An Taisce
The National Trust for Ireland

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Energy Policy & Planning Unit
Department of Communications, Energy and Natural Resources
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31.07.14

Re: Submission to the Green Paper on Energy Policy in Ireland

Dear Sir/Madam,

An Taisce welcomes the publication of a Green Paper on Energy Policy in Ireland and would like to make the following comments which we request the Department take into consideration.

It is also requested that the Department make known to An Taisce any further consultation periods regarding the making of this policy and issue An Taisce with notification of any proposed amendments.

Yours sincerely,

Tomás Bradley
Planning & Environmental Policy Officer
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Submission to the Green Paper on Energy Policy in Ireland

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1.0 Executive Summary

The Energy White Paper for Ireland will provide a key policy document of central importance for a critical period in Irish society and will form a contract between the government and the wider community embodying a promise to make our country more resilient and ensure a secure, sustainable and competitive energy framework moving toward 2030 and 2050. The overriding consideration, therefore, of this paper should adequately and holistically address Ireland's energy requirements and strategy in an integrated and structured manner, in the context of an environment which simply cannot sustain current consumption levels and risks associated with energy scarcity and climate change.

From the outset, the priorities for a national energy policy for Ireland should be primarily concerned with how energy consumption will be reduced and ensure all citizens are conscious of energy savings and how to secure them. It is considered that an Energy Policy should not be developed further unless it becomes an integrated policy with:

- A national climate strategy, in line with limiting global climate change to less than 2ºC above pre-industrial, as per Ireland's internationally declared commitment.
- A national strategy for energy conservation;
- A national strategy for energy efficiency;
- A national strategy for land-use planning;
- A national strategy for energy decarbonisation, including:
    - the cessation of peat-based electricity generation immediately;
    - phasing out coal burning at Moneypoint over the next 3-4 years;
    - timetabled phase-out of all peat, coal and oil in domestic heating;
    - a policy for carbon stores.

The key objectives that must be included in this Energy Policy with regard to conservation and efficiency include:

- *Reducing primary energy demand*: retrofitting the national building stock for energy efficiency with an annual target of 100,000 homes to be upgraded to best achievable international standards;
- *Eliminating the most carbon intensive energy sources*: ending the use of coal and peat for electricity generation and domestic heating as soon as possible; and
- *Reducing Fossil Fuel Import Dependence:* progressively reducing the current level of Irish fossil and biofuels import bill of 6.5 billion euro per annum, and a concomitant integrating measure for future renewable energy.

The above, under current structures, is difficult to achieve, given the inherent conflict in the remit of the Department of Communications, Energy and Natural Resources due to its dual role in regulation and promotion of resources, including energy related resources. We submit this continues to be a concern, and needs to be re-dressed.

There has been a failure by the Department, therefore, to grapple with underlying demand – and to instead pursue a range of supply-related initiatives and un-integrated targets in the absence of any credible or relevant overall measurement strategy, with sufficient

oversight and empowerment to deliver. This coupled with Ireland's systemic evasion, haphazard approach, and poor adherence to the intent and underlying purpose of the Strategic Environmental Assessment Directive[1] in its energy plans and policy specifications have provided a shaky foundation on which to proceed.

This needs to be informed by a robust Strategic Environmental Assessment Process, in strict accordance with the intent and purpose envisaged by Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment. This in turn will inform a hierarchy of component energy programmes and plans to deliver on that energy requirement, including both conservation and appropriate development programmes, all of which in turn need to be subject to SEA. Such an approach is necessary to comply with obligations under Articles 6 and 7 of the Aarhus Convention, whose obligations exceed those of the SEA Directive, and to re-dress the legal and informational issues consequent on the approach Ireland and the EU have separately and collectively pursued to date, and to provide a robust and non-confrontational basis on which we can move forward together.

It is critical that the urgency of necessary rapid and deep decarbonisation is appreciated by the public. The Energy Policy needs a strong focus on public engagement to increase the level of debate will be greatly enhanced by appreciating projected global climate and energy reality debate. Any transition to a low carbon future must be based on the reality of cumulative carbon budgets and be informed by the work of the IPCC and the monitoring of the EPA, otherwise short-term political deference to local preferences and short-term cost saving will in the long-term prove costly both socially and economically. The success or otherwise of the forthcoming Energy Policy can only be judged against verifiable and implementable criteria which are subject to ongoing monitoring.

[1] Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment.

2.0 Introduction

The Energy White Paper for Ireland will provide a key policy document of central importance for a critical period in Irish society and will form a contract between the government and the wider community embodying a promise to make our country more resilient and ensure a secure, sustainable and competitive energy framework moving toward 2030 and 2050.

