# Consultation on the Clean Air Strategy for Ireland

# Submission by the Social Democrats – May 2022

## Executive Summary

The Social Democrats welcome the opportunity to contribute to the public consultation on the Clean Air Strategy for Ireland.

We would be happy to engage in further discussion on the details of this submission at any point.

Air pollution is caused by the contamination of air by particles, vapors and gases that are harmful to our health and climate.

The main sources of air pollution are the combustion of solid fuels, emissions from vehicle engines and agricultural activity. These sources give rise to various oxides of nitrogen (NOx), oxides of sulphur (SOx), ozone (O3), particulate matter (PM) and others. These gases and particles affect the lungs, brain, heart and other internal organs which lead to heart failure, cognitive decline and reduced life spans.

The World Health Organisation (WHO) has highlighted air pollution as a threat to all people, but people in poorer neighbourhoods in particular. To ensure good air quality, strong government action must be taken to protect our environment and the quality of air we are breathing every day.

Ireland is a signatory to E.U. and various transnational environmental agreements for air pollution, for example, E.U. CAFE standards provide Air Quality Directives on which our main domestic instruments of legislation are based. These are also the Air Pollution Act 1987 and the Air Pollution Act 2012. However, more is required. **The Social Democrats believe Government should enact a new Clean Air Act**, more details on which are discussed later in this submission.

Partial, regional smoky coal bans have been in place for about 20 years but in 2021, a Clean Air (Smoky Coal Ban) Bill was introduced. It will finally put a national smoky coal ban into effect later this year (2022). Its success will depend not only upon the enforcement strategies carried out by Local Councils but also on the introduction of innovative solutions like 'Clean Air Zones', improving public transportation and raising public awareness to the dangers presented by air pollution.

Ireland's network of monitoring stations (the EPA AAMP) is increasing in reach and should continue to expand with the installation of low-cost sensors throughout the country. These

stations measure particulate matter (PM10 and PM2.5) and harmful gases (NOx, SOx, VOCs etc).

Around 1,300 people died in Ireland in 2020 due to air pollution and related causes, but despite this, there is a lack of public awareness of the dangers posed by air pollution. The government and local authorities must engage directly with communities and businesses to encourage citizen science programmes and data gathering at a local level.

Additionally, cheap financing for replacing polluting vehicles and retrofitting homes for insulation and efficient, non-polluting heating systemsare essential to gain buy-in from the public.

**The Social Democrats propose a Clean Air Act that would:**

- Have the improved health of citizens and beneficial climate impacts as its prime goals.
- Strive for Ireland to have the cleanest air in the world by 2035.
- Set air pollution controls in a phased approach, to move Ireland to meet the 2021 World Health Organisation guidelines for air pollution by 2035.
- Introduce of 'Clean Air Zones' (CAZ) or 'Ultra low emission zones' (ULEZ) in urban areas to improve air quality.
- Introduce a system of charges for polluting vehicles entering CAZs/ULEZs.
- Increase the sentences and fines for environmental polluters.
- Legislate for a national car idling ban.
- Expand the National Ambient Air Quality Monitoring Network and introduce low-cost monitors in all towns in Ireland with a population of more than 1,000 people.
- Update the National Air Pollution Control Programme (NAPCP) and strengthen the powers of the Environmental Protection Agency.
- Introduce an early warning national syndromic forecasting system between EPA monitoring, local GPs, hospitals and the media when local pollution spikes.
- Introduce a NOx charge on HGVs and other polluting vehicles and expand the scrappage scheme for older, polluting vehicles.
- Make major investment in modes of active travel at a local level (walking and cycling).
- Increase investment in electric vehicles, charging points and public transport.
- Scale-up investment in retrofitting and cheap access to financing e.g. prioritising heat pumps in new builds and retrofits.
- Raise air quality standards in the workplace.

# Health Effects from Air Pollution

Outdoor air pollution is increasingly recognised as a major public health issue. It is estimated to have contributed to 1,300-1,400 preventable deaths in Ireland in 2020. It is unsurprising that U.N. Sustainable Development Goals 3, 9 and 11 list reducing air pollution as a priority.

Nitrogen dioxide (NO2) is a gaseous pollutant that is produced primarily from motorised road traffic fumes (especially diesel fuel) but also by agriculture, residential heating, power generation and industry. While toxic, it can also trigger photochemical reactions that produce complex secondary particles composed of inorganic and organic material.

