Directive, reducing on 1 January 2001 and every 12 months thereafter by equal annual percentages to reach 0 % by 1 January 2005	1 January 2005
STAGE 2 ⁽¹⁾				
1. 24-hour limit value for the protection of human health	24 hours	50 µg/m ³ PM ₁₀ , not to be exceeded more than 7 times a calendar year	To be derived from data and to be equivalent to the Stage 1 limit value	1 January 2010
2. Annual limit value for the protection of human health	Calendar year	20 µg/m ³ PM ₁₀	50 % on 1 January 2005 reducing every 12 months thereafter by equal annual percentages to reach 0 % by 1 January 2010	1 January 2010

⁽¹⁾ Indicative limit values to be reviewed in the light of further information on health and environmental effects, technical feasibility and experience in the application of Stage 1 limit values in the Member States.

Appendix 3

Annex XIV of EU Directive 2008/50/EC National Exposure Reduction Target, Target Value and Limit Value for PM_{2.5}

ANNEX XIV

NATIONAL EXPOSURE REDUCTION TARGET, TARGET VALUE AND LIMIT VALUE FOR PM_{2,5}

A. Average exposure indicator

The Average Exposure Indicator expressed in $\mu\text{g}/\text{m}^3$ (AEI) shall be based upon measurements in urban background locations in zones and agglomerations throughout the territory of a Member State. It should be assessed as a three-calendar year running annual mean concentration averaged over all sampling points established pursuant to Section B of Annex V. The AEI for the reference year 2010 shall be the mean concentration of the years 2008, 2009 and 2010.

However, where data are not available for 2008, Member States may use the mean concentration of the years 2009 and 2010 or the mean concentration of the years 2009, 2010 and 2011. Member States making use of these possibilities shall communicate their decisions to the Commission by 11 September 2008.

The AEI for the year 2020 shall be the three-year running mean concentration averaged over all those sampling points for the years 2018, 2019 and 2020. The AEI is used for the examination whether the national exposure reduction target is met.

The AEI for the year 2015 shall be the three-year running mean concentration averaged over all those sampling points for the years 2013, 2014 and 2015. The AEI is used for the examination whether the exposure concentration obligation is met.

B. National exposure reduction target

Exposure reduction target relative to the AEI in 2010		Year by which the exposure reduction target should be met
Initial concentration in $\mu\text{g}/\text{m}^3$	Reduction target in percent	2020
< 8,5 = 8,5	0 %	
> 8,5 — < 13	10 %	
= 13 — < 18	15 %	
= 18 — < 22	20 %	
≥ 22	All appropriate measures to achieve 18 $\mu\text{g}/\text{m}^3$	

Where the AEI in the reference year is 8,5 $\mu\text{g}/\text{m}^3$ or less the exposure reduction target shall be zero. The reduction target shall be zero also in cases where the AEI reaches the level of 8,5 $\mu\text{g}/\text{m}^3$ at any point of time during the period from 2010 to 2020 and is maintained at or below that level.

C. Exposure concentration obligation

Exposure concentration obligation	Year by which the obligation value is to be met
20 $\mu\text{g}/\text{m}^3$	2015

D. Target value

Averaging period	Target value	Date by which target value should be met
Calendar year	25 $\mu\text{g}/\text{m}^3$	1 January 2010

E. **Limit value**

Averaging period	Limit value	Margin of tolerance	Date by which limit value is to be met
STAGE 1			
Calendar year	25 µg/m ³	20 % on 11 June 2008, decreasing on the next 1 January and every 12 months thereafter by equal annual percentages to reach 0 % by 1 January 2015	1 January 2015
STAGE 2 ⁽¹⁾			
Calendar year	20 µg/m ³		1 January 2020

⁽¹⁾ Stage 2 — indicative limit value to be reviewed by the Commission in 2013 in the light of further information on health and environmental effects, technical feasibility and experience of the target value in Member States.

Appendix 4

Tables 1 to 4. Low Smoke Zones and Population Irish Towns

Table 1. Population of Smoke Free Zones (Current - February 2020).

