An Taisce
The National Trust for Ireland

Submission on public consultation to inform the development of a National Clean Air Strategy

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EXECUTIVE SUMMARY

This submission is the An Taisce response to the spring 2017 public consultation by the Department of Communications Climate Action, and Environment to inform the development of a National Clean Air Strategy.

The eight chapter headings in the submission follow those in the Department's public consultation document. The questions set by the Department are highlighted and answered in Sections 2 to 8 in bold print.

The key recommendations outlined by An Taisce in this submission are that outcome of this consultation should be a National Clean Air Strategy, requiring a timetable for:

- The reconstitution of the remit and scope of the Environmental Protection Agency (EPA) to ensure effective national monitoring, regulation and enforcement on all air pollution impacts.

- Legislative and fiscal reform to mandate and inform the actions of all Government Departments, State Agencies , Local Authorities and other decision makers in meeting World Health Organisation (WHO) air quality standards as a legal responsibility.

- The enhancement of citizen rights to secure legal redress on Clean Air in accordance with the Aarhus Convention.

- The progressive reduction and elimination of locations with days exceeding WHO emission thresholds and limits, focusing on traffic pollution and domestic fuel burning.

- Resourcing the large scale retrofitting of the national housing stock giving priority to areas with high solid fuel use.

- Ensuring that the application of the overdue national "smoky" coal ban in 2018 should not be allowed to generate increased emissions from peat and biomass.

- Action on diesel emissions, through the range of fiscal and other measures recommended in the An Taisce responses in the transport section of this submission, and which are supported by public health researchers and other advocacy bodies with a clear target for phasing in low emission vehicles for all transport sectors.

- Large scale acceleration of public transport and cycling infrastructure investment.

- The re energising of the measures set out but not implemented in the 2009 Department of Transport "Smarter Travel" policy particularity action to achieve modal shift from cars , including taxis , to walking, cycling and low emission public transport, with clear targets to be met.

- Requiring the agricultural sector to implement effective monitoring and abatement of ammonia emissions, and to control the impact of land burning.

- Public information programmes be primarily directed at supporting enhanced public health protection through legislation, regulation and enforcement, and redirection of taxation policy and public investment to ensure that Ireland meets WHO clean air standards.

In addition this submission advocates the withdrawal of the proposed Renewable Heat Incentive (RHI) as not fit for purpose on multiple sustainably grounds including air pollution impact.

1. INTRODUCTION

We can choose the food we eat and the water we drink but we can't choose the air we breathe. We at An Taisce recognize the importance of clean air to the health of the Nation. Ireland prides itself as a healthy and green Island with prevailing winds blowing in off the Atlantic . Our natural advantages however are not enough to ensure safe levels of pollutants including PM2.5 , PM10 , NOx , SOx , O3 , and NH4.

2. A CLEAN AIR VISION FOR IRELAND

Clean Air is Not a Choice

Recent World Health Organisation (WHO) data tells us that 3,000,000 people worldwide die every year as a result of ambient air pollution . EPA monitoring shows that WHO limits for PM2.5 are exceeded on a regular basis in Irish cities and towns . In 2012 14,400 years of life were lost in Ireland due to PM2.5 and 500 due to O3. There were 1,200 premature deaths attributable to these sources. Ireland has the third highest death rate from lung disease in Europe and the fourth highest rate of asthma in the world . The links between asthma and air pollution especially ground level ozone and PM2.5 are well known . Ireland has shown great leadership in the past in relation to indoor air pollution with the introduction of the ban on smoking in the workplace in 2004.

http://www.eea.europa.eu/publications/air-quality-in-europe-2015

It is not just human health that is affected by air pollution . The ECLAIRE study highlights the link between air quality , climate change and how this effects ecosystems. Everything is intimately linked and whether we breathe this pollution or our environment breathes it we will suffer as a result.

http://cordis.europa.eu/result/rcn/92971_en.html

Air Quality and our Health

Our built environment and physical spaces not only influences our daily lifestyle choices, but can also expose citizens to harmful pollutants.

WHO have identified a close quantitative relationship between PM levels and increased mortality and morbidity for cancers and cardiovascular disease. When PM is reduced, associated mortality will decrease in line. (WHO, 2016)

Air pollutants exacerbate respiratory impacts and therefore more harmful to people with existing conditions such as bronchitis and asthma.

Air pollution is a clear marker for sustainable development, as sources of air pollution also produce climate pollutants. (WHO, 2016) The World Health Organisation (2016) have highlighted the impacts of poor air quality, stating that to date, air pollution – both ambient (outdoor) and household (indoor) – is the biggest environmental risk to health, carrying responsibility for about one in every nine deaths annually. Health risks associated with poor air quality include stroke, heart disease, lung cancer and chronic and acute respiratory diseases, including asthma (US EPA, 2015).

The World Health Organisation (2016) estimated that in 2012, 72% of outdoor air pollution-related premature deaths were due to ischaemic heart disease and strokes, while 14% of deaths were due to chronic obstructive pulmonary disease or acute lower respiratory infections, and 14% of deaths were due to lung cancer.

It is estimated that more than 400,000 premature deaths are related to air quality in Europe per-year. In relation to Ireland, the number of premature deaths attributed to our air quality is estimated to be 1,200 people annually (WHO, 2016).

WHO have identified ischaemic heart disease to be the leading cause of pre-mature death as a result of poor air quality. Research carried out by the US EPA (2015) show that air pollution can trigger heart attacks, stroke, and irregular heart rhythms – especially in people who are already at risk for these conditions. The United States EPA (2015) have categorised 'at risk' people to be those who have existing heart related disease, chronic lung disease, males over 45, female over 55, family history of heart disease, high blood pressure or high cholesterol, overweight or smoke cigarettes.

Having regard to Ireland's current level of obesity, heart disease and aging population, and given that air pollution can trigger associated risks, it is important that Ireland limits the level of air pollution.

In relation to respiratory diseases such as asthma, Ireland has the fourth highest prevalence of asthma in Ireland. Data from the Asthma Society of Ireland show that 7.1% of 18+ population have asthma, 18.9% of 13-15 year olds have asthma and 38.5% of 13-15 year olds reported wheezing. In Ireland, more than 1 person a week dies from asthma.

Sharon Cosgrove of the Asthma Society of Ireland stated that:

"People with chronic respiratory disease like asthma are more vulnerable to the effects of air pollution. It is vital we do everything we can to limit the levels of air pollution we expose our citizens to and have accurate information on the actual quality of our air". (Cosgrove, 2015)

Pollutant sources

The main pollutants that are of concern are NOx (Oxides of Nitrogen), PM10 and PM 2.5 (Particulate Matter), O3 (Ground Level Ozone) and PAHs (Polycyclic Aromatic Hydrocarbons). These pollutants have serious adverse health impacts. "*The European Environment Agency (EEA) has stated that 'Particulate matter, nitrogen dioxide and ground-level ozone, are now generally recognised as the three pollutants that most significantly affect human health. Long-term and peak exposures to these pollutants range in severity of impact, from impairing the respiratory system to premature death. Around 90 % of city dwellers in Europe are exposed to pollutants at concentrations higher than the air quality levels deemed harmful to health. For example, fine particulate matter (PM2.5) in air has been estimated to reduce life expectancy in the EU by more than eight months."*

Oxides of Nitrogen (NOx) Vehicle exhausts & high temperature combustion sources

Particulate Matter
PM10 – Particles with a diameter of less than 10 micrometres
PM 2.5 – Particles with a diameter of less than 2.5 micrometres

Polycyclic Aromatic Hydrocarbons (PAHs) Traffic generated emissions

Ground Level Ozone (O3) Secondary Pollutant – Chemical reaction of NOx (Oxides of Nitrogen) and VOC (Volatile Organic Compound) and sunlight

Impact Concentrations

For larger urban areas and Motorways the primary impact of concern is vehicle pollution exacerbated by diesel fuelled vehicular traffic

For towns villages and rural areas the issues are domestic use of solid fuel both coal, peat and biomass, unregulated burning of waste and land, and ammonia from the agricultural sector.

Individual sites such as power plants and waste treatment facilities, may have a range of impacts in accordance with scale and emission conditions

EPA Data on Ireland and WHO air quality standards

The high level of car dependency in Ireland, combined with our continued use of solid fuel for heating is contributing to high levels of NOx, PM10, PM2.5 and PAH which have detrimental impacts on our health and well-being.

While Ireland, on the basis of current data, does not currently exceed EU target values, we have exceeded the WHO guidelines which are more stringent.

The 2016 Environmental Protection Agency (EPA) "State of the Environment" report refers extensively to World Health Organisation (WHO) air quality standards which have a higher thresholds that than applied under EU air quality directives. The EPA report states:

'in urban areas such as Dublin and Cork, levels of nitrogen dioxide are close to the specified EU limit values for air quality as a result of exhaust emissions from vehicles' and. " *PM10, PM2.5 and PAH levels from domestic solid fuel use are highest in rural towns and villages. "*;

And

"*Ireland faces many challenges in order to meet new air quality standards for fine particulate matter (PM2.5) concentrations by 2020*."