It is now two decades since the 1992 Earth Summit in Rio de Janeiro where scientists warned humanity that '*no more than a few decades remain before the chance to avert the threats we now confront will be lost and the prospects for humanity immeasurably diminished*'[2]. In terms of actual action, as distinct from debate and policy formulation, the worldwide response to these messages from those in a position to bring about change has been close to negligible.

It is now, therefore, imperative that this Energy Policy set out a clear, rational, evidence-based and plan-led strategy for the future mitigation of risk and address the critical emerging global challenges associated with climate change and energy scarcity.

Climate change and fossil fuel dependence are the interrelated, biggest and defining challenges of our time. We are currently experiencing an environmental and resource crisis that places human development at a crossroads. The consequences of climate change and fossil fuel extraction and combustion are becoming increasingly visible and are being exacerbated by unsustainable economic growth.

The effects of these challenges are, and will continue to be, multi-faceted and systemic. They will have effects on all strands of risk[3] identified in a previous consultation by the Department of the Taoiseach who are currently reviewing the *National Risk Assessment 2014*. These challenges, and the necessary development of policies to address them, are becoming a reality with which society has to learn to live.

Given the obvious urgency of climate change as outlined in the Intergovernmental Panel on Climate Change (2013) - Fifth Assessment Report (AR5), the Energy Policy should be providing both mitigation and adaption measures for climate change with associated targets. This is essential to reduce risk and uncertainty. By acting to significantly reduce Ireland's dependence on coal, oil, gas and peat and their greenhouse gas emissions, across all sectors, thereby increasing the State's resilience and capacity to survive in a time of energy and climate uncertainty.

[2] http://www.ucsusa.org/about/1992-world-scientists.html
[3] economic, geopolitical, technological, social and environmental

3.0 Scope of the Energy Policy

Instead of investing in energy use conservation, efficiency and renewable alternatives, the global trend in energy has been to increase the extraction rate of large scale open cast coal mining and extend oil and gas exploration into new areas and introduce problematic new technologies. Energy companies are in an exploration race to secure a level of fossil fuel extraction which is incompatible with the level of decarbonisation required to stabilise global climate at 2ºC average surface temperature above pre-industrial levels.

A national energy policy for Ireland should be primarily concerned with how energy consumption will be reduced and ensure all citizens are conscious of energy savings and how to secure them. It is considered that an Energy Policy should not be developed further unless it becomes an integrated policy with:

- A national climate strategy, in line with limiting global climate change to less than 2ºC above pre-industrial, as per Ireland's internationally declared commitment.
- A national strategy for energy conservation;
- A national strategy for energy efficiency;
- A national strategy for land-use planning;
- A national strategy for energy decarbonisation, including:
    - the cessation of peat-based electricity generation immediately;
    - phasing out coal burning at Moneypoint over the next 3-4 years;
    - timetabled phase-out of all peat, coal and oil in domestic heating.
    - a policy for carbon stores

The key objectives that must be included in this Energy Policy with regard to conservation and efficiency include:

- *Reducing primary energy demand*: retrofitting the national building stock for energy efficiency with an annual target of 100,000 homes to be upgraded to best achievable international standards;
- *Eliminating the most carbon intensive energy sources*: ending the use of coal and peat for electricity generation and domestic heating as soon as possible; and
- *Reducing Fossil Fuel Import Dependence:-* progressively reducing the current level of Irish fossil and biofuels import bill of 6.5 billion euro per annum, and a concomitant integrating measure for future renewable energy.

Ireland, given its volatile energy position internationally should strongly support grounds for energy conservation and efficiency measures. To this end, it is recommended that the Department of Communication, Energy & Natural Resources petition the European Union and its members to agree a 45% energy saving target for 2030.

Of paramount importance to the Department is to 'keep the lights on'. This would appear to translate into ensuring a continuous level of supply as the primary task. It is argued by An Taisce the imperative to reduce emissions drastically requires that demand reduction and energy efficiency take precedence over security of supply - supply at the level to which we have become accustomed. It should be a greater national priority to reduce electricity demand than to 'keep the lights on at all costs'.

Energy Saving is Ireland's New 'Fuel'.

4.0 Remit of the Department

The legal remit of the Department of Communications, Energy and Natural Resources, needs to be reviewed to meet current needs. The present mission statement is contradictory and does not address the overriding imperative of addressing climate change.

While passing reference is made to sustainability there is no explicit inclusion of climate impact. This entirely disregards the overriding requirement to maintain the existing global environment and stable climate, without which existing social and economic structures would collapse.

This Mission Statement needs to be abandoned, in favour of a new statement addressing the overriding imperative to address climate change mitigation.