Town	County	Population 2016
Arklow	County Wicklow	13,163
Athlone (x) PM ₁₀ , PM _{2.5}	County Westmeath & County Roscommon	21,349
Balbriggan	Fingal	21,722
Bray (x) PM ₁₀	County Wicklow & County Dublin	32,600
Carlow (x) PM ₁₀ , PM _{2.5}	County Carlow & County Laois	24,272
Carrigaline	County Cork	15,770
Celbridge (x)	County Kildare	20,288
Clonmel (x) PM ₁₀ , PM _{2.5}	County Tipperary & County Waterford	17,140
Cork City (x-4) PM ₁₀ , PM _{2.5}	County Cork	208,669
Drogheda	County Louth & County Meath	40,956
Dublin (x-17) PM ₁₀ , PM _{2.5}	County Dublin	1,173,179
Dundalk (x) PM ₁₀	County Louth	39,004
Ennis (x) PM ₁₀ , PM _{2.5}	County Clare	25,276
Galway (x-3)	County Galway	79,934
Greystones	County Wicklow	18,140
Kilkenny (x) PM ₁₀	County Kilkenny	26,512
Leixlip	County Kildare	15,504
Letterkenny (x) PM ₁₀ , PM _{2.5}	County Donegal	19,274
Limerick (x-2) PM ₁₀ , PM _{2.5}	County Limerick & County Clare	94,192
Malahide	Fingal	16,550
Maynooth	County Kildare	14,585
Mullingar	County Westmeath	20,928
Naas	County Kildare	21,393
Navan (x) PM ₁₀ , PM _{2.5}	County Meath	30,173
Newbridge (x)	County Kildare	22,742
Passage West	County Cork	5,843
Port Laoise (x) PM ₁₀ , PM _{2.5}	County Laois	22,050
Skerries	Fingal	10,043
Sligo	County Sligo	19,199
Swords	Fingal	39,248
Tralee (x) PM ₁₀ , PM _{2.5}	County Kerry	23,691
Waterford (x) PM ₁₀ , PM _{2.5}	County Waterford & County Kilkenny	53,504
Wexford	County Wexford	20,188
Wicklow	County Wicklow	10,584
Total		2,237,665

(x) EPA Current Ambient Air Quality Monitoring Site

Table 2. Proposed Smoke Free Zones (September 2020).

Town	County	Population 2016
Ashbourne	County Meath	12,679
Ballina	County Mayo	10,171
Castlebar (x) PM ₁₀	County Mayo	12,068
Cavan	County Cavan	10,914
Cobh (x-2) PM ₁₀ , PM _{2.5}	County Cork	12,800
Enniscorthy (x) PM ₁₀ , PM _{2.5}	County Wexford	11,381
Killarney	County Kerry	14,504
Laytown-Bettystown	County Meath	11,872
Longford (x) PM _{2.5}	County Longford	10,008
Mallow	County Cork	12,459
Midleton	County Cork	12,496
Tramore	County Waterford	10,381
Tullamore	County Offaly	14,607
Total		156,340

(x) EPA Current Ambient Air Quality Monitoring Site

Table 3. Population of Irish Towns (CSO 2016) (Top 100 per population).

Town	County	Population 2016
Tullow	County Carlow	4,673
Carlow (x)	County Carlow & County Laois	24,272
Cavan	County Cavan	10,914
Ennis (x)	County Clare	25,276
Shannon	County Clare	9,729
Bandon	County Cork	6,957
Carrigaline	County Cork	15,770
Carrigtwohill	County Cork	5,080
Clonakilty	County Cork	4,592
Cobh (x-2)	County Cork	12,800
Cork City (x-4)	County Cork	208,669
Fermoy	County Cork	6,585
Kinsale	County Cork	5,281
Mallow	County Cork	12,459
Midleton	County Cork	12,496
Passage West	County Cork	5,843
Youghal	County Cork	7,963
Ballybofey-Stranorlar	County Donegal	4,852
Buncrana	County Donegal	6,785
Letterkenny (x)	County Donegal	19,274
Dublin (x-17)	County Dublin	1,173,179
Athenry	County Galway	4,445
Galway (x-3)	County Galway	79,934
Loughrea	County Galway	5,556
Oranmore	County Galway	4,990
Tuam	County Galway	8,767
Ballinasloe	County Galway & County Roscommon	6,662
Killarney	County Kerry	14,504
Listowel	County Kerry	4,820
Tralee (x)	County Kerry	23,691
Athy	County Kildare	9,677
Celbridge (x)	County Kildare	20,288
Clane	County Kildare	7,280
Kilcock	County Kildare	6,093
Kildare	County Kildare	8,634
Leixlip	County Kildare	15,504
Maynooth	County Kildare	14,585
Monasterevin	County Kildare	4,246
Naas	County Kildare	21,393
Newbridge (x)	County Kildare	22,742
Sallins	County Kildare	5,849
Kilkenny (x)	County Kilkenny	26,512
Mountmellick	County Laois	4,777
Port Laoise (x)	County Laois	22,050
Portarlinton	County Laois & County Offaly	8,368
Newcastle West	County Limerick	6,619
Limerick (x-2)	County Limerick & County Clare	94,192
Longford (x)	County Longford	10,008
Dundalk (x)	County Louth	39,004
Drogheda	County Louth & County Meath	40,956
Ballina	County Mayo	10,171