The report refers to

"World Health Organization (WHO) air quality guidelines for particulate matter (PM10), ozone, nitrogen dioxide and sulphur dioxide (WHO, 2005); and also to the WHO air quality guidelines update, which includes PM2.5 (Krzyzanowski and Cohen, 2008). "

And states that

"These *guidelines were developed by the WHO to inform policymakers and provide appropriate air quality targets worldwide, based on the latest health information available. When the updated WHO health based standards (for PM2.5) are applied, a significantly higher proportion of the urban population are classed as being exposed to harmful levels of air pollution (EEA, 2014). Ireland should adopt these stricter WHO values, particularly for particulate matter and ozone, as with the increased understanding of the science of air quality and its impact on health has come the realisation that compliance with EU air quality limit*

values is not enough to protect the health of Irish from the negative effects of air quality" (WHO 2016).

Advantage of adopting WHO standards for Ireland

The advantage of adopting WHO standards allows clear targets to determine effective mitigation strategies. We know that there is no excess risk of cardiopulmonary or cancer risk below the levels in this table : (WHO 2006 , Air Quality Goals)

	PM 2.5	PM 10	NOx	SOx
Annual Mean	10 microgram/m^3	20 microgram/m^3	40 microgram/m^3	
24 hr Mean	25 microgram/m^3	50 microgram/m^3		20 microgram/m^3
1 hr Mean			200microgram/m^3	
10 minute Mean				500microgram/m^3

We have clear historical precedent for the benefits of clean air policies notably the Clean Air Act 1970 in the U.S.A., which had dramatic effects on smog in L.A. . In the U.K. the Clean Air Act of 1956 and 1962 helped to prevent a recurrence of "The Great Smog of '52" that afflicted London . Here in Ireland the progressive ban on smoky coal started in 1990 has had clear benefits.

We need strong governmental support for the work of the work of a reformed and augmented EPA with Increased legislative powers to ensure effective monitoring generating reliable comprehensive data on a regular basis. There must be a focus on compliance and continuous policy improvement. All this needs to be done in an atmosphere of transparency and clear communication to industry and the public . We need more air quality monitoring and better communication to decision makers and the public generally. If the public can be made aware of the link between the use of fossil fuels / biomass and vehicle exhausts and how this affects their local air quality we can be confident that they will support enhanced regulation, as occurred with the tobacco workplace ban and begin to make choices that improve the environment .

Air quality information can be incorporated into weather forecasting when risk of emission breaches arise, to allow enhanced public response.

Air quality is key to Wellbeing

A 2017 published study by the health Ecometrics and data Group University of York "Can Clean Air make you Happy – Examining the effect of NO2 on life satisfaction", concluded: "Our results suggest a significant and negative association between mean annual ambient NO2 and life satisfaction, and moreover that these effects are substantive and comparable to that of many 'big hitting' life events"

https://www.york.ac.uk/media/economics/documents/hedg/workingpapers/1708.pdf

Consultation Questions – A Clean Air Vision for Ireland

1. **Do you have a view on what the main elements of a vision for clear air in Ireland should be?**

A. **Effective and legally binding targets, effective monitoring and effective enforcement with priority action for the most affected areas.**

- **Should consideration be given to going beyond statutory compliance with EU standards as set out in EU legislation, and moving towards WHO guideline values in line with the EU 7th Environment Action Programme?**

1. **WHO guideline values should be adopted as national standard in advance of future EU Directive reform, following leadership already set by Scotland.**

- **Are there areas where the national monitoring and research network could be enhanced or augmented so that it can better inform clean air and climate policy?**

A. **The existing monitoring network and integration of monitoring data inadequate.**

There needs to be established a high standard and extensive air quality monitoring system throughout the country, reporting air quality in real time. Reliable estimates and data pertaining to air quality are imperative in order to better inform the public and determine policy response.

The monitoring density for PM10 and PM2.5 is wholly deficient and does not include several major towns outside the Greater Dublin area. This makes it impossible to relate health impacts to pollution concentrations and build pollution exposure into key areas such as development planning and Environmental Impact Assessment.

Within urban areas already monitored, major review is required to ensure that monitoring is adequate to identify locations where variable and peak impacts may occur or particular climatic conditions may exacerbate impacts e.g. in relation to peak traffic emissions, high levels of domestic fire use during temperature inversions.

Integration and enhanced resourcing of research on health impacts is required to be accessible to all agencies in order to allow better informed decision making on priority actions e.g. To Transport Infrastructure Ireland and National Transport Authority

Provide better integration of research data. Current EPA role in supporting research needs enhanced cross sectoral co coordination and more active effective partnership including relevant Government Departments including Health, Social Protection, Transport, Communications Climate Action and Environment to inform public policy response and action .

2. **Are there any other issues you wish to raise in relation to a vision for clean air in Ireland?**

A. **A vision for clear air to be integrated with all levels of public policy in health, physical and infrastructural planning, energy management, transport and agriculture. The multiple benefits of clean air need to be factored into all decision making.**

3. CLEAN AIR POLICY AND LEGISLATION

Irish policy and legislation for clean air should aim to meet WHO guideline values in relation to all aspects of air pollution. The principle of amending and upgrading EU Directives on air pollution in line with WHO standards has already been adopted at EU level through the EU 7th Environment Action Programme.

In the interim the most effective compliance with the integrated Clean Air for Europe (CAFÉ) Directive 2008/50/EC is required.

Ireland's current legislative, monitoring and enforcement regime for Air Pollution is not fit for purpose. In particular does not have the capacity to address the critical issue of rising traffic pollution. The enforcement regime is inadequate, particularity in dealing with pollution breaches at local level, which may have a major cumulative impact

The reconstitution of the remit and scope of the EPA is required to ensure effective monitoring, regulation and enforcement on all air pollution impacts.

The Environmental Protection Agency Act 1992 is no longer fit for purpose. It limits the regulatory function of the EPA primarily to industrial and waste facilities which its licences. Section 55 of the Act provides the EPA with an inadequate advisory function in relation to Government on "*making recommendations for the purposes of environmental protection*", rather than an effective and properly integrated regulatory role.

Furthermore there is a lack of integration of clear air legislation and policy with other regulatory regimes such as the National Transport Authority which includes the Bus and Taxi regulator function, which can be used to restrict higher polluting vehicles and incentivise cleaner technology

Under the Air Pollution Act of 1987 , section 7 , there is no reference to CO2 or CH4 In light of the US Supreme Court judgement in the United States between Massachusetts et al. versus EPA of April 2007 this omission should be addressed . It is arguable that CO2 and CH4 are the most noxious pollutants we emit due to their long term effects on climate

The Energy Regulation Act of 1999 was enacted before the full implications of climate change became apparent . It needs to be revisited in this post COP21 world.

http://www.irishstatutebook.ie/eli/1999/act/23/section/18/enacted/en/html.

The emission of carcinogenic substances such as benzopyrene from peat burning should now be required to be monitored and a long term health impact study of residents in the vicinity of continuing and former peat burning power stations commenced.

The Aarhus Convention provides new citizen rights on provision of environmental information, participation in decision making and access to justice. The enhancement of citizen rights to secure legal redress on Clean Air, in cases of both an individual site or operator, and general breaches at local or national level is required.

Consultation Questions – Clean Air Policy and Legislation

1 **Are there aspects of the Air Pollution Act 1987 that need to be updated to ensure that it remains fit for purpose for the 21st Century?**

A. **Review is required of the overarching objectives, function and competence of EPA, giving the EPA an enhanced legal remit over all areas of air pollution including from traffic, and additional resources and provision for monitoring and enforcement.**

- **Inclusion of CO2 and CH4 as pollutants**

- **New legal provisions for designation of Low Emission Zones**

2. **Do the provisions of the Air Pollution Act, 1987, specifically sections 24 and 26, provide effective tools for local authorities to address the negative impacts of air pollution?**

A. **More effective enforcement regime required. A very low level of prosecutions have occurred under this provision.**

3. **Do the provisions in relation to local authority licensing of industrial emissions in Part IV of the Act continue to be fit for purpose?**

A. **Provision not fit for purpose. Need for integration with EPA licencing regime. Need for transparency and public information availability on all industrial emission licence locations.**

4. **Are the fines and penalties for breaches of licences in relation to air pollution sufficient to act as effective deterrents?**

A. Current fines and penalties regime is inadequate and not sufficient deterrent for polluters.

5. Should a regional approach be considered for some aspects of Local Authority enforcement of the Air Pollution Act, as is the case for other environment legislation, for example waste management?

A. Value of any "regional" approach would need to be demonstrated

- **If so, what enforcement activities would best suit a regional approach?**

A. Effective implementation of national standards is required, regardless of any regional approach.

6. Are there any other issues you wish to raise in relation to clean air policy and legislation?

A. The EPA as currently constituted is neither an effective champion for enhancing clear air standards not has it an integrated legal remit. There is no effective Agency to ensure oversight and action on traffic and domestic heating pollution.