There is furthermore a serious conflict in the role of the Department through the Petroleum Affairs Division in both the promotion, licensing and regulation of oil and gas exploration and extraction. The Mission Statement for this Division states:

> *"The role of the Petroleum Affairs Division is to maximise the benefits to the State from exploration for and production of indigenous oil and gas resources, while ensuring that activities are conducted safely and with due regard to their impact on the environment and other land/sea users. "*

The maintenance of a stable global climate requires leaving at least 80% of existing known fossil fuel deposits in the ground. Accommodating new exploration undermines meeting carbon reduction targets and is a waste of investment resources which need be directed into efficiency and low carbon energy.

5.0 Priorities of the Energy Policy

A number of questions are posed in relation to each priority area in the Green Paper and the Department invited those making submissions to structure their submissions around these questions. An Taisce has framed its submissions with the six priority areas in mind.

5.1 Empowering Energy Citizens

It is absolutely essential for the Energy Policy to be effective that it is prepared in a transparent manner in partnership with the local community and stakeholders and is aimed at building consensus. Far too often in the past such consultations have had no meaningful engagement with local communities. The consequences have generally been deleterious to community integration and social capital.

The Energy Policy must be informed by a high level of transparency, democratic participation, community empowerment, and local decision-making and ownership. Furthermore, the objective for those preparing the new Energy Policy should be conciseness, clarity and simplicity in use of language. Any excessive flexibility inherent in the Energy Policy will result in inaction by the department and a document incapable of being applied. This flexibility is evidenced both by vagueness and 'let-out' clauses which causes problems of interpretation.

It is essential that the Energy Policy ensures that public debate stays within a stated cumulative emissions budget commensurate with limiting global warming to 2ºC. All proposals should spell out an energy future that meets the necessary rapid linear decline in energy emissions, otherwise proposals and the debate will be meaningless. Community empowerment has to mean a debate that is based on Ireland's commitment to addressing climate reality rather than wishful thinking that we can continue burning fossil fuels as we have done. Energy policy proposals should spell out the carbon budget implications and the emission path to 2050 for their suggested energy portfolio.

An absence of a transparently decided policy on energy causes significant conflict. This was clearly illustrated in a drive to increase wind energy production for export to the United Kingdom in the Irish midlands. The manner in which competing energy companies proceeded to negotiate turbine site options in the Irish midlands without a national energy policy and other legislative measures being in place was deleterious to community participation. These developer-led initiatives divided local communities, turning renewable energy into a focus of opposition and potentially resulting in the selection of unsuitable sites for wind energy.

It is an anomaly that a landowner leasing the site for a turbine base would receive very significant income, while a householder living near that site – even nearer than the landowner but without any ownership interest - would derive no benefit at all. An equitable provision is required to provide for local residents / communities part-sharing in the annual revenue for hosting large-scale wind turbines. Such an equitable provision could be designed on radial distances from the turbine base, a provision which could be suspended where line of sight did not exist, for example.

Bridging the gap between economics, environmental requirements and the wider interests of the common good with local interests can be a process fraught with difficulty and conflict. While appreciating that the subject of this policy is technical in nature and that it will aggrieve some section of society, the government need to ensure an open and transparent process whereby everyone is having their submission heard on an even playing field and not being offered a tokenistic consultation whereby submissions in reality will not bring about any change.

Recommendation

The Department should appoint an independent facilitator to manage the public participation and consultation process.

A public information campaign is required to inform the public of the need for a strict carbon budget for Energy Policy within the national climate strategy. An online calculator like the one provided for by the UK's Department for Energy and Climate Change (DECC) to assist in producing a low carbon energy trajectory would be an essential support for this campaign.

Provisions should be included in the Energy Policy which would see the local community derive some planning gain from hosting energy infrastructure in their locality.

5.2 Markets, Regulations and Prices

The overriding consideration which needs to apply to energy markets, regulation and prices is the application of carbon budgeting. The detailed consideration on carbon budget is stout in Section 5.5.3 and a detailed commentary in the Appendix.

Recommendation

The Energy Policy must be informed by the global CTE constraint and make it underpin the international negotiations leading to the proposed climate agreement to be endorsed at CoP21 in Paris.

5.3 Planning and Implementing Essential Energy Infrastructure

Proceeding with individual energy infrastructure and projects is ill-advised without clearly addressing how much energy Ireland will require in future years factoring in the savings gain from energy conservation and efficiency measures.

If Ireland is to reduce emissions to the per capita levels required by developed countries (to meet a maximum 2ºC above pre industrial increase in global mean surface temperature), demand reduction through efficiency and saving must play a very important role, as must decarbonisation of energy production. Saving energy (preventing emissions) is even more important than efficiency, which only delays emissions. Without a global/EU/national cap rebound effects undermine both savings and efficiency.