Castlebar (x)	County Mayo	12,068
Westport	County Mayo	6,198
Ashbourne	County Meath	12,679
Dunboyne	County Meath	7,272
Kells	County Meath	6,135
Laytown-Bettystown	County Meath	11,872
Navan (x)	County Meath	30,173
Ratoath	County Meath	9,533
Trim	County Meath	9,194
Carrickmacross	County Monaghan	5,032
Monaghan (x)	County Monaghan	7,678
Edenderry	County Offaly	7,359
Tullamore	County Offaly	14,607
Birr	County Offaly & County Tipperary	5,741
Roscommon (x)	County Roscommon	5,876
Sligo	County Sligo	19,199
Cashel	County Tipperary	4,422
Nenagh	County Tipperary	8,968
Roscrea	County Tipperary	5,446
Thurles	County Tipperary	7,940
Tipperary (x)	County Tipperary	4,979
Carrick-on-Suir	County Tipperary & County Waterford	5,771
Clonmel (x)	County Tipperary & County Waterford	17,140
Dungarvan	County Waterford	9,227
Tramore	County Waterford	10,381
Waterford (x)	County Waterford & County Kilkenny	53,504
Mullingar	County Westmeath	20,928
Athlone (x)	County Westmeath & County Roscommon	21,349
Enniscorthy (x)	County Wexford	11,381
Gorey	County Wexford	9,822
New Ross	County Wexford	8,040
Wexford	County Wexford	20,188
Arklow	County Wicklow	13,163
Blessington	County Wicklow	5,520
Greystones	County Wicklow	18,140
Kilcoole	County Wicklow	4,239
Wicklow	County Wicklow	10,584
Bray (x)	County Wicklow & County Dublin	32,600
Balbriggan	Fingal	21,722
Donabate	Fingal	7,443
Kinsealy-Drinan	Fingal	6,643
Lusk	Fingal	7,786
Malahide	Fingal	16,550
Portmarnock	Fingal	9,466
Rush	Fingal	9,943
Skerries	Fingal	10,043
Swords	Fingal	39,248
Rathcoole	South Dublin	4,351
Total		2,743,309

(x) EPA Current Ambient Air Quality Monitoring Site

Plus Valentia, Emo, Claremorris, Carnsore, Macroom, and Malin Head (6 sites)

Green = Current Smoke Free Zones (February 2020).

Red = Proposed Smoke Free Zones (September 2020).

Table 4. Population Comparison of Locations Identified in Tables 1-3.

Low Smoke Zones	Population	% of Total Population
Current (February 2020)	2,237,665	47%
Proposed (Sept. 2020)	156,340	3%
Urban settlements (4,000 and over)	2,743,309	58%
Total Population	4,757,976	100%