The legal remit of the EPA is constrained. Its regulatory function is effectively limited to the Waste and industrial facilities which it licences.

The transport, fuel distribution, agricultural and other sectors responsible for air pollution impact sectors need to be subject to a fully overarching and legally constituted regulatory and enforcement authority

Legislation is required for an effective and resourced National Clean Air Strategy through a legally reconstituted EPA to cover all areas of air quality, including ability for immediate intervention when exceedance of emission occur.

Provision for citizen or third party legal redress on general and specific air quality protection breaches, is required to meet Ireland's obligation under the Aarhus Convention

4. SECTORAL EMISSIONS

4.1 National Cross Cutting Issues

Intrinsic to success in improving air quality , is integration with Climate mitigation and the awareness that tackling these twin issues are linked . By decarbonizing our energy , transport and heating sectors we can be well on our way to breathing easy .

It is essential to ensure that an action designed to ensure one positive benefit, is not negative in other impacts. The promotion of diesel engines and bio energy as part of climate mitigation action, has been hugely negative in impact, with diesel causing a major increase in air pollution, and bio energy having adverse biodiversity and land use impact, and undermining switch to alternative renewable technologies.

The Biofuels Obligation Scheme also introduced as a climate mitigation measure has had a further adverse impact on air pollution. The concept of providing a progressive blend of biofuel to be brought up 8 % biofuel content from 2107, has proved negative in effect, as it does not address air pollution impact, and has failed as a climate mitigation measure in not addressing the growth in vehicle numbers nullifying the purported climate emission benefit . It has furthermore reinforced the continued use of polluting internal combustion engine vehicles, dis incentivizing switch to electric vehicles.

The challenge we face now is magnified by a number of factors . Climate Change will lead to higher temperatures with increasing ozone levels . Increasing urbanisation [63% 2015] and rising population expose more people to pollutants while emissions from transport , heating and energy sectors will only decrease with concerted efforts backed up by a clear strategy which includes effective resourcing and action for mitigation policies , monitoring , enforcement and communication.

With Ireland already having the fourth highest asthma rates in the world . Climate change will bring challenges due to increased seasonal allergens including pollens and ozone ..

The issue of climate change and our obligations under European and International commitments intersect acutely with clean air strategy . We must be cognizant of looking at the big picture when dealing with these issues and the possible synergies that can be gained by smart policies . It is important that a measure taken to reduce climate emissions does not have a negative impact on air quality and vice versa.

4.2 Residential Emissions.

Ireland is now paying the price of the lax introduction of enhanced energy efficiency standard and failure to retrofit the older housing stock. The level of use and dependence on solid fuels in individual households poorly insulated houses in unsustainable, with adverse impact not just on air pollution, but also on climate emissions, fuel poverty and quality of life and unsustainable social protection subsidy and import dependence.

Recent data has identified a number of towns as air pollution blackspots including Birr and Killarney and New Ross.

The 2016 "residential Solid Fuel and Air Pollution Study carried out on an all Island basis by the North South Ministerial Council concluded that:

"The mortality impact from both PM2.5 and NO2 for the island of Ireland is estimated at least 1,700 deaths per year"

The has been a political failure to introduce man all Ireland smoky coal ban, which should, not impede the further postponement of a clear date setting by the Irish Government for 2018.

The potential effect of restricting bituminous coal without wider clear air measures must also be addressed There has been an increase in PM2.5 emissions in Europe recently due to increased use of biomass for heating in people's homes particularly through stoves . The very least we can do while more long term strategies come to fruition is to insist that all new domestic stoves fulfil "eco-design" standards.

The overriding need is for a national retrofitting scheme funded by direct grants, tax relief and loans integrated with "pay and save" schemes.

Consultation Questions – Residential Sector

1. **Are there particular incentives that could be introduced to promote a quicker transition to clean, low carbon heating in the residential sector?**

A. **Transition to low carbon heating requires a parallel action to reduce primary heating demand.**

A major national retrofitting scheme on the housing stock on the scale of the TB eradication programme of the Rural Electrification programmes of the mid 20TH. Century is required with the large scale roll out of low carbon heating targeting

areas with highest current level of solid fuel dependence. Use of a range of tax relief, "pay and save" and other schemes to suit difference income groups.

2. **Should complementary measures that could be introduced to support the national ban on bituminous 'smoky' coal by 2018? If yes, please elaborate?**

A. **Special measures are required to address lower income households in fuel poverty.**

3. **Should gas be better promoted for home heating where it is available to houses on the gas grid? If so, how?**

A. **The risk of creating new dependence on individual gas boilers needs to be considered. Current assumption by Gas Networks Ireland that an increasing quantity of "renewable" gas can be inserted into the grid have not been validated.**

Creating a new lock in of dependence of gas heating, particularly of boilers at individual household level, undermines alternative renewable heating systems, heat pumps and development of district heating, geothermal or other systems.

4. **Are there adequate supplies of cleaner alternative fuels to supply the market and support the transition from 'smoky' coal for residential heating by 2018?**

A. **Bord Na Mona and other coal importers have been given adequate forewarning of the implementation of the 'smoky' coal ban, to ensure adequate supply of alternative fuels.**

However continued use of less polluting solid fuels should only be regarded as a transitional measure, to fully decarbonised and renewable heating sources.

5. **In relation to manufactured 'low smoke' solid fuels, should the; (i) smoke emission rate of 10 g/hour be revised to be in line with the original standard introduced in 1990, and the current standards in Northern Ireland which have already been adopted for 2018 for biomass blended fuels in Ireland? (ii) Smoke emission rate criteria apply to all manufactured solid fuels, rather than those just those containing coal?**

A. **Uniform emission rate standards should be applied to all solid fuels to cover all pollutant and particle emissions. This is to ensure uniformity of regulation and standards for all blended solid fuel products, and well as peat, wood and biomass**

6. **How can better quality wood and biomass quality standards be promoted? Should consideration be given to setting mandatory fuel quality standards?**

A. **Mandatory certification standards are required for all wood and biomass products whether used in district or other heating systems or individual residential units.**

7. **Should consideration be given to bringing forward the date from 2022 for the introduction of Eco-design standards for residential stoves? Are there other ways to increase the uptake of Eco-design standards for stoves ahead of the 2022 mandatory deadline? Should Eco-design standards be required now where biomass combustion is chosen as a renewable energy source to meet Building Regulations requirements?**

A. **Date for introduction of Eco-design standards should be brought forward from 2022. This to prevent a situation whereby the likely increase in stove purchase after a Smokey fuel ban in 2018, will cause an increase in air pollution from wood from stoves unless effective standards are introduced.**

8. **Are there specific targeted retrofit schemes which could be introduced to promote cleaner fuel and cleaner air and address energy poverty, improve energy efficiency?**

A. **Special initiatives are required for households receiving social protection and with low income, in direct support for retrofitting. This would have the double benefit of reducing the annual social protection fuel subsidy bill.**

9. **Should consideration be given to requiring all installers of solid fuel appliances to meet a national accreditation or standard (similar to requirements for gas installation etc.)?**

A. **A national accreditation standard should be applied for all solid fuel appliances. Any increase in solid fuel stoves raises a particular concern in air pollution impact requiring that standards be put in place.**

10. **Are there any other issues you wish to raise in relation to air pollution from the residential sector?**

A. **It is important to ensure that measures to reduce air pollution including the proposed 2018 'Smoky' coal ban, does not simply result in the increased polluting impact of peat or biomass.**

4.3 Transport Emissions

Taking action which has multiple benefits

Actions to reduce air pollution from transport can have multiple benefits if correctly targeted. These benefits include reducing obesity, meeting climate targets, reducing noise and combating of congestion.

All of these actions are most effectively achieved by reduction in road vehicle use, combined with fuel efficiency and land use policies to reduce transport demand and achieve significant modal shift from private passenger vehicle to public transport, with walking and cycling for short journeys and road freight to rail. This approach would reduce our expose pollutant air particle emissions with ancillary benefit of reducing greenhouse gases and curtailing, noise, urban sprawl and congestion.

Increase in transport demand, especially demand for specific modes of transport, is not inevitable. The first objective of an air quality strategy for transport pollution should be to limit transport demand through more effective land use and spatial strategy. The strategy should also seek to limit private car ownership and use. Projections for increase of the national car fleet from 2m in 2015 to 2.6m in 2035 is a scenario we ought to avoid, not passively accept. And with effective policies, is one we should have no trouble avoiding.

Ireland adopted a comprehensive Transport Strategy " *Smarter Travel* " in 2009 with modal shift targets to reduce workplace travel car use to 45% by 2020 and a commitment that the total kilometres travelled by the national car fleet would not exceed then current levels. The parallel National Cycling Framework provided a 10% target for commuting travel by 2020. A series of policy implementation and investment failures has meant that these targets are not being met, which now requires major intervention.