What is vital before proceeding with infrastructure, is that the Energy Policy shapes the above - outlining the overall balance between efficiency savings, renewable generation and so on.

A most recent example of planning and implementing essential energy infrastructure is Eirgrid and the Grid 25 project. The legal remit of Eirgrid is limited to the maintenance, management and development of the national electricity transmission grid, and to make provision for the interconnection of the national grid with other systems under EU energy policy. While Eirgrid has an obligation regarding the efficient management of the transmission network, it does not have a function in the reduction in the primary demand for electricity in Ireland at consumer level.

The Grid 25 project is being justified on three grounds:

- The integration of renewable generation from the south of Ireland into the national grid;
- Security of supply 'to ensure that demand in the south east can be securely supplied at all times, regardless of where the power is generated'; and
- Facilitation of possible future connections with Britain and France.

The first objective is part of wider grid development programme to secure the meeting of Ireland's 40% renewable target by 2020. However, no strategic planning is in place to cap demand at current levels and achieve progressive reductions in consumption through conservation and efficiency. Hence, this target is a 'moving' one, based on a percentage of total electricity generation in 2009 and does not address the risk of future increase in primary energy demand; electricity use has levelled in recent years only because of recession and is likely to increase with ongoing economic expansion.

Again, the provision to enhance security of supply ignores the issue of potential rises in demand – unless energy efficiency is adequately pursued and savings delivered. Without putting energy efficiency first, the cart is being put before the horse.

For example, Ireland's exit from coal-burning with the closure of Moneypoint and the peat burning power stations is required to achieve decarbonisation of electricity generation. And when this happens it frees up very significant east-west grid capacity, with a considerable impact on the master-planning of the distribution of electricity in Ireland.

The energy policy must also consider transport and land-use planning and how it will become integrated and synchronised. While it is recognised that there remains a considerable straightforward connection in the minds of policy makers and elected politicians as to the economic benefits of road and air infrastructure, the overwhelming international evidence clearly indicates that past trends must not be used as a guide to likely future outcomes. Further investment in Ireland in road infrastructure (outside of road infrastructure maintenance) and the shaping of our society and economy around oil based transport (i.e. dispersed settlement patterns, suburban sprawl, export growth) will inevitably increase and 'lock-in' our exposure to oil price inflation and undermine the resilience of our economy and society in an era of peak oil.

Accordingly, any rational analysis of future available oil resources and energy resources would result in an inevitable conclusion that investment in oil dependant infrastructure holds a high level of risk and is short-sighted, ill-conceived and an inefficient use of public funds.

Recommendation

The Energy Policy should state that Energy Infrastructure must only proceed if clearly addressing how much energy Ireland will require in future years factoring in the savings gain from energy conservation and efficiency measures.

The Energy Policy should advise that investment in oil dependent infrastructure is an inefficient use of exchequer investment and should be discontinued.

5.4 Ensuring a Balanced and Secure Energy Mix

There are two factors largely influencing Ireland's ability to hold a balanced and secure energy mix – oil dependence and climate change.

5.4.1 Oil Dependence

During the last decade the extraction of oil from conventional well sources peaked reducing oil's attractiveness as a secure source of energy. Ireland is one of most oil dependent economies in the world where global energy usage increased by 39% between 1990 and 2008. Further, demand for fossil fuels is increasing, not decreasing[4].

Ireland is 99% dependent on oil and imported biofuels for transport and is amongst the most private car dependent countries in the world. Ireland is also highly dependent on road haulage for freight with only an extremely marginal rail freight infrastructure. The amount of oil used for transportation in Ireland tripled between 1972 and 2002, leaving Ireland consuming at least 50 per cent more per capita than the average of the EU-25 by the end of the period[5].

The Chief Economist of the International Energy Agency (IEA), Fatih Birol, recently confirmed that peak conventional oil production occurred in 2006. There is growing international consensus, as expressed by Macquarie Bank, Goldman Sachs, McKinsey Consultants, the UK Industry Task Force on Peak Oil and Energy Security, the UK Energy Research Council, IHS Herold, OFGEM, ASPO, Global Witness, the International Energy Agency and the Saudi Oil Ministry together with, most recently, Lloyds Bank that the 'era of cheap oil is over' and that serious supply constraints and an oil supply crunch is likely in the short- to medium-term. The Hirsch Report commissioned by the US Department of Energy in 2005 highlights very clearly that the era of plentiful, low-cost petroleum is approaching an end. World demand for oil is predicted to increase by 50% over the period up to 2025 at a time when the world oil reserves are diminishing rapidly and will lead to rapid price inflation and scarcity. According to the IEA, in order to sustain projected global energy demand the world will need to discover six new Saudi Arabias by 2030[6].