Appendix 5

Better Ways to Heat Your Home

Heating your home and its impact on air quality and health

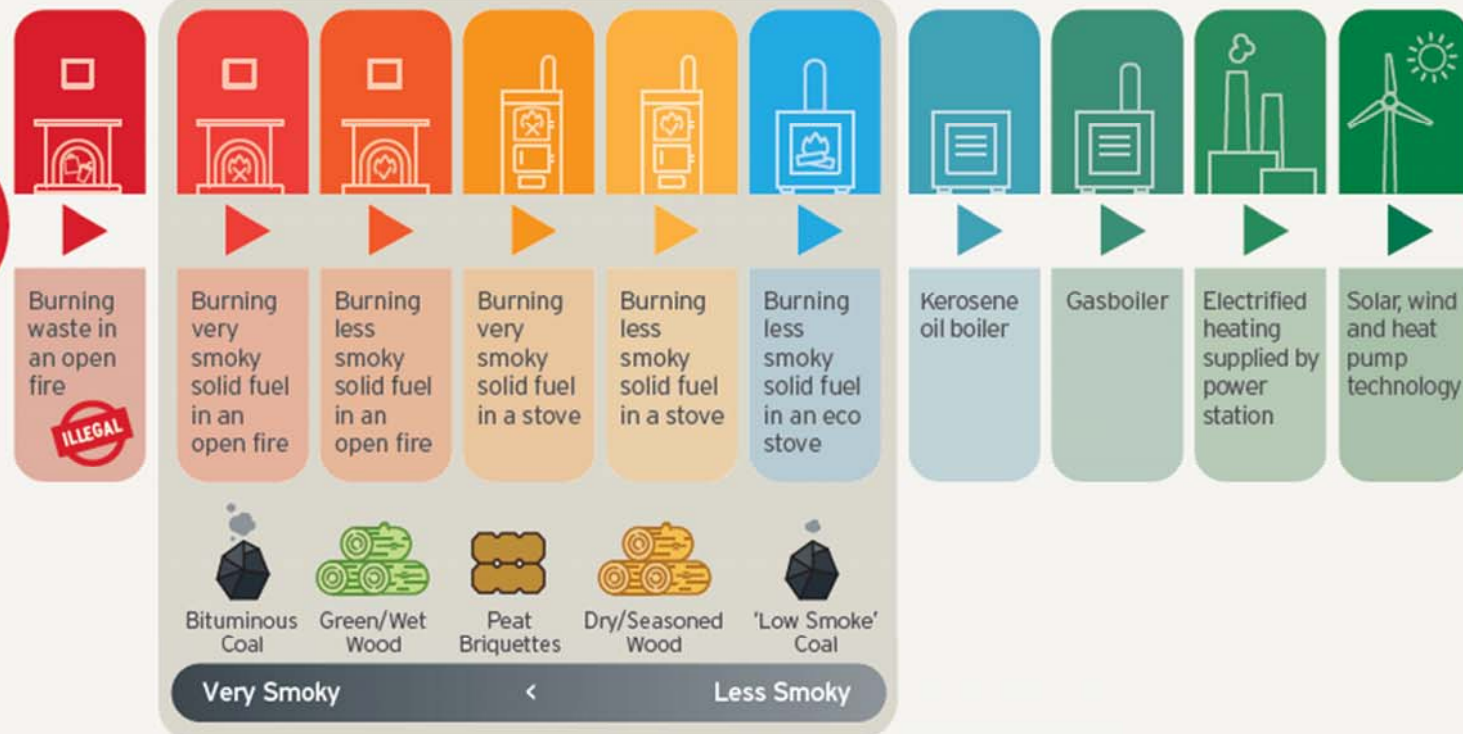


Figure 6 better ways to heat your home

Appendix 6

List of EPA Air Quality Stations (16/04/2020)