An updated transport a target for a maximum size and use of the private car fleet is required This determine the policies necessary to keep within this target, combined with ensuring that it is less attractive to drive a polluting fossil fuel vehicle and more attractive to purchase and drive ultra-low emission vehicles, and investment to make it more attractive still to walk cycle or use public transport.

Alternative technologies are already becoming cost-efficient, and are likely to be increasingly so in the immediate future. Coupled with the numerous co-benefits of such technology, such as cleaner air, there is no reason why their further introduction should not be pursued.

Tax to disincentive purchase of polluting vehicles

The primary objective of the Vehicle Registration Tax (VRT), and motor tax system should be revise to link the overall revenue generation target requires reconstituting to incentivise optimum low pollutant and low climate emission vehicles

Combined with this VRT and motor tax would seek effective disincentivisation of polluting vehicles putting increasing taxes on the highest emitting vehicles with the revenue generated ring fenced for sustainable transport measures.

This requires reconfiguration of existing tax bands: 96% of new cars sold in 2017 are in tax bands A&B. Of these new car sales 77% are in the A band. The bands should be reconfigured to include much lower bands that exist in Ireland today. As it stands, an EV with zero tail pipe emissions is taxed at €120 while an A rated car emitting toxins such as PM2.5 and NOx as well carbon up to 120g/CO2/km, is taxed at €180 per annum. The tax differential is not sufficient to ensure consumers purchase less polluting vehicles.

Clear targets are required to phase out the purchase of new diesel cars within an optimum timeframe and accelerate the uptake of ultra-low carbon (<25 g CO2/km) vehicles to a 15-20% market share by 2020

Make provision for Low Vehicle Emission Zones

Our large towns and cities, in particular Dublin need to make provision for the introduction of low emissions zones. Such zones have been very successful in cities where they have been introduced throughout Europe. Such an action would reduce toxic emissions from passenger cars and also make life easier for our cyclists and pedestrians.

Public passenger transport

Public procurement and regulation of non-State owned buses and taxis is an effective means of supporting a transition to cleaner vehicle types.

While the establishment of a Green Public Transport Fund is welcome, the allocation of €2.5m in funding to it is totally insufficient to achieve the goal of reducing the air pollution impact of and decarbonising our public transport fleet. At the same time €42m is being spent in supporting-loss making Irish airports, even though the 2015 National Aviation Strategy for

Ireland suggests that we have too extensive a network of airports for a population of our size. It would therefore represent a more effective use of taxpayer money to minimise state support for loss-making airports, and invest that money instead in transitioning both the Bus Éireann, Dublin Bus and private bus fleet to low or zero emissions vehicles.

Taxis

Taxis as public passenger hire vehicles need appropriate regulation to address air pollution as well as climate emissions. The concentration of taxis in urban centres, along with the stopping and starting in Taxi ranks is a contributor to urban air pollution.

The curtailment of the issuing of new or renewed taxi licences to new or second hand diesel vehicles, can be achieved as an immediate measure through the National Transport Authority Taxi Licencing regime. Combined with this incentive can be provided for switch to EV taxis as has already been done in London

Company and business vehicles

Current motor taxation is based on original market value (OMV) of the car and the rate changes depending on amount of driving carried out for work reasons. BIK taxation for company vehicles should be based on air pollution and CO2 emissions and to encourage EV uptake in the short term, with EVs and PHEVS should be given lower rates.

The diesel VAT reclaim for businesses and the self- employed should be ceased given the health implications of diesel emissions on Irish society.

Rail

National transport policy should provide for the large scale increase in rail passenger and freight capacity. The national rail routes requires integration, particularly a North/South rail link that would run a through service from Belfast - Swords - Airport – Liffey Junction - Islandbridge/Heuston - Limerick - Cork. This route would have the effect of integrating transport across Dublin and Ireland. Provision of such a service would also encourage more people to travel by rail and with modal share reduction of private cars. Progressive targets should be set for electrification of high capacity rail lines.

Road Freight

Switching of road freight to rail achieves a pollution reduction as well as other benefits. Additional support is required for companies to move to rail freight as a means to transport their goods. Furthermore, infrastructure should be made available to perform combined transport to and from Irish ports.

This requires support strong air pollution as well as CO2 standards for HGVs which would oblige truck manufacturers to create more fuel efficient vehicles. Irish haulage companies could benefit from such new vehicles as it would reduce fuel use, which is both economically beneficial for truck users and helps to reduce emissions from freight transport.

Initiatives are required to create smart congestion charging for freight in cities. Electric vans and urban delivery trucks are already available on the market. Promoting their use in cities would reduce emissions and improve air quality.

Increase is required in tolls for trucks and expansion of the scope of the road network where tolls apply. Tolling can have an impact on logistic efficiency, which would greatly increase the efficiency of freight transport and reduce the number of trucks on the road. Tolls should be differentiated based on EURO class and on both CO2 and air pollution emissions which is proposed to be enabled in the upcoming review of the Eurovignette Directive

Introduce a distance based charging system for heavy goods vehicles and reform the commercial vehicle tax regime. This will encourage increased efficiencies in the haulage industry as commercial vehicle operators attempt to cut down on kilometres driven, resulting in aggregation of loads and reduced empty running. Charges can be set to favour vehicles with lower air polluting as well as CO2 emissions, which could contribute to improved standards of vehicles in Ireland. A distance based system can also set different charges at different times of the day or week to reduce congestion or noise pollution. A road user charge will ensure that foreign hauliers, will lose the competitive advantage they currently enjoy as they do not have to pay anything to access Irish roads (bar tolls).

The Diesel Issue and continued rise in number of diesel cars in Ireland

New-diesel car registrations came to 102,771 in 2016, a 70.07pc share of the market and up from 88,810 in 2015 (71.16pc).

Diesel emissions kill people. NOx is the main problem with diesel exhaust fumes confined to particulates. Nitrogen dioxide, "*a toxic gas which causes significant inflammation of the airways*" according to the World Health Organisation, is almost uniquely a diesel problem and

it's a killer. Under the polluter pays principle tax rates on diesel and petrol fuels should be taxed at a rate which is commensurate with the total environmental costs they incur.

Currently, Irish diesel tax is still significantly lower than fuel tax on petrol with a typical difference of 11.5 cents/litre. This constitutes a distortive promotion of diesel engines which emit particularly harmful nitrous oxides. The tax on diesel needs to be increased in excess of that of petrol to offset this.

The differential taxation of petrol and diesel to encourage lower climate emission diesel vehicles was a major European policy error through the major negative on air quality. . Even though diesel can be more efficient in climate emission impact in terms of Km/L it is a much more polluting fuel . Diesels emit ten times more harmful pollutants as petrol cars and diesel cars account for 70% of new cars sold in Ireland which puts us very much out of step in an International comparison . Furthermore we have seen through the 2015 Dieselgate scandal how the real world emissions often don't match the "test cycle" versions .

Need for accelerating Diesel Tax

The public health damage of continuing Diesel vehicle purchase and use, requires the ending of any further prevarication on remedying a tax system that incentivises polluting vehicles. The increase in diesel tax over the level of petrol should be done in accelerated fashion over a 3 year time frame to raise diesel over petrol cost.

In advance of the 2016 Budget, an in house strategy group of the Department of Finance published a report in July 2016 recommending that fuel duty on diesel be raised on a phased basis over 5 years to reduce the incentive to purchase diesel vehicle over petrol. The plan proposed a year-on-year rise of 2.18 cent a litre for diesel over five years, representing an average motoric cost of 67 euro per annum.

In 2016 t six civil society organisations (CSOs) advocating tax reform – the Asthma Society of Ireland , An Taisce , Irish Environmental Network , Green Budget Europe , Transport & Environment and the Irish Cycling Advocacy Network (cyclist.ie) supported this modest measure.

The failure of Budget 2016 to make the first step in diesel tax increase in 2017, combined with increasing public health research and data on the adverse impact of diesel, makes it imperative that accelerated action is taken immediately.

Impact of diesel emissions relative to HGVs and buses

The independent research organisation International Council on Clean Transportation (ICCT) Has published significant report since 2104 on diesel emissions.

http://www.theicct.org/news/press-release-new-icct-study-shows-real-world-exhaust-emissions-modern-diesel-cars-seven-times

ICCT published a report in 2016, establishing that Diesel cars spit out twice the level of dangerous emissions as trucks and buses because they are subjected to more lenient testing.

http://www.theicct.org/sites/default/files/publications/Euro-VI-versus-6_ICCT_briefing_06012017.pdf

The report provided data to establish that average, NOx emissions of the heavy-duty bus and truck vehicles tested were approximately 210mg/km. Currently, NOx emissions of Euro-6 diesel passenger cars under real-world driving conditions are around 500mg/km, it claimed. It showed that trucks and buses tested in Germany and Finland emitted about 210mg NOx per kilometre driven, less than half the 500mg/km produced by diesel cars that meet the highest "Euro 6" emission standards.