Multiple studies suggest that there are stroke and cardiovascular health effects at even low NO2 levels[1]. Whether NO2 itself causes vascular dysfunction is disputed but it is considered a marker for related air pollution, especially from diesel vehicle produced particulate matter. A recent study demonstrated a link between short-term stroke and air pollution during winter (PM2.5 and NO2)[2].

Particulate matter (PM) is an air pollutant produced from incomplete combustion and is usually characterised by its diameter. Coarse particles (PM10) have a diameter of under 10 µm while fine particles (PM2.5) have a diameter of under 2.5 µm. Natural sources include sea spray, dust, pollens, moulds and forest fires while anthropogenic (human produced) sources include residential heating with coal, peat or wood, road traffic (e.g., internal combustion engines, tire degradation, road dust), construction, power plants, industry, agriculture and electric vehicles to an extent.

In Ireland, residential solid fuel burning is the primary source of this pollution. A recent study of PM composition during two high pollution days in Dublin found that the main source of air pollution was the residential burning of solid fuels, especially peat and wood[3].

This is despite the “smoky coal ban” introduced in Dublin in 1990 that was shown to reduce the incidence of cardiovascular and respiratory disease. This highlights the urgent need to extend the smoky coal nationwide and to expand the ban to all solid fuels, especially in urban areas.

Sulfur dioxide (SO2) is a gaseous pollutant produced primarily by coal and ship fuel burning. While SO2 continues to be present and a danger, U.S. EPA and others have demonstrated a marked decrease in SO2 levels globally[4].

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[1] Shah, A.S., et al., Short term exposure to air pollution and stroke: systematic review and meta-analysis. BMJ, 2015. 350: p. h1295, and in Shah, A.S.V., et al., Global association of air pollution and heart failure: a systematic review and meta-analysis. The Lancet, 2013. 382(9897): p. 1039-1048.

[2] Langrish, J.P., et al., Exposure to nitrogen dioxide is not associated with vascular dysfunction in man. Inhal Toxicol, 2010. 22(3): p. 192-8. and in Byrne, C.P., et al., Short-Term Air Pollution as a Risk for Stroke Admission: A Time-Series Analysis. Cerebrovasc Dis, 2020: p. 1-8.

[3] O’Dwyer, M., Air Quality In Ireland 2018. 2019, Environmental Protection Agency and Lin, C., et al., Extreme air pollution from residential solid fuel burning. Nature Sustainability, 2018. 1(9): p. 512-517

[4] https://www.epa.gov/air-trends/sulfur-dioxide-trends and https://www.nature.com/articles/s41598-018-37304-0.pdf

Ozone (O3) normally exists in the stratosphere (15-30 km) but is a pollutant at ground level and is either imported from outside Ireland (usually Europe) or produced locally when nitrogen oxides and other vehicle emissions react in the atmosphere. Other significant pollutants are ammonia, methane, dioxins which are formed by waste burning (incinerators and backyard burning) and polycyclic aromatic hydrocarbons (PAH) which are emitted from the burning of solid fuels.

Volatile organic compounds (VOCs) are carbon-based and emitted as gases from burning solids and liquids. Anthropogenic VOCs come from paints, cleaning products, solvents, aerosols and others. VOCs are oxidized in the atmosphere and generally end up as PM through combustion.

Air pollutants have been associated with numerous diseases including asthma, stroke, cardiovascular disease, respiratory disease, dementia, and Parkinson's disease[5]. The stronger association with PM2.5 over PM10 is due to the smaller size of these particles which can reach deeper into the lungs and even cross into the bloodstream to reach the heart or brain directly. Additionally, the source of particulate matter is important, with industrial and traffic related particulate matter being more associated with health effects[6].

From a public health point of view, there is evidence of increased systemic inflammation, impaired vascular function and increased arterial pressure in subjects exercising in high traffic pollution areas[7].

Promoting active and public modes of transport e.g. walking, cycling and public transport over car travel has shown to reduce exposure to air pollution[8]. In Ireland, the major pollutants of concern from a public health perspective are PM2.5, ammonia, NO2 and PAH[9]. These pollutants, as mentioned above, are mainly associated with agriculture, solid fuel burning and traffic exhaust emissions. Despite meeting European Union (EU) standards, we fail to meet the World Health Organisation (WHO) standards for public health which were been updated in 2021, the first time in 16 years. Agriculture produces the vast majority of ammonia.