List of EPA Air Quality Stations (16/04/2020)¹⁷¹

	Station & Pollutants	Station Address	Region	Current AQIH¹⁷²
1	Galway-Mace Head O ₃	Mace Head, Carna, Co. Galway	Connaught	3 Good
2	Mayo-Castlebar NO ₂ , O ₃ , PM ₁₀	EPA Inspectorate, John Moore Road, Castlebar, Co. Mayo	Connaught	2 Good
3	Mayo-Claremorris PM ₁₀	Claremorris Water Treatment Plant, Coolroe & Derry, Claremorris, County Mayo	Connaught	1 Good
4	Roscommon-Roscommon Town PM ₁₀ , PM _{2.5}	Enclosed Facilities Yard at main County Council Offices, Roscommon Town, Co. Roscommon.	Connaught	2 Good
5	Carlow-Carlow Town PM ₁₀ , PM _{2.5}	County Buildings, Athy Road, Carlow, R83 E7R7	Leinster	2 Good
6	Dublin-Ballyfermot NO ₂ , PM ₁₀ , PM _{2.5}	Ballyfermot Public Library, Ballyfermot Rd, Kylesmore, Dublin 10	Leinster	2 Good
7	Dublin-Blanchardstown NO ₂	River Road, Blanchardstown, Dublin 15	Leinster	1 Good
8	Dublin-Clonskeagh O ₃	EPA Inspectorate, McCumiskey House, Richview, Clonskeagh, Dublin 14	Leinster	2 Good
9	Dublin-Davitt Road NO ₂ , PM ₁₀ , PM _{2.5}	Davitt Road, Inchicore, Dublin 12	Leinster	2 Good
10	Dublin-Dublin Airport NO ₂ , O ₃ , PM ₁₀ , SO ₂	Castlemoate House, Cloghran, Swords, Co. Dublin	Leinster	2 Good
11	Dublin-Dun Laoghaire NO ₂ , PM ₁₀	The Glen, Glenageary Road, Dún Laoghaire, Co. Dublin	Leinster	1 Good
12	Dublin-Finglas PM ₁₀ , PM _{2.5}	Mellowes Road, Finglas, Dublin 11	Leinster	2 Good
13	Dublin-Marino PM ₁₀ , PM _{2.5}	HSE, Brian Road, Marino, Dublin 3	Leinster	2 Good
14	Dublin-Pearse Street NO ₂ , O ₃ , PM ₁₀ , PM _{2.5}	Pearse Street, Dublin City Centre	Leinster	2 Good
15	Dublin-Phoenix Park PM ₁₀ , PM _{2.5}	Ordinance Survey Road, Phoenix Park Dublin 8.	Leinster	2 Good
16	Dublin-Rathmines NO ₂ , O ₃ , PM ₁₀ , PM _{2.5} , SO ₂	Wyneefield Road, Rathmines, Dublin 6	Leinster	2 Good
17	Dublin-Ringsend NO ₂ , PM ₁₀ , PM _{2.5} , SO ₂	Ringsend Recycling Centre, Pigeon House Rd, Ringsend, Dublin 4	Leinster	2 Good
18	Dublin-St. Annes PM ₁₀ , PM _{2.5}	St. Anne's Park, Clonskeagh Road, Raheny, Dublin 5	Leinster	1 Good
19	Dublin-St. Johns Road West NO ₂ , PM ₁₀ , PM _{2.5}	Revenue Commissioners, St John's Road, Kilmainham, Dublin 8	Leinster	1 Good
20	Dublin-Swords NO ₂ , O ₃	Road Safety Room, Swords Council Depot, Watery Lane, Swords, Co. Dublin	Leinster	1 Good
21	Dublin-Tallaght NO ₂ , PM ₁₀ , PM _{2.5} , SO ₂	Old Bawn Road, Tallaght, Dublin 24.	Leinster	2 Good
22	Dublin-Winetavern Street NO ₂ , SO ₂	DCC Civic Offices, Winetavern Street, Dublin 8	Leinster	1 Good
23	Kilkenny-Seville Lodge NO ₂ , O ₃ , PM ₁₀	EPA Inspectorate, Callan Road, Kilkenny, Co. Kilkenny	Leinster	2 Good
24	Laois-Emo Court NO ₂ , O ₃	Emo Court, Emo, Co. Laois	Leinster	2 Good
25	Laois-Portlaoise NO ₂ , PM ₁₀ , PM _{2.5} , SO ₂	Portlaoise Fire station, Dublin road, Portlaoise, Co Laois	Leinster	2 Good
26	Longford-Longford PM _{2.5}	Longford Roads Yard Railway, Dublin Road, Longford, Co. Longford	Leinster	2 Good
27	Louth-Dundalk NO ₂ , PM ₁₀ , SO ₂	Dundalk Fire Department, 16 Bishop Ct, Marshes Lower, Dundalk, Co. Louth	Leinster	2 Good
28	Meath-Navan NO ₂ , PM ₁₀ , PM _{2.5}	Navan town centre, Navan, Co. Meath	Leinster	2 Good

¹⁷¹<<https://www.epa.ie/air/quality/data/>>.¹⁷² AQIH = air quality index for health.