Because heavy duty vehicles are tested under much stricter regulations that were put in place in 2011, NOx emissions from trucks and buses are measured through mobile devices while the vehicles are being driven on actual roads. EU tests for cars instead are limited to emission measurements in the lab for prototype vehicles. The problem is that once driven outside the lab, under real-world conditions, vehicles tend to pollute more. The same stricter testing standards should be applied to cars as well, according to the researchers.

The report concluded that because buses and trucks burn more diesel per kilometre in much larger engines cars could produce up to 10 times more NOx per litre of fuel :.

"This means that NOx emissions of diesel cars are more than double those of trucks and buses,"

While the 2015 "Diesel gate" scandal has provoked action by the European Commission to introduce more stringent vehicle emission test standards for cars, this will not affect the continued use of the existing diesel car fleet. Even if emission standards are improved, any gain will be nullified if the car fleet continues to increase as is the case in Ireland.

There is also a serious concern that the accelerating switch away from diesel in a number of major EU countries could have the result that Ireland could become a dumping ground for discontinued diesel cars.

International legal actions on diesel

In December 2016 for cities Madrid, Paris Athens and Mexico City agreed to ban diesel vehicles by 2025.

In London a citizen's legal action on air quality has forced a review of strategic transport planning and management. This was prompted by a study was commissioned by the Greater London Authority and Transport for London. Establishing that nearly 9,500 people die early each year in London due to long-term exposure to air pollution, more than twice as many as previously thought, due to the two key pollutants, PM2.5s and NO2.

https://www.theguardian.com/environment/2015/jul/15/nearly-9500-people-die-each-year-in-london-because-of-air-pollution-study

London is initiating a range of actions including stooping further diesel bus purchase, incentivising electric taxis and reviewing the Congestion Charge regime

The French Cities of Paris, Grenoble and Lyon are introducing a Vignette of sticker system linked to licence plate data, to indicate the emission level of a vehicle. High emission vehicles will be restricted on high emission days, and subject to higher Congestion Charges

Marine

We need to monitor the increasing maritime traffic , especially cruise liners , that burn heavy fuel oil in Irish ports and mitigate by effective standards monitoring to enforce abatement measures to reduce their pollution while in port to meet WHO thresholds .

The high level of marine traffic between Ireland and Britain justifies the introduction of an Emission Control Area under MARPOL in the Irish Sea.

Aviation

Air Pollution generated by aviation movement in and around airports varies significantly depending on climatic conditions and location of airport. Air Pollution from planes may have a significant cumulative impact with traffic as with Heathrow in London.

Effective monitoring of air quality standards is required in an around Dublin Airport which is now one of the most polluting in Europe, being the 11th highest in annual passenger numbers

Consultation Questions – Transport

1. **Could a congestion charge promote a shift to public transport in certain urban areas and deliver a range of interlinked benefits including improving air quality, climate policy and sustainable transport by encouraging greater public transport use or use other low impact modes like cycling or walking?**

A. **A Congestion Charge is necessary in Dublin and potentially in other urban areas to deliver interlinked benefits, following the example of the most progressive European cities.**

It is important that Congestion Charging is linked to major enhanced investment in safe cycling provision and clean public transport.

Congestion Charging should be integrated with:

- **The certification all vehicles according to air pollution emission level, and identification through a "Vignette" system linked to licence number plates.**
- **Higher annual charges for the most polluting vehicles.**
- **Restrictions on high polluting days.**
- **Application of EU Clean Vehicles Directive by retrofitting NOx abatement of HGVs.**

2. **Should consideration be given to the introduction of Low Emission Zones in urban areas?**

A. **In common with a growing number of cities around the world, a date for the banning of diesel vehicles in city centre locations should be set. For Dublin, this would initially encompass the area within the canals, progressively extended over time to the area within the M50, and other high pollution areas identified. Such a proposed date would provide momentum to :**

- **Reactivate the currently stalled public light rail and underground programmes including the Dublin Dart Interconnector.**

- **Rapidly accelerate investment in cycling infrastructure.**

- **Address and reverse current failure to meet electric vehicle targets.**

3. Should consideration be given to incorporating air quality considerations into vehicle taxation? If so should these considerations be addressed to VRT, motor tax or fuel taxes or a combination of all three?

A. The integrated application of air quality standards and climate emission levels should form the core provision of both VRT and motor tax for both cars and commercial vehicles, with the objective of increasing market share of EVs Hybrids and lower emission vehicles, and phasing out diesel cars within an optimum achievable timeframe

The continuing incentivising of diesel over petrol needs to be reversed with an accelerated increase in tax of diesel to bring it over petrol cost, over a three year period.

4. How can the issue of DPF (Diesel Particulate Filter) removal best be tackled? Should consideration be given to creating a specific offence for removal of a DPFs and/or advertisement of its removal? Could the NCT be expanded to include DPF examination?

A. DPF removal requires stringent enforcement action and penalties for breaches. The remit of the NCT inspection and certification regime should be expanded to enforce effective action against DPF removal.

5. In the wake of the VW emissions scandal, how can 'in use' vehicle emissions be better regulated? Could the NCT emissions testing have a role in periodic assessment of air pollution emissions, to inform better regulation of 'in use' vehicle emissions? Is there data contained in vehicle On-Board Diagnostics (OBD) systems that could be useful in this regard? Should a programme of national emission testing be conducted in Ireland, as has been done in other countries, to assess real driving emissions from vehicles on the roads?

A. The motor industry which was responsible for the manufacture and sale of vehicles with flawed emission standards needs to bear the cost via a levy to fund an enhanced NCT emission certification, on-Board Diagnostics (OBD) systems and effective enforcement regime.

It would not be sufficient for NCT testing to have a periodic "assessment" or just have a programme of testing.

Regulation and resourcing is required for a new national air pollution testing and certification regime, with the emission level of a vehicle having to be labelled on the French vignette model. This would allow vehicles to be effectively taxed according to pollution impact, pay higher rates in urban congestion charge areas, and be restricted when Low Emission Zones are put in place.

6. **How can a greater consideration of emissions be incorporated into the procurement of new public transport vehicles in line with the EU Clean Vehicles Directive?**

A. **The National Transport Authority requires additional remit and mandating with the regulatory function to reduce air pollution. This would require the NTA bus and taxi regulation regime to be revised to:**

Cease licencing for both high air polluting an high climate emission buses, both Dublin Bus and Bus Éireann, and other private bus companies.

Cease new or renewed taxi licences to new diesel vehicles, combined with an incentive scheme for switch to EV and hybrid taxis.

7. **Are there steps that could be taken to reduce emissions from ports given the anticipated increase in shipping including, for example, cruise traffic? Should consideration be given to introducing an Emission Control Area under MARPOL in the seas between Ireland and the UK? Are there specific steps or incentives that can be taken to promote the uptake of shore side electricity to reduce air pollution from shipping operations whilst in port? Should consideration be given to prohibiting the discharging to seas in Ireland of contaminated 'wash' water from ships air abatement systems?**

A. **In view of the level of Marine Traffic between Ireland and UK, negotiation should be initiated with UK Government for introducing an Emission Control Area under MARPOL in the Irish Sea.**

Effective measures are required to ensure that WHO air pollution limits are not exceeded in Irish ports. This would include provision for cruise liners to use shore side electricity, sourced from renewable providers.

This is a particular need to apply effective air pollution standards to Dublin Port with rising cruise and general traffic.

8. **Are there additional air pollution sources or impacts from aviation or rail that should be considered?**

A. **For aviation an effective monitoring regime at Dublin Airport in particular, to ensure that WHO air pollution thresholds ae not breached.**

For rail the enhancement of renewable powered rail, with significantly increased modal passenger and freight traffic share should be a major strategic objective of Irish transport policy with a target for the electrification of the commuter lines serving the Greater Dublin Area, and the Cork/ Limerick/ Dublin and Dublin/ Belfast lines

4.4 Agriculture

Agricultural emissions need to be monitored and policies congruent with the National Mitigation targets adopted . The meeting of a range of environmental objectives climate, biodiversity, soil, water and resource management as well as air pollution requires a reversal of current policy to increase the national herd. It is noted that the Netherlands has committed to culling their herd numbers by 200,000 while we plan to increase ours . One simple measure to decrease emissions of agricultural NH_3 is by incentivizing the adoption of "trailing shoe or spreader" technology for slurry spreading on the land. http://www.independent.ie/business/farming/dairy/environment-rules-to-see-200000-cows-culled-in-the-netherlands-35233453.html

Research on the impact of ammonia emissions from intensive pig and poultry units on Natura 2000 sites is inadequate. An EPA supported research project tin is progress at UCD.

http://www.ucd.ie/biosystems/research/researchprojects/ammonian2k/

Ozone concentrations are presently in excess of values at which agricultural yield reductions will occur. While these are mostly as a result of Long Range Transport mechanisms, concentrations are further enhanced locally by precursor emissions such as VOCs and NOx. These have substantial contributions from intensified agriculture. Ozone is a powerful greenhouse gas and is estimated to have provided the third largest increase in direct radiative forcing since the pre-industrial era, behind CO2 and CH4. The EPA have expressed concerns regarding ozone concentrations in Ireland and it is clear that steps need to be taken to limit precursor pollutant emissions from industry and agriculture.