Additionally, poor air quality leads to a corresponding rise in incidents of respiratory and cardiovascular issues with the public[10]. Cournane et al showed an association between respiratory admissions and PM10 and SO2 to St James' Hospital[11]. Clancy et al demonstrated

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[5] Shah, A.S., et al., Short term exposure to air pollution and stroke: systematic review and meta-analysis. BMJ, 2015. 350: p. h1295, and in Shah, A.S.V., et al., Global association of air pollution and heart failure: a systematic review and meta-analysis. The Lancet, 2013. 382(9897): p. 1039-1048.

[6] Zanobetti, A., et al., Fine particulate air pollution and its components in association with cause-specific emergency admissions. Environ Health, 2009. 8: p. 58

[7] Madureira, J., et al., Cardio-respiratory health effects of exposure to traffic-related air pollutants while exercising outdoors: A systematic review. Environ Res, 2019. 178: p. 108647

[8] de Nazelle, A., O. Bode, and J.P. Orjuela, Comparison of air pollution exposures in active vs. passive travel modes in European cities: A quantitative review. Environ Int, 2017. 99: p. 151-160

[9] O'Dwyer, M., Air Quality In Ireland 2018. 2019, Environmental Protection Agency and Lin, C., et al., Extreme air pollution from residential solid fuel burning. Nature Sustainability, 2018. 1(9): p. 512-517

10 Quintyne, K.I., et al., Air Quality and Its Association with Cardiovascular and Respiratory Hospital Admissions in Ireland. Ir Med J, 2020. 113(6): p. 92

[11] Cournane, S., et al., Air Quality and Hospital Outcomes in Emergency Medical Admissions with Respiratory Disease. Toxics, 2016. 4(3)

a reduction in air pollution from the smoky coal ban in Dublin resulted in a reduction in respiratory and cardiovascular admissions[12].

While the number of people affected by indoor pollution is not as prevalent in those in developing countries, it must also be considered here. The reason for the lower levels of indoor emissions is due to the fact that gas and electric heating are increasingly standard than in developing countries where cooking meals and heating inside over an open fire is commonplace which emit PM2.5, VOCs and other pollutants. The best course of action is that future construction of housing, schools, offices, places of work and other buildings are equipped with decent ventilation as well as greater public awareness of indoor air pollution, VOCs and other pollutants.

Another area of concern is the area of commercial air travel which is another source of air pollution. Commercial aircraft are also a source of NOx, SOx, PM (including ultra-fine particulates) and other pollutants. Aviation emissions of CO2 and NOx are expected to rise by 21% and 16% respectively by 2040. There was an aviation tax on airliners in Ireland up to 2014 until it was ended by the Fine Gael-Labour government in their Budget decisions that year.

## Air Quality Regulations

In 2021, the World Health Organisation (WHO) updated its global air quality guidelines; the first time since 2005. This change was based on greater understanding and scientific evidence that air pollution is more damaging to human health at much smaller concentrations than previously realised.

As a result, the 2021 air quality guidelines (AQG) were lowered compared to 2005 for PM2.5, PM10, NO2, SO2, with additional metrics introduced for O3 and CO. The changes from 2005 are striking with PM2.5 limits falling to 50% and NO2 falling to 25% of the 2005 numbers.

Several studies have demonstrated the potential impact of these new guidelines, including one by the European Environmental Agency said that 177,300 lives could have been saved in 2019 had the 2021 AQGs were in effect[13].

These updated guidelines point to the growing consensus that poor air quality is the leading cause of premature death facing global human health and ranks above many known diseases e.g. HIV/AIDs and cancer. Governments must do more to guard against air pollution as air crosses borders freely and can affect population centres in neighbouring countries. Improving both indoor air quality and ambient outdoor quality has never been more important from a public health and environmental policy perspective.