The key issue with peak conventional oil is that it is not an energy crisis so much as a 'liquid fuels' crisis, which will have immediate consequences for the main categories of oil usage, in particular transportation. As Ireland is particularly and increasingly dependent (for exports) on oil for transportation, we are particularly vulnerable to oil price inflation and it is important to start preparing and contingency planning for such an event, given oil has been over $100 per barrel for three years now (inflation adjusted price is now the highest in 150 years) and the just published British Petroleum report confirms that the future price trend is likely to be strongly upward[7].

[4] http://www.iea.org/publications/freepublications/publication/KeyWorld2013.pdf
[5] http://www.seai.ie/Publications/Statistics_Publications/Energy_in_Transport/Energy_In_Transport_2009_Report.pdf
[6] http://www.worldenergyoutlook.org/media/weowebsite/2008-1994/weo2008.pdf
[7] http://www.incisivecms.co.uk/IMG/722/291722/crude-oil-prices.jpg?1402929263

The 2013 International Energy Agency "World Energy Outlook" projects global energy demand growing by one third by 2035. It estimates that fossil fuels are being subsidised to a level of over half a trillion dollars annually based on 2012 data. Global gas and coal extraction will increase and increased production by the US and Brazil will "quench the worlds thirst for oil".

On current trends and economic models adopted by the IEA the 2 degree carbon budged will be grossly exceeded with the report stating baldly :

> *"Energy-related carbon-dioxide emissions are projected to rise by 20% to 2035, leaving the world on track for a long-term average temperature increase of 3.6 °C, far above the internationally-agreed 2 °C climate target."*

As confirmed in the Hirsch Report there is no ready alternative to oil for private vehicle use. In this context, debates over substituting oil with renewable, gas or nuclear energy are irrelevant. The widespread replacement of the current vehicle stock with electric powered vehicles is economically and environmentally impractical. The mass production of battery or hydrogen technology capable of the propulsion of electric vehicles, particularly HGVs, is at the very least several decades off and it is most probable that there is no technological solution to this problem.

The preferred raw material for the production of batteries, Lithium, is itself severely resource constrained and found largely in highly environmentally sensitive and politically unstable regions of the world. In any event, the mass production of electric vehicles is wholly resource inefficient and the use of increasingly scarce energy for unproductive uses, such as electric vehicles, would be imprudent. Bio-fuels are not a solution as it competes with food for land and drives up food prices.

There is now a need for much increased regulation and VRT rules on vehicle efficiency and emissions. Vehicles below a certain rating should not be allowed. There is already the technology for petrol vehicles to massively cut fuel use and emissions by 50% within 10 years or less if such vehicles were mandated.

The two key transport policy documents *Smarter Travel: A Sustainable Transport Future – A New Transport Policy for Ireland 2009-2020* and *National Cycling Policy Framework 2009* which contained progressive targets for 2020 are not being implemented. The Cycling Policy requires 10% of all trips to be taken by bicycle by 2020. Smarter Travel also sets out a series of overriding policy objectives in Chapter 3, summarised as follows:

1. *Future population employment growths will predominantly take place in sustainable compact forms which reduces the need to travel for employment and services;*
2. *500,000 more people will take alternative means to commute to work to the extent that the total share of car commuting will drop from 65% to 45%;*
3. *Alternatives such as walking, cycling and public transport will be supported and provided to the extent that these will rise to 55% of total commuter journeys to work;*

4. *The total kilometres travelled by the car fleet in 2020 will not increase significantly from current levels;*
5. *A reduction will be achieved on the 2005 figure for Greenhouse gas emissions from the transport sector.*

There has been a systemic implementation failure by government departments and agencies, local government and An Bord Pleanála in implementing these targets. This needs to be remedies and reversed as a matter of urgency.

5.4.2 Climate

In 2012 the Grantham Institute for Climate Change (based in Imperial College London) and the Carbon Tracker Initiative (An International NGO monitoring carbon emissions) published 'Unburnable Carbon 2013: Wasted Capital and Stranded Assets'. This shows that total fossil fuel reserves already far exceed the global atmosphere capacity to absorb the emissions generated if temperatures are not to exceed 2ºC above preindustrial levels, a fact confirmed by the IPCC.