Climate change is now expected to increase the emissions of many trace gases, such as agricultural ammonia, soil NOx and VOCs such as isoprene. At the same time climate change is likely to increase the vulnerability of ecosystems to air pollutants. Climate change will also increase agricultural and other biogenic emissions, making the attainment of targets imposed by the National Emissions Ceilings and air quality objectives, particularly if methane emissions are not tackled.

Consultation Questions – Agriculture Sector

1. **Are the schemes currently in place to promote low emissions spreading technology likely to be sufficient to meet future ammonia targets? If not, how best should such schemes be extended to reduce ammonia emissions?**

A. **Ammonia targets are unlikely to be met using existing schemes. The recent relaxation of baseline emissions allowed by the EU Commission absolved Ireland from probable exceedance under the National Emissions Ceiling Directive. Despite this, emissions are likely to exceed the new targets should ongoing intensification of agriculture under Food wise 2025 occur.**

2. **Should a future end date on the use of splash plate slurry spreading be considered following the completion of schemes to incentivise low emission alternatives?**

A. **Splash plate slurry spreading maximises aerial emissions of ammonia and is already banned in some Member States. Trailing shoe technology is already available and used widely in parts of Ireland as well as extensively in other Member States. There is no justification in awaiting the completion of other schemes and splash plate slurry spreading should be banned from 2018. It is possible a Directive requiring this will in any event materialise and Irish farmers should be advised to cease this practice in anticipation and to minimise Ammonia emissions.**

3. **Are odour nuisance occurrences a significant impact of slurry spreading? If so are the existing provisions, for example, under the Air Pollution Act sufficient to address them?**

A. **Odour emissions, while unpleasant, are not the major concern. Ammonia emissions within the cattle housing units is likely to pose a health problem for farm workers. High concentrations of ammonia are known to exist within intensive poultry and dairy cattle housing. The symptoms of ammonia inhalation are numerous and would include burning sensations, coughing, wheezing, shortness of breath, headache and nausea. Short term very high concentrations may damage the central nervous system and result in loss of consciousness and convulsions. A more common response to exposure to high concentrations is bronchospasm and damage to the vocal chords. Underlying conditions which can be aggravated by exposure to ammonia include asthma, emphysema, dermatitis and eye disease.**

4. **Can anaerobic digestion technology play a greater role in the management of agricultural wastes? If so, how can it best be further promoted, at farm or community level?**

A. Anaerobic digestion offers a useful management option for agricultural wastes. Subject to provision of appropriate sustainability standards it should be promoted via the Glas scheme, particularly as a means of assisting compliance with the Nitrates Directive and where eutrophication of water courses is occurring.

5. In many EU Member States the Critical Loads of Nitrogen are assessed in licensing intensive agricultural activities. Should this assessment process be used for agricultural activities in Ireland?

A. Catchment management is now required under the Water Framework Directive. Nitrogen management is an essential tool for this and should be used for all intensive pig, poultry and dairying operations, not just in sensitive catchments, but throughout the island.

6. To minimise air pollution releases to the atmosphere and reduce associated impacts on air quality and climate, could current regulation and guidance be improved to promote alternatives to burning practices?

A. Current extensions to the burning seasons as proposed in the Heritage Bill 2016 are not conducive to air quality management, particularly for PM2.5 and Benzopyrene. An Taisce has widely commented on the poor quality of legislation and legal enforcement surrounding burning practices.

7. Where agricultural land requires on-going prescribed burning to maintain grazing or other conditions, should incentives for such lands be considered to promote alternative uses?

A. The Land and Forest Fires Working Group produced a set of recommendations which were approved by Government in 2011. The Department of Agriculture commissioned this study. Active fires in Europe can be seen on the Copernicus portal (http://effis.jrc.ec.europa.eu/static/effis_current_situation/index.html). This is at a coarser scale than would be desirable, but can be utilised in conjunction with existing Third Level satellite/GIS expertise to provide an ongoing database. The National Centre for GeoComputation at MU would possess the necessary access to satellite data and high resolution mapping to provide such a data facility.

8. Are there datasets that are available to assist development of national estimates of emissions from agricultural burning?

A. **Existing available data is inadequate. Given the range of data already assembled for the agricultural sector by the Department of Agriculture, Teagasc and EPA, integration with estimates from agricultural burning can be provided**

4.5 Energy Sector

Ireland needs to combine reducing GHG emissions while also improving air quality is by developing low carbon electricity generation and heating sources , includes wind solar and geothermal potential.

Electricity Generation

Ireland must avoid the superficially attractive option of using biomass to replace coal and peat.

In 2014 the UK Department of Energy and Climate Change published a report "Life Cycle of Biomass Electricity in 2012" by Dr Anna Stephenson and Prof David J MacKay FRS.

It conclusions on different bioenergy scenarios stated "*However, there are other bioenergy scenarios that could lead to high GHG intensities (e.g. greater than electricity from coal, when analysed over 40 or 100 years) but would be found to have GHG intensities less than 200 kg CO2e/MWh by the Renewable Energy Directive LCA methodology*."

http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.696.6944&rep=rep1&type=pdf

A UK Chatham House report published in February 2017 establishes that the burning of Biomass is not carbon neutral, as it "emits more carbon per unit of energy than most fossil fuels" and has a range sustainability impacts.

https://www.chathamhouse.org/publication/impacts-demand-woody-biomass-power-and-heat-climate-and-forests

The burning of biomass whether for electricity generation or directly for heating has a range of emission impacts.

http://www.biofuelwatch.org.uk/wp-content/uploads/Biomass-Air-Pollution-Briefing.pdf

There has also been an increase in PM2.5 emissions in Europe recently due to increased use of biomass for heating which has been incentivised by governments. [*World Energy Outlook Special Report 2016.See graph representing increase in household PM2.5 in*

Europe Figure 2.1 page 64 showing increases in biomass for heating mainly, but also power production.]

http://www.iea.org/publications/freepublications/publication/weo-2016-special-report-energy-and-air-pollution.html?utm_content=buffer2d38e&utm_medium=social&utm_source=twitter.com&utm_campaign=buffer

There is increasing research and concern on the air pollution impact of biomass burning for electricity generation in the US. The 2014 report *Trees, Trash, and Toxics: How Biomass Energy Has Become the New Coal*, submitted to the U.S. Environmental Protection Agency (EPA) by the Partnership for Policy Integrity (PFPI), found that per megawatt-hour, a biomass power plant employing "best available control technology" emits more nitrogen oxides, volatile organic compounds, particulate matter and carbon monoxide than a modern coal plant of the same size.

http://www.pfpi.net/wp-content/uploads/2014/04/PFPI-Biomass-is-the-New-Coal-April-2-2014.pdf

"*The American Lung Association has opposed granting renewable energy subsidies for biomass combustion precisely because it is so polluting*," said Jeff Seyler, president and CEO of the American Lung Association of the Northeast. "*Why we are using taxpayer dollars to subsidize power plants that are more polluting than coal?"*

http://www.ecowatch.com/biomass-electricity-more-polluting-than-coal-1881884788.html

The Bord na Mona Edenderry Plant is co firing biomass with peat, and co firing is currently proposed for the other two midland peat power stations. The air pollution impact of this needs full research in addition to all of the concerns relating to carbon emissions and other sustainability considerations.

A 2017 Finish study on a co fired biomass and peat heating boiler *"Emissions and ash behaviour in a 500 kW pellet boiler operated with various blends of woody biomass and peat"* found that co-firing with biomass actually reduced PM1 from peat due to the alkali metals combining with silicates from the peat. On the other hand, the co-firing of peat with woody biomass significantly increased NOX, SO2 and HCl emissions, and both NOx and SO2 are important precursors for secondary aerosol formation in the atmosphere. Due to this and the non-renewable nature of peat, the co-firing of peat has also negative environmental effects.

http://www.sciencedirect.com/science/article/pii/S0016236117303988

Bioenergy from indigenous and imported sources is being currently modelled as a significant component of Ireland's future energy mix in the EPA supported work by the Sustainable Energy Research Group UCC.

In 2015 The EPA submitted a "*SEA Scoping Submission on the Proposed National Bioenergy Plan*" setting out the Environmental Protection Agency's recommendations to be considered in the preparation of the Plan and associated SEA Environmental Report.