[12] Clancy, L., et al., Effect of air-pollution control on death rates in Dublin, Ireland: an intervention study. The Lancet, 2002. 360(9341): p. 1210-1214

[13] https://www.eea.europa.eu/publications/air-quality-in-europe-2021/health-impacts-of-air-pollution

# Clean Air Zones

At present, Ireland has a number of 'low smoke zones' in which air quality is monitored by the Environmental Protection Agency (EPA). Zone 1 covers the greater Dublin area, Zone 2 covers Cork City and its suburbs, Zone 3 covers smaller cities (Galway, Limerick, Waterford) and other urban areas while Zone 4 includes all other areas i.e. rural countryside between other zones.

Under the current Air Pollution Act (Marketing, Sale, Distribution and Burning of Specific Fuels) Regulations 2012, it is against the law to burn smoky coal with a sulphur content of more than 0.7%. Although the sulphur content is still low, it still produces PM2.5 into the atmosphere like burning all other solid fuels.

Public awareness of these solid fuels and their harm to air quality and the local environment must be addressed with information campaigns to discourage solid fuel burning e.g. peat, wood, coal. Additionally, license to sell solid fuels, warning labels on packaging and a 'sin tax' on solid fuels similar to that of cigarettes should also be considered over time as Ireland moves to greener sources of heating and energy generation.

Looking at international best practice, the next step would be to **designate urban areas as 'Clean Air Zones' (CAZ) or 'Ultra low emission zones' (ULEZ)** like in the UK. Building on the work of the low smoke zones, government and the local authorities would take greater proactive steps to improve air quality within the zone. These targeted measures would bring emissions levels down through enforcement, urban planning, change of behaviour, elimination of harmful sources of PM2.5, NO2 and others while promoting measures to improve the air quality e.g. pedestrianisation, green areas, and urban tree planting.

The 2021 WHO guidelines are stricter and will not be achieved overnight; only in tandem with other measures will air quality levels improve over time. To reduce harmful levels of pollutants from vehicles, a charging regime could be implemented on drivers in older, polluting vehicles not up to a minimum environmental standard, where they would pay a charge if traveling within the CAZ/ULEZ.

Though the extension of Low Smoke Zones to the whole country is welcome, there is much more that can be done to protect public health and air quality. Following other European cities, pedestrianisation in city centres is accelerating with many cities choosing to ban cars and other vehicles entirely from urban centres. This step has been popular and successful in improving air quality in cities around the world to reduce levels of NOx, SOx, PM2.5 and other pollutants.

In recent years, cities in the U.K have implemented a 'Clean Air Zone', 'Low Emission Zone' or 'Ultra Low Emission Zone' where a charge is levied on all vehicles entering the zone. London is a good example where measures to curb poor air quality are bearing fruit. However, the implementation of congestion charges could have an adverse reaction from the public if not communicated and/or implemented correctly. Buy-in from the public is key, and congestion changes could be considered once commuters and travellers can rely on a decent standard of

public transport. **Accompanying improvements in a city's public transport infrastructure must go hand-in-hand with any such charges**.

In the UK, there are 4 different types of Clean Air Zones based on the type of vehicles that may enter the zone requiring a minimum environmental standard. Type A includes Buses, coaches, taxis and private hire vehicles while Type D will also include HGVs, vans, minibusses, all cars and may include motorcycles on the list depending on the local authority. Each authority can tailor its own Clean Air Zone based on the severity of air quality in their locality.

Following publication of a report into NO2 levels in 2017, the UK government designated Birmingham City Council as an area which needed to address its air quality. It found the level of NO2 above acceptable levels so it set a target of 40 µg/m3 for the Council to reach as soon as possible and encourage a further reduction after that. Since its implementation in June 2021, 6,000 fewer vehicles are entering Birmingham's Clean Air Zone with an accompanying improvement in air quality.

Here in Ireland, the example of local councils making strides on air quality has been noticeable with Cork City Council being the first city in the country to produce its own Air Quality strategy which bans HGVs from the city centre in favour of a 'Last Mile Electric Vehicle delivery', creation of Ireland's first clean air zone in April 2022 and an expansion of tree planting in the city[14]. Additionally, the four local authorities for Dublin collaborated together to develop an Air Quality Plan to reduce NO2 levels in the city in 2021. This should be replicated across the country for every local authority to tackle air pollution at the local level.