Beyond the increased certainty about the core science, the AR5 WG1 SPM report makes two significant new headline statements:

1. Continued emissions of greenhouse gases will cause further warming and changes in all components of the climate system. Limiting climate change will require substantial and sustained reductions of greenhouse gas emissions. (p.17)
2. Cumulative emissions of CO2 largely determine global mean surface warming by the late 21st century and beyond (see Figure SPM.10). Most aspects of climate change will persist for many centuries even if emissions of CO2 are stopped. This represents a substantial multi-century climate change commitment created by past, present and future emissions of CO2. (p.27)

In other words, all policy in all government departments must be judged on the basis of radically reducing the cumulative sum total of future emissions (IPCC WG1). Contrary to the EPA's emission projections Ireland must also do this, otherwise Ireland is contributing to greatly increased climate risk, risks that may well be beyond limits of adaptation resulting in intolerable impacts (IPCC WG2). Only acting urgently and radically to cut emissions quickly can limit climate change to below 2ºC at least-cost to prevent much greater adaptation costs (IPCC WG3). The Director of the EPA has said Ireland is not remotely on track to meet either its 2020 or its long-term stated aim of carbon neutrality. Is the Energy Policy also going to be at odds with science?

Between 60-80% of coal, oil and gas reserves of publically listed companies are unburnable if the world is to have chance of not exceeding global warming of 2ºC. The issue is now to achieve an effective global climate agreement and carbon tax regime which will secure this.

Former President Mary Robinson has been appointed UN Climate Envoy in July 2014 and has previous stated:

> *'There is a global limit on a safe level of emissions. That means major fossil fuel reserves must be left in the ground. That has huge implications for economic and social development.'*

Factoring in climate change is important to ensuring a balanced and secure energy mix. Ireland has signed up to the 20:20:20 EU agreement whereby we have a legally binding pledge to reduce greenhouse gas emissions by 20% below 1990 levels and increase energy efficiency by 20% by 2020. The scale of change needed to meet Ireland's commitments is enormous. Ireland's national Greenhouse Gas (GHG) emissions reduction target equates to approximately 2.5% per year until 2020.

GHG emissions from the transport sector have risen 170% over 1990 levels primarily due to spatial sprawl. The EPA estimates that by 2020 transport emissions will further increase by 15-23%, and by 2030 the increase will be 36%. These projections are completely unacceptable given the need to radically cut emissions, an ethical Energy Policy should say so and ensure that transport emissions decrease despite forecast population and economic growth.

The Environmental Protection Agency (EPA) has estimated that in the non Emissions Trading Scheme (ETS) sectors, Ireland will exceed its EU Effort Sharing Directive (ESD) limit by 2016 and may have a cumulative excess emissions of 2-20Mt by 2020 in agriculture, transport and home heating. Given the decrease in With Measures investment and the current increase in fossil fuelled economic output it is likely that the upper exceedence or greater is more likely. In effect, Ireland is not bothering to co-ordinate any concerted effort to reduce emissions and embrace low carbon development. Furthermore, Ireland has no strategic plan in place to play its part if the overall EU target is to be stepped up to 30% in the context of a global agreement on climate change. Contrary to its ongoing optimistic policy rhetoric Ireland continues to head in the opposite direction, contributing to climate disruption for future generations in Ireland and the world. A new Energy Policy needs to be part of a national commitment to limit cumulative emissions supporting regulations and strong carbon pricing to drive social and technical low carbon innovation. Ireland needs to work hard diplomatically toward an enforced global cap on cumulative emissions to support an Energy Policy that is effective in working toward a zero net carbon future.

Realistic carbon pricing is essential so the continuing effective collapse of the EU Emissions Trading Scheme (ETS) must be ended to put a climate pollution impact price on carbon. At present to meet the international aim of limiting global warming to 2ºC the likely required Social Cost of Carbon (SCC) is of the order of €100 per tonne of carbon dioxide. If the Energy Policy is not based on at least this level of carbon price then it will tacitly accept that higher and increasing costs will be borne by Irish people in the near future either in carbon taxes or future economic costs. Revenues from SCC taxes can replace income taxes encouraging both increased employment and transition to low carbon.

The Energy Policy must address the challenges of climate change which require urgent reductions in fossil fuel energy use, especially peat and coal, and the associated anthropogenic emissions. It must also acknowledge the emerging impacts of climate change across all sectors with particular reference to the areas of land use, energy, transport, water resources, flooding, waste management and biodiversity.

The Energy Policy must also assess and prepare for external risks to Ireland's societal and economic future; especially as such risks have been systematically ignored by the government's focus on risks local to the island of Ireland. For example, the 2012 NESC-Secretariat Climate Change report focused on extreme weather effects on Ireland but entirely ignored the fact that the far more imminent risks come from potential heat and precipitation effects on harvests in critical international and national food producing areas, especially the USA and Russia, and on resulting global instability due food shortages, high prices and migration. These security risks are highly likely to adversely affect key source areas for Ireland's current fossil fuel dominated energy mix, increasing risks for continuing a carbon based energy policy.