In relation to the issues of air pollution it stated :

Combustion of biomass will also result in emissions of other pollutants such as nitrogen oxides (NOX), sulphur dioxide (SO2), carbon monoxide, polycyclic aromatic hydrocarbons (PAH) and PM10 particulates. The EPA report „Air Quality in Ireland 2013 – Key Indicators of Ambient Air Quality" stated that future PAH concentrations in Ireland will likely depend on the choices of fuel for home heating that is used by the public in Ireland in the coming years. The report notes that peat, wood and biomass are high in PAH, especially when burnt inefficiently. The overall impact of switching to biomass on the concentrations of these pollutants in the atmosphere should be considered as part of the SEA.

To meet the PM2.5 NERT (National Exposure Reduction Target) Ireland must reduce PM2.5 emissions by 10% by 2020. This should be included as part of any consideration of the impacts of the plan. In particular the potential for emissions abatement techniques or technology to address increased particulate emissions due to biomass should be analysed. Polices encouraging the use of biomass should be tailored to ensure facilities and consumers are directed towards efficient combustion methods and biofuels with the lowest emissions. "

http://www.epa.ie/pubs/epasub/epaseascopingsubmissionontheproposednationalbioenergyplan.html.

There are multiple grounds for ceasing the operation of the peat power plants and further development of biomass co firing.

Ireland needs to enforce emission limits in current power plants [30microgram/m³ for PM and 200 microgram/m³ for NOx and SOx] and in biomass boilers [40 to 60 microgram/m³ for PM and 200 microgram/m³ for NOx]

The adoption of a truly low carbon electricity supply will free us to electrify our transport and domestic heating demand and dramatically cut emissions of VOCs , NOx, SOx and O3 as well as CO2 .

The importation of all coal for energy purposes and not just 'smoky' coal for domestic burning should now be banned. The State's remaining coal fired power station at Moneypoint was scheduled to be converted to gas by 2008. It should now be closed and baseload provided from existing gas turbine stations.

The emission of carcinogenic substances such as benzopyrene from peat burning should now be required to be monitored and a long term health impact study of residents in the vicinity of continuing and former peat burning power stations commenced.

Renewable Heat Incentive (RHI)

The Renewable Heat Incentive (RHI) subsidy aims to make savings against penalties likely to be incurred by Ireland for not meeting the EU 20% Renewables-by-2020 obligation. However, the Consultation Document published earlier this year fails to show that it will in fact save public money. An RHI would commit the State to long-term funding of a biofuel heat sector despite there likely only being a couple of years to make savings against compliance costs. There are financial, administrative, air pollution and climate reasons to avoid expansion of domestic biofuel production and combustion. This Document fails to make a substantive, quantified or costed case to address these problems. Due diligence in the Department of Finance, DPER and in public consultation requires a far more finalised proposal to be made available for comment once more costing and academic assessment is done.

An Taisce favour charging a carbon pollution fee on all carbon dioxide emissions, including those from burning biomass at the same rate as the current carbon tax on fossil fuels. This revenue raised can then be used to fund the retrofit measures in both the ETS and Non-ETS sectors that will reduce both heat demand and emissions. If they meet strict sustainability criteria, showing real emission reductions, biomass and biogas production could be funded on a feed-in tariff basis like other renewables such as solar where a subsidy makes sense.

There are multiple strong reasons for rejecting the proposed RHI In particular:

The lack of quantified costs, estimated emission savings, or costed alternatives (such as a national retrofit scheme) in this consultation makes it impossible to judge the value of this scheme on any of its stated criteria. As Northern Ireland's Government has found to its cost, such schemes are all too likely to be economically, politically and environmentally ill-advised. State funding cannot be justified on the basis of such a vague proposal and administrative costs for a well-run RHI are likely to be high.

- There is no clear climate benefit in burning woody biomass over burning fossil fuels unless, and often even if, very strict forest management and sustainability criteria are followed by producers and enforced by government.

- Acting in line with the Paris Agreement demands zero emissions within fifty years yet burning wood pellets is very likely to increase real CO2 emissions over this timescale. This deeply challenging reality invalidates the logic of having an RHI that subsidises near-term increases in CO2 emissions. Better to tax all emissions and fund permanent, not-to-be-burned woodland to store carbon instead.

- Moreover, deeply flawed emission accounting is allowing the EU to claim bioenergy as having zero emissions even when imported from nations that are not properly accounting for land-use. This loophole is likely to be closed before the RHI subsidy expires, leaving the State to pay continued subsidies for predictably 'stranded' assets in a boosted, bioenergy combustion sector.

- The climate benefit of biogas can easily be cancelled out by the greenhouse gases emitted by fertiliser used in grass and food production and by fugitive emissions during transport and combustion.

- The very serious threat to biodiversity and water quality likely from an expansion of forestry in Ireland is left out of the baseline assessment criteria and is omitted from detailed examination.

- Encouraging large numbers of small biomass and biogas installations is likely to result in greatly increased air pollution from PM2.5 particles, NOx and organic pollutants, directly contradicting the advice of the Environmental Protection Agency and Ireland's commitment to a Clean Air policy.

The highly complex and technical consultation document also falls far short in assisting the general public to understand it. The Aarhus Convention puts the onus on government and public authorities to provide comprehensible information to enable public participation and access to justice. This industry-expert focused consultation falls far short in this respect.

As currently proposed the RHI is likely to subsidise activities that directly undermine the air pollution targets efforts. In its consultation submission in March 2017 An Taisce has urged the Department, the Minister and the Government to reconsider this RHI subsidy.

http://www.climatechange.ie/submission-to-the-public-consultation-on-the-design-and-implementation-of-a-renewable-heat-incentive/

Consultation Questions – Energy Sector

1. **What are the best means of regulating the air pollutant emissions from relevant biomass plant that will be supported by the Renewable Heating Initiative (RHI) scheme in Ireland?**

A. **The RHI as currently proposed should be abandoned as not fit for purpose, not subject to integrated climate emission savings benefit analysis, negative in biomass feed source provision impact and other sustainability considerations , including creation of new sources of air pollution.**

2. **Is guidance needed at a local level to ensure that biomass installations related to the RHI scheme or otherwise do not cause air quality issues particularly in relation to those which are exempted from planning legislation?**

A. **The RHI scheme should not proceed as it is not fit for purpose, would create unsustainable biomass demand and increase air pollution.**

The current regulatory regime for biomass combustion systems of whatever scale is entirely inadequate. The design, maintenance and operational standards of instillations already in place requires retrospective regulation to cover the air pollutant impact. New installations require a regulatory regime including air quality standards.

3. **How could transparency regarding large emissions sources regulated under the IED be improved? Should data from continuous emissions monitoring systems be made more readily available online?**

A. **Transparency and decision maker and public engagement on air pollution mitigation can be enhanced by provision of real time emissions data through on line information portals.**

4. **Are there any other issues you wish to raise in relation to energy policy and clean air?**

A. **The continuation of biomass co firing with peat at Edenderry power plant and the proposal by Bord Na Mona and the ESB to extend biomass co firing to the other two midland peat power plants should be abandoned, as it prolongs the continuation of peat extraction and burning with consequent air pollution and other impacts, as well as introducing new biomass burning pollutant impacts.**

Ensure effective monitoring and enforcement of air quality emission standards in all power plants, including the midlands peat plants and Moneypoint coal plant.

4.6 Industry and Other Sectors

Transparency and public confidence is required in the EPA licencing regime and Local Authority functions in the regulation and control of industrial and waste emissions.

The continued expansion of the Co Meath incinerator and the impending opening of the Dublin incinerator needs effective monitoring and emission enforcement, and transparent publication of emission data to maintain public confidence

There are new concerns prompted by the co firing burring of waste material in cement plants

The regulation, monitoring and action on pollution risk of industrial facilities and processes not covered under the EPA licencing regime, is inadequate.

The Renewable Heat Incentive (RHI) as currently proposed is not fit for purpose. It would further create a regulatory "gap" in Air Pollution abatement which should not be allowed, and which would create new air pollutant impacts.

Consultation Questions - Industry and Other Sectors

1. **Is there a need for review and strengthening of local authority and EPA powers in relation to dealing with nuisance, and in particular odour nuisance?**

A. **Integration of enhanced EPA and Local authority powers is needed over the general regulation of waste and industrial facilities and processes, such as composting, not covered under the EPA licensing regime, for a wide range of nuisance areas.**

The level of continuing complaints to the EPA regarding odour from waste facilities and the food and drink sector, requires the implementation of a more effective abatement regime.

2. **How can the enforcement of the prohibition on illegal waste burning be improved?**

    a) Is there sufficient awareness of the impact it causes?
    b) Is the existing legislation sufficient to allow enforcement officers to take action?

A. **a) There is insufficient public awareness.**

The cumulative impact of other activities including burning of land, evasion of the waste charges, by burning of domestic waste, burning of wire or to recover metal,

burning of tyres in Halloween bonfires, all identified in EPA reports as a source of dioxin and other emissions, needs to be the subject of enhanced public awareness. This requires more effective public information and citizen engagement in making complaints against offenders.

A. b) Existing legislation and enforcement is inadequate.

There is a recognised longstanding and systemic failure to resource enforcement. The fines levied as penalties when prosecutions are made, are inadequate. There is a need to enhance awareness by the Judiciary particularly in cases at District and Circuit Court on the seriousness of causing air and other pollution.