Another idea is the creation of 'School Streets' which has been hugely successful in the U.K. The proposal calls for the pedestrianisation of roads in and around schools when parents are dropping children off in the morning and collecting them from school in the afternoon. One study from the city of London shows a 23% reduction in NO2 levels[15]. Engagement between parents, students and school staff all contribute toward better air quality in the area. In addition to improving air quality, implementation of 'School Streets' supports other public goods such as more physical exercise for young people, reduced traffic around the city and better safety for students in and around the schools.

[14] https://www.corkcity.ie/en/things-to-do/parks-outdoors/cork-city-trees/strategy and https://www.corkcity.ie/en/council-services/news-room/latest-news/cork-city-council-launches-innovative-air-quality-strategy.html

[15] https://www.london.gov.uk/press-releases/mayoral/school-streets-improve-air-quality

## Public Awareness in Air Quality

The public's perception of air quality must go beyond air forecasting and media reports of a spike in pollution.

Public outreach products in science education can help improve awareness about environmental issues. Studies show that people will actively try to reduce activities that contribute to air pollution (such as car idling outside schools at busy morning drop off and afternoon pickup) if financial or social rewards are available for completing such activities[16].

Citizen Science offers an important opportunity for local councils and governments to engage their communities in the benefits of reducing air pollution along with achieving goals related to EU directives in air quality. These projects are primarily targeted at schools, where education on clean air can be incorporated into parts of the curriculum.

A study run by the Dutch National Institute for Public Health and Environment asked public applicants to submit their personal addresses and allowed the applicants to actively record air quality data from their backyard[17]. These public applicants increased the spatial concentration of reliable air quality data, whilst also engaging the public about air quality information in their local area along with understanding the process involved in obtaining such information (source collection, laboratory process and data visualisation).

There is also the Clean Air Together initiative run by the EPA which studies NO2 levels in Dublin. This programme is being expanded to other cities but should go further, especially to towns with poor air quality e.g. Ennis, Bandon, Enniscorthy.

Other local movements related to air quality and worth examining include the London No Idling campaign, where community members gathered around local idling hotspots, knocked on car windows and asked people to turn off their car engines if idling[18]. Community engagement and sustained enforcement by An Garda Siochána is key here to ensure cars are switching off their engines.

Citizen science remains a positive tool for the government to engage the public around important scientific issues and participate in processes that help communities feel engaged with the decisions and actions related to environmental issues. According to international communities, there is a solid framework which assesses new and existing citizen science initiatives to improve their implementation. This framework involves engagement with citizens throughout all levels of the process along with keeping engagement between scientists and the community. Citizen Science can be particularly valuable at increasing the spatial representation of air quality data across the country and should continue to be implemented across Irish schools.

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[16] Carrico, A. R., et al, Costly myths: An analysis of idling beliefs and behaviour in personal motor vehicles. Energy Policy, 37,(8), 2009, 2881-2888

[17] https://www.iqair.com/netherlands/zeeland/zierikzee/zierikzee-lange-slikweg

[18] https://idlingaction.london

An ideal example of this is the Purple Air initiative which "makes sensors that a community of citizen scientists use to collect hyper local, real-time air quality data and share it on a map that is accessible for everyone. Potentially, similar to the Tidy Town community initiatives, a similar process can be implemented into recording air quality data around the country.

## Active Travel and Public Transport

Sustainable active travel such as walking, cycling and EVs (electric bikes, scooters, cars) should be prioritised as much as possible through building the relevant infrastructure and providing additional incentives where possible. Our European counterparts offer numerous examples of where walking and cycling have greatly improved the liveability of a city as well as cutting down on pollution and traffic.

Moving greater numbers of people in fewer vehicles, public transport reduces emissions, reduces congestion, and cuts down on car dependency. Where the vehicles are powered by renewables, the benefits are even greater. Planning and policy must be cognisant of the many advantages that public transport offers. Increasing access and reliability of our bus, train, and tram networks is a vital part of our climate and air quality ambitions.

Advanced options also suited to less dense settlements must also be considered. Demand-Responsive Transport (DRT) is a flexible mode of transportation which is able to adapt to daily demand, as determined by interaction with its users.

It typically works through a booking service, via phone or online, where routes are adjusted to best serve all users. According to Interreg Europe, DRT remains under-utilised despite its many benefits. Not only does DRT provide social benefits by increasing opportunities for those who are socially marginalised and those with limited mobility, it has significant environmental benefits as well by reducing the number of private vehicles on the road.