The Energy Policy must see the electricity generation needs of the country primarily met by renewable sources by 2020, and entirely by 2030, including major use of local renewable energy sources, district heating and combined heat and power and energy demand reduction measures. Given high oil prices the investment returns on building retrofit and transportation are therefore now much greater. Increasing resilience to future risks and uncertainty requires much increased investment in system change. The certainty that these investments will pay off to the benefit of Ireland and its people is now greater than ever before.

Given the above two factors, the following should be considered when deciding a balanced energy mix:

Recommendation

Oil

Oil is very difficult to replace for transportation. However, very low emissions engines are already available that can already enable very large and rapid reductions in transport emissions. Ireland needs to lobby the EU and implement taxation to ensure that no other vehicles are available. Residential retrofits should aim at addressing the poorest performing buildings stock – buildings with BERs below E urgently need to be retrofitted or replaced, creating many jobs as a bonus.

Coal

The cheaper cost of coal on the international market is a combined result of a switch in the US from coal to gas power generation from fracking, which disregards the full carbon equivalent impact of the extraction process including fugitive emissions and more intensive open cast coal extraction. The 5.9% increase in Irish energy sector emissions in 2012 over 2011 is largely due to a increase in use of cheaper coal at Moneypoint. The ESB has no exit strategy for the phasing out of Moneypoint. The argument for continued coal use is to reduce dependence on the gas market and future use of carbon capture and storage (CCS). As CCS continues to be an early stage technology and unlikely to be installed at Moneypoint any time soon there is no option except to close it as soon as possible. Ireland needs to plan for rapid removal of coal from the energy mix in power generation (by replacement using renewables) and in residential heating (by greatly increased investment in building retrofit).

Peat

Peat produces 9% of electricity but emits 20% of Irish electricity emissions. This is unacceptable given Ireland's claimed commitment to climate action. Bord na Mona has no exit strategy for ceasing peat extraction and burning and for stabilisation of carbon and restoration of carbon sink function on its landholding. The argument for continuing peat extraction is to maintain an element of national self sufficiency in base load power generation and moderate coal and gas import dependence. With regard to scientific evidence from the IPCC, peat should be left in the ground to sequester carbon rather than irresponsibly burning it.

Gas

Gas provides for 60% of electricity generating demand. While gas has a lower emission impact per energy unit generated that peat or coal, large scale use of gas becomes progressively unviable in an annualised energy decarbonisation into 2020 and 2030. This would be compounded if fracking sources were to be developed either in Ireland or feeding into the European Gas grid. A November 2013 report by the US National Academy of Sciences has stated that fugitive emissions including methane from the operation of Fracking wells in the US have been seriously underestimated. Scientific evidence from the IPCC, indicates that unconventional means of sourcing gas such as fracking only add another fossil fuel thereby increasing long-term cumulative emissions. Economic logic indicates that using gas as a supposed 'bridge' to low carbon will divert funding from renewables and delay the transition.

Biomass

Biomass as with biofuels is not carbon neutral and different biomass feed sources whether nationally produced or imported has significantly different carbon emission impacts. The use of biomass in the Bord na Mona Edenderry Power station is not a suitable model since it uses imports the kernels from South East Asia's destructive palm oil industry, and other import sources. The carbon and land use efficiency and impact of cultivation of feed for mass burning of biomass for power generation is being subject to increasing scientific critique. Further assessment of the impacts of biomass, including externalised environmental impacts, is required before proceeding with further sourcing.

Biogas

Continuing investment by the agricultural sector in current wastewater and agricultural effluent management systems undermines potential of biogas extraction, and there is no evidence of any policy change. New technologies need to be a assessed in relation to biogas.

Nuclear

Any energy technology must be developed in accordance with the law, with full and proper consideration for the environment.

In the context of large scale energy projects, this includes compliance with various pieces of environmental and planning legislation, such as the Environmental Impact Assessment (EIA) Directive and the Habitats Directive[8]. The EIA Directive requires that, in respect of projects likely to have significant effects on the environment, the direct, indirect, and cumulative effects of the proposed project be assessed prior to the granting of development consent. This principle must be applied for all projects considered under any proposed energy mix. The Habitats Directive requires that where a plan or project is likely to have a significant effect on certain protected nature conservation areas (Natura 2000 sites), the plan/project must be assessed regarding its implications for the area in question. In light of this assessment, the Habitats

[8] DIRECTIVE 2011/92/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 13 December 2011

Directive mandates the circumstances in which such plans and projects may proceed.