Use of drone surveillance and other technology should be applied for more effective monitoring and enforcement.

3. A 'gap' exists between proposed new pieces of legislation, namely the MCP and the Eco Design Directive (EDD). How can the gap that exists between the EDD and Medium Combustion Plants Directive (MCPD) best be dealt with for appliances/plant that come into this range in Ireland (for example through a future Renewable Heat Incentive (RHI) scheme)?

A. The RHI as stated in the response in relating to its current propose operation is not fit for purpose. No scheme of any sort should be introduced while allowing a "gap" to prevail in effective pollution control.

4. Are there other emerging issues related to industrial or other sources that require action?

A. There need to be public confidence in the regulation of industrial facilities whether large or small.

The co firing impact of combusting waste streams in cement factories need particular research.

Waste processing recycling and recovery facilities raise new challenges in air emission impact including bio aerosols from composting, requiring effective ongoing research, regulation and monitoring.

5. UNDERSTANDING THE AIR QUALITY CHALLENGE

Technology has transformed ability to model, monitor and understand the impact of air pollution.

Monitoring can now be made accessible in real time, and more effective interpretation of data, forecasting and analysis of impacts can inform policy and decision makes and the public at large

Consultation Questions – Understanding the Air Quality Challenge

1. **How can pollutant emissions data be better used in informing actions from local to national levels?**

A. **The effective dissemination and consideration of pollution emissions data should be required to inform the actions of all Government Department, State Agencies and Local Authorities and other decision makers.**

2. **How can data from the various observation activities carried out in Ireland be better used or developed to enhance responses to air quality and climate challenges?**

A. **Integration of monitoring and modelling data, to allow better forecasting and effective abatement, and synergies with climate action.**

3. **Beyond the scope of the CAFE Directive monitoring requirements (see section 5.3), are there other air quality monitoring activities that Ireland should be undertaking?**

A. **Increased and effective monitoring of Black Carbon.**

4. **How could an ammonia monitoring network for Ireland best be developed? Are there synergies to be gained by alignment with monitoring in other environmental areas e.g. under the Water Framework Directive/Nitrates Directive?**

A. **As the Agricultural sector is the primary cause of ammonia emissions, it should bear the cost of implementing a more effective ammonia monitoring network.**

5. **How can the monitoring capacity that exists in universities be best harnessed to inform knowledge of air pollution sources?**

A. More effective national coordination is required in synergising university research, and making full technical studies available, as well as synthesised non-tachnical interpretative data more accessible to decision makes and the public generally.

6. Programmes such as Copernicus and MACC are providing real-time high resolution data on a range of air quality parameters though its satellite and remote sensing activities. How can Ireland make better use of this data and how should it be used?

A. Real Time high resolution Data assembly requires the full impact of air pollution to be measured and impacts assessed. The most effective non-technical circulation and dissemination of this data is required to inform decision makes and the public at all levels.

7. How could Unmanned Aerial Vehicles such as drones be used to improve air quality management in Ireland?

A. Drone technology presents a potential tool for monitoring and enforcement.

8 Are there examples of other types of technology that could be used for air quality purposes?

A. Information should be sought on the most progressive application of technologies used in other countries, through the European Environmental Agency (EEA) and other sources.

9. Are there other issues you wish to raise in relation the monitoring, modelling and forecasting of air quality?

A. Too much quality research is left un-disseminated. More effective non-technical communication is needed.

6. RESEARCH PRIORITIES

Air pollution research needs to be given adequate resources, with better integration between EPA supported and health sector research.

Consultation Questions – Research

1. **What are the important current and emerging air quality issues in Ireland that require research?**

A. **The health impact of vehicle emissions in urban areas and along motorways.**
Workplace pollution exposure e.g. in confined areas with diesel engines.
Air pollution emissions from co fired biomass and peat power plants.

2. **Are there air quality areas and topics that have not been previously investigated that require additional research? If so please provide some examples of topics?**

A. **New issues arising in waste treatment and processing including composing.**

3. **How can the national research capacity that exists in Universities on air quality issues be best used to achieve the clean air vision?**

A. **A more effective umbrella structure for co-operation in and dissemination of research**

4. **Do you have any other issues you wish to raise in relation air quality research?**

A. **Better promotion of public awareness of air quality research**

7. COMMUNICATION AND AWARENESS

It is critical that society is educated on the health and environmental necessity for clean heating and transport energy sources, to mitigate in air pollution in tandem with climate impact.

Short term economic considerations or deference to vested interest lobby groups, should not prevail over the protection public health.

However, no amount of communication, education and awareness campaigns can be a substitute for a legally based National Clean Air Strategy with clear emission ceiling targets, effective monitoring, and strict legal enforcement.

Consultation Questions – Communication and Awareness

1. **How can the general public best be made more aware of the health impacts of air pollution?**

A. **Through effective public information provision, as has been done for health impact of tobacco.**

2. **Is enough information readily available to the general public about air quality where they live and work?**

A. **Real time monitoring data should be publicised at local level**

3. **National awareness campaigns have been undertaken on issues like Waste (Race against waste) climate change (change.ie) and energy efficiency (the Power of One campaign). What issues might a national clean air awareness campaign encompass and how could its impact be measured?**

A. **Previous awareness campaigns on waste, climate and energy efficacy have failed because "the Power of One" is a flawed concept". Awareness campaigns while desirable, are ineffective without parallel legislative and regulatory action and financial support for positive change. Expecting public behaviour to change through "awareness" is not addressing root causes of failure to regulate pollutant sources, and implement clean technologies.**

3a. **Are there particular issues that would benefit from an awareness raising campaign, for example, what choices can the individual make that reduce air pollution in a person's area?**

A. Focus on individual "choice" to pollute to not to pollute at local level is inappropriate and misguided. Polluting should not be a matter of choice.

Awareness raising should focus on the public health and public interest necessity, and therefore public acceptability of the range of measures needed to meet WHO air pollution standards in Ireland and avert the continuing and increased levels of premature deaths and adverse health impacts.

3b. Should a clean air theme be developed for the Green Schools programme?

A. An Taisce would welcome the provision of resources to include a clean air theme for the Green Schools programme. This should also be applied to the growing number of third level institutes in the eco campus scheme.

8. TIMELINE FOR A NATIONAL CLEAN AIR STRATEGY

Tackling avoidable public health damage from air pollution whatever the cause is an overriding priority, for which WHO guidelines provide the standard. As noted in the consultation document Scotland has already adopted WHO guidelines values.

Consultation Questions – Timeline for a National Clean Air Strategy

1. **Are there particular metrics or benchmarks should be considered in tracking the progress of a Clean Air Strategy?**

A. **The key recommendations outlined by An Taisce in this submission are that outcome of this consultation should be a National Clean Air Strategy, requiring a timetable for:**

- **The reconstitution of the remit and scope of the Environmental Protection Agency (EPA) to ensure effective national monitoring, regulation and enforcement on all air pollution impacts.**

- **Legislative and fiscal reform to mandate and inform the actions of all Government Departments, State Agencies , Local Authorities and other decision makers in meeting World Health Organisation (WHO) air quality standards as a legal responsibility.**

- **The enhancement of citizen rights to secure legal redress on Clean Air in accordance with the Aarhus Convention.**

- **The progressive reduction and elimination of locations with days exceeding WHO emission thresholds and limits, focusing on traffic pollution and domestic fuel burning.**

- **Resourcing the large scale retrofitting of the national housing stock giving priority to areas with high solid fuel use.**

- **Ensuring that the application of the overdue national "smoky" coal ban in 2018 should not be allowed to generate increased emissions from peat and biomass.**

- **Action on diesel emissions, through the range of fiscal and other measures recommended in the An Taisce responses in the transport section of this submission, and which are supported by public health researchers and other**

advocacy bodies with a clear target for phasing in low emission vehicles for all transport sectors.

- **Large scale acceleration of public transport and cycling infrastructure investment.**

- **The re energising of the measures set out but not implemented in the 2009 Department of Transport "Smarter Travel" policy particularity action to achieve modal shift from cars , including taxis , to walking, cycling and low emission public transport, with clear targets to be met.**

- **Requiring the agricultural sector to implement effective monitoring and abatement of ammonia emissions, and to control the impact of land burning.**

- **Public information programmes be primarily directed at supporting enhanced public health protection through legislation, regulation and enforcement, and redirection of taxation policy and public investment to ensure that Ireland meets WHO clean air standards.**

In addition this submission advocates the withdrawal of the proposed Renewable Heat Incentive (RHI) as not fit for purpose on multiple sustainably grounds including air pollution impact.

2. **Are there any other issues you wish to raise in relation to development of a national Clean Air Strategy?**

A. **Ensure that all sectors are engaged in the development of a National Clean Air Strategy to achieve the multiple overlapping benefits in health and well being and climate mitigation.**