Supporting existing public transport and acting as a "first/last mile solution" linking communities with other multimodal transport networks. It has also been identified as a tool for promoting and supporting tourism, providing links between transport hubs and tourist destinations, which in particular could benefit rural areas with little public transport.

The LAST MILE is an Interreg Europe project which is, along with looking at framework conditions and barriers to implementation, producing guidelines which can be used to make sustainable mobility plans for rural regions, which can be used by regional authorities across Europe[19]. A non-profit, charitable transport organisation, RingaLink have implemented a DRT service within the counties Carlow, Kilkenny, Tipperary and Wicklow; and who offer "affordable and convenient transport primarily for rural dwellers"[20].

[19] https://www.interregeurope.eu/lastmile
[20] https://www.ringalink.ie/demand-responsive-transport

## Retrofitting and Financing

Retrofitting homes and buildings is a necessary climate measure with many substantial co-benefits, including relating to cleaner air.

Government schemes should initially focus on households that experience heat/fuel/energy poverty or are in receipt of the Fuel Allowance. Buildings that rely on the most polluting fuels such as coal and peat should be targeted thereafter, maximising emissions mitigation (carbon dioxide and air pollution).

The SEAI grants system has been an effective vehicle to enable home heating improvement measures. Although the government's February 2022 announcement involving further investment in the retrofitting is welcome, it still requires taking out a large loan up front and remains out of reach to many of those who would most benefit from it the most.

Many availing of the SEAI grant system are upgrading their heating systems to gas heating or kerosene boilers, which, while an improvement over open stoves and solid fuel burning, stills emit air pollution. Heat pumps should be the preferred option in all retrofits where possible as previously mentioned heating systems are still climate emitters and bad for both indoor and outdoor air pollution.

To improve both air pollution and future insulation, the government should be ambitious and also look toward subsidising the closure of chimneys and include it into future retrofits. Sealing chimneys will not only save the homeowner in long-term heating costs by preventing heat loss but will also reduce air pollution.

Another point involves wood burning stoves which has become a problem in the U.K in recent years. Revised UK government figures in February 2022 show that while the percentage of PM from wood burning has reduced from 38% to 17%, it still constitutes a larger share of PM production than traffic emissions which is at 13%[21].

Wood smoke is harmful to human health, especially indoors as the smoke is full of PM and VOCs. This should be put on the government's radar as improving insulation in retrofitting will mean that indoor air pollution will become more of an issue down the line. In that sense, planning permission or no fire zones in urban areas could be considered to tackle this issue.

Vital to the success of any scheme is having an adequate workforce. The current waiting list of 18-24 months is unacceptable given the urgency of the shortage of housing units and the targets in this area. Significant additional resources are required to enable more retrofits in a timely manner, chiefly by increasing the number of skilled personnel in the area. The list of works and certified persons for retrofitting should be expanded by offering training and incentives as appropriate.

SEAI analysis suggests that low-interest loans combined with grants could improve uptake and which is especially true for payback periods greater than six years. A reformed financing

[21] https://www.gov.uk/government/statistics/emissions-of-air-pollutants/emissions-of-air-pollutants-in-the-uk-particulate-matter-pm10-and-pm25

system with a ‘heating allowance’ would incentivise poorer people to switch to cleaner heat sources and retrofit their home. This would give them a higher heating allowance and also allow them to spend less on heating bills while polluting their home and surrounding area at the same time; a win-win.

To date, schemes that offer partial support and require applicants to seek additional funding are beyond the reach of many of the most vulnerable, and are most accessible to those already advantaged. Heat poverty and poor living conditions are being prolonged due to unequal access to the very schemes designed to eliminate them. Cheap financing for retrofitting and all other climate action related work must be encouraged and prioritised. Access to credit must be widespread, diverse, and low-cost in order to realise the potential benefits for human health and the environment. The Better Energy Warmer Homes scheme (from SEAI) provides full retrofits to recipients of social welfare payments, but only around one hundred per year are completed. This is far too slow a rate.

# Policy Recommendations

## Enact a robust Clean Air Act

Alongside the Clean Air for Europe (CAFÉ) standards and other EU directives, government should enact a Clean Air Act that would reduce air pollution in a phased approach over time through measure such as standards enforcement, behavioural change, planning, investment in retrofitting, provision of cheap financing for related projects, and increasing public awareness.