	Station & Pollutants	Station Address	Region	Current AQIH¹⁷²
29	Westmeath-Athlone Civic Centre PM ₁₀ , PM _{2.5}	Athlone Civic Centre and Library, The Bawn, Athlone, Co. Westmeath	Leinster	2 Good
30	Wexford-Carnsore Point O ₃	Carnsore Point, Our Lady's Island, Co. Wexford	Leinster	3 Good
31	Wexford-Enniscorthy PM ₁₀ , PM _{2.5}	Parnell Road, Enniscorthy, Co. Wexford	Leinster	2 Good
32	Wicklow-Bray O ₃ , PM _{2.5}	Bray Town Council, Schools Road, Bray, Co. Wicklow	Leinster	2 Good
33	Clare-Ennis PM ₁₀ , PM _{2.5} , SO ₂	Ennis Town Council, Waterpark House, Drumbiggle Road, Ennis, Co. Clare	Munster	2 Good
34	Cork-Cobh Carrignafof PM ₁₀ , PM _{2.5}	Coral Leisure Centre, Carrignafof, Cobh, Co. Cork	Munster	1 Good
35	Cork-Cork Harbour PM ₁₀ , SO ₂	Carrig House, Spy Hill, Kilgarvan, Cobh Co. Cork (Cork Harbour)	Munster	2 Good
36	Cork-Cork Institute of Technology O ₃ , PM ₁₀ , SO ₂	Cork Institute of Technology, Rossa Ave, Bishopstown, Cork	Munster	2 Good
37	Cork-Cork South Link Road NO ₂ , O ₃ , PM ₁₀ , SO ₂	South Link Road, Ballinlough, Cork	Munster	2 Good
38	Cork-Heatherton Park PM ₁₀ , PM _{2.5}	Heatherton Park, South Douglas Park, Cork	Munster	2 Good
39	Cork-Macroom PM ₁₀ , PM _{2.5}	Fitzgerald Street, Macroom, Cork	Munster	2 Good
40	Cork-University College Cork NO ₂ , O ₃ , PM _{2.5}	Distillery Fields on the grounds of the University College Cork (UCC) campus	Munster	2 Good
41	Kerry-Tralee PM ₁₀ , PM _{2.5}	Tralee Library, Moyderwell, Cloon Beg, Tralee, Co. Kerry.	Munster	2 Good
42	Kerry-Valentia O ₃	Valentia Observatory, Caherciveen, Co. Kerry	Munster	2 Good
43	Limerick-People's Park NO ₂ , O ₃ , PM ₁₀ , PM _{2.5}	The People's Park, Perry Square, Limerick City, Co. Limerick	Munster	2 Good
44	Limerick-Shannon Estuary SO ₂	Irish Water Pumphouse, Askeaton, Co. Limerick	Munster	1 Good
45	Tipperary-Clonmel PM ₁₀ , PM _{2.5}	Emmet Street, Clonmel, County Tipperary, E91N512	Munster	2 Good
46	Tipperary-Tipperary Town PM ₁₀ , PM _{2.5}	Civic Offices, Rosanna Road, Civic Offices, Rosanna Road, Carrownreddy, Tipperary Town, Co. Tipperary.	Munster	2 Good
47	Waterford-Brownes Road NO ₂ , O ₃ , PM ₁₀ , PM _{2.5}	Irish Water Site, Brownes Road, Waterford City, Co. Waterford	Munster	3 Good
48	Donegal-Letterkenny PM ₁₀ , PM _{2.5} , SO ₂	High Road, Ballyboe, Glencar, Letterkenny	Ulster	1 Good
49	Donegal-Malin Head O ₃	Malin Head, R242, Ardmalin, Ardmalin Electoral Division, Inishowen, County Donegal	Ulster	3 Good
50	Monaghan-Kilkitt NO ₂ , O ₃ , SO ₂	Kilkitt water works, Ballybay, Co Monaghan	Ulster	3 Good
Last updated: 11:44 16-04-2020				