Any technology must be considered in the context of the following:

a) The direct and indirect environmental impacts of the use of the technology.
b) The robustness of the planning, regulatory and enforcement regimes necessary for the technology.

Against the backdrop of Ireland's historic legal ban on nuclear and the prompted reconsideration of same in question 26 of the Green Paper, in our view the discussion on nuclear matters in the Green Paper (e.g. in section 4 and before) does not provide the public with sufficient information to form a basis for considered responses.

Renewable Energy (Wind)

Wind in the only renewable technology currently available to achieve large scale capacity, given that wave and tidal generation remain at the level of small scale prototypes with uncertainty over large scale application and environmental impact on marine life.

If the funding required for renewable energy deployment will have to be supplied by the private sector then there is a strong argument for increased carbon taxes and ring-fencing the funds from electricity to renewable, as well as efficiency and demand reduction.

Ireland's national 40% wind energy generation target by 2020 is based on regional distribution of turbines, increased interconnection with UK and grid reinforcement. The pylons proposed to enhance interconnectivity and grid distribution are now a source of major conflict in the areas affected.

As noted earlier the current practice of private sector companies creating fear in the local communities with large wind energy farms has moved whole communities from a relatively positive attitude to wind energy to one of loathing. The recent NESC report on wind energy in the community indicates that community ownership models have worked successfully in Denmark and Germany.

Community ownership has many positive benefits in addition to creating a renewable energy source. Increased income and employment, local empowerment etc. The government should drive this by borrowing funds on the international bond market and ring fencing the monies for community energy projects. Ireland is currently able to borrow money at under 4% for up to 25 years on international bond markets .As the government also sets the feed in tariff for renewable energy, and there is sustained demand for the product, all the financial elements of the project are defined and certain.

Given the limited capacity of wind to replace fossil fuel plants and the lack of any large scale renewable alternative or storage capacity in the foreseeable future a major new emphasis on demand reduction conservation and efficiency is required. Research evidence indicates strongly that demand reduction, through, energy and emissions saving are faster and cheaper than supply side changes and investment.

There is no evidence that the current NEEAP will achieve its limited goals for energy efficiency. The focus must not just lie on the residential or general building use sector. There is no consideration of demand reduction across all areas of energy use particularly for major industrial users including mining, cement, IT, pharmaceuticals and food processing. This continued ability to acknowledge and correct failure to invest in and achieve policy aims needs to be reversed.

Recommendation

The primary objective of the Energy Policy must be to break the Ireland's dependence on oil, stopping the Ireland's contributions to global warming and preparing Ireland with the resilience to thrive in a time of energy and climate uncertainty.

This policy should see the electrical generation needs of the locality primarily met by renewable sources by 2020, and entirely by 2030, including major use of local renewable energy sources, district heating and combined heat and power, and energy demand measures.

Any Energy Policy must aim at a Cumulative Total Emissions amount (for ALL future emissions for Ireland's energy needs) that is in line with Ireland's commitment to limiting global surface warming to 2ºC pre-industrial. Complete decarbonisation of the power generation by 2030 is a primary objective to achieve the required urgent and large scale emission reduction Ireland has agreed to undertake.

An ethical and honest Energy Policy would acknowledge that agreement at Paris 2015 of a long-term, global cumulative total emissions cap, and regulations and carbon pricing to support this cap, would drive societal, economic and technical innovation toward low carbon future.

The Energy Policy needs to adopt the target of the of Department of Transport's policy, *Smarter Travel: A Sustainable Transport Future – A New Transport Policy for Ireland 2009-2020* and *National Cycling Policy Framework 2009* to address the issue growing issue of oil dependant transport.

5.5 Putting the Energy System on a Sustainable Pathway

An Taisce is putting forward three measures which are consider an essential starting point in putting the energy system on a sustainable pathway – energy efficiency and demand reduction which is a common theme throughout this submission, carbon stores and carbon budgeting.

5.5.1 Energy Efficiency

Ireland has major issues in energy efficiency which it needs to address in power generation, home heating and transport. However, the current National Energy Efficiency Plan (NEEEAP 11) is deficient in terms of legal force, scope, timetables and targets. Without accurate data on Ireland's current position, it is difficult to formulate the legal, fiscal and policy measures timetables and targets needed to achieve substantial savings in energy conservation and efficiency.

European Environment Agency comparison tables give figures for energy consumption levels, including Ireland. Annual imports of fossil fuels come to €6.5 billion, and in terms of fossil fuel and peat dependency, Ireland is performing very badly on a European per capita comparison - both in energy consumption and emissions. Comparisons with Austria and