The primary goal of the act should the improvement of the health of citizens and our climate, with Ireland striving to have the cleanest air in the world by 2035.

The National Clean Air Strategy should be fully incorporated into carbon budgeting and the Climate Action Plan.

The Clean Air Act should strengthen legislation around civil and criminal charges for environmental polluters where warning signs were present but where the polluter chose to ignore them, and strengthen the National Air Pollution Control Programme, including allowing on-the-spot unannounced inspection of suspected sources of pollution.

## Strengthen Air Quality Monitoring

Government should establish a real time, national syndromic air quality forecasting system between GPs, A&E Departments, Department of Health, EPA, Local Authorities and other relevant organisations.

This system would alert hospitals, doctors and medical personnel if there is an increasing level or sudden spike in air pollution to prepare for a surge of members of the public presenting with asthma and other pollution related effects.

It should also include local and national media to raise awareness of a spike in pollution and local authority officials to prepare for contingencies.

Government should increase the role and powers of the Environmental Protection Agency and the HSE/Department of Health in respect of the National Ambient Air Quality Monitoring Network to have an early warning system in place against sudden or increasing levels of air pollution.

Government should also ensure funding to:

- Keep the national monitoring network online and operating correctly.
- Create a national network of low-cost sensors throughout the entire country.
    - For example, towns of 1,000 people or more should have at least one active sensor monitoring air quality.
    - Ireland has the lowest density[22] of monitoring stations in Europe.

[22] https://www.eea.europa.eu/themes/air/air-quality-index

## Accelerated Transition

Government should create 'Clean Air Zones' or 'Ultra Low Emission Zones' in Dublin, Cork, Limerick, Galway and other urban areas that are above acceptable levels of air pollution.

Where congestion and urban pollution is very high, a system of charges could be considered, to be established over time as investment in public transport improves. Accompanying improvements in a city's public transport infrastructure must go hand-in-hand with any such charges.

Local Authorities should review free parking in or around urban centres and review movement in all urban areas to not only encourage a change in transport behaviour but maintain continued business growth in the middle of villages, towns and cities.

Government should also:

- legislate for a national ban on 'car idling'.
- review all speed limits in residential areas.
- accelerate the process of pedestrianisation of our urban areas.
- implement 'multi-modal' transport links so commuters may travel to work via bike, train, car and ride and other modes of travel as part of the TFI strategy.
- establish a system of cheap retrofitting financing for homes and commercial buildings to upgrade their BER status.
- consider the introduction of a NOx charge on all heavy goods vehicles (HGVs) and a system whereby older trucks with poor ratings are phased out of use.
- introduce a scrappage scheme to take the older, polluting vehicles off the road.
- introduce binding targets for electric and other green HGVs on the road by 2035.
- establish government backed low-cost financing for green HGVs and other vehicles.
- subsidise green taxis, last mile delivery vehicles and cargo bikes for use in urban areas.
- consider the reintroduction of an aviation tax on jet fuel and encourage greener fuel use.

## Further recommendations for Central Government

Establish a long-term strategy on clean heating and indoor pollution.

Reform the public education curriculum in the Department of Education to improve the teaching of air pollution and other environmental issues.

Commit to upgrade all government, administrative, local authority buildings and vehicles.

Develop a strategy to make farming greener and safer by encouraging better farming equipment, livestock feeds and cleaner methods of farming.

Grant local authorities the use of Traffic Regulation Orders where the Gardaí Siochána can close traffic and movement to specific areas due to extreme air pollution.

Target hotspot high pollution-riddled towns.[23]

### Further recommendations for Local Government

Require every local authority to develop their own clean air and communication strategies.

Provide funding for the environmental department in local authorities to have at least one member of staff focused on clean air and related environmental issues.

Encourage local authorities to work with chambers of commerce and local business groups to improve business waste management which will in turn improve air pollution.

Provide resources to local authorities to study all transportation in their remit to understand movement based on national expertise which will incorporate air quality in transportation planning.

Require local authorities to review their policies relating to parking, especially 'free parking' and charging regimes to support business in population centres.

Grant additional powers for local authority enforcement officers.

[23] See map of PM25 concentration
https://www.sciencedirect.com/science/article/pii/S2590162122000090#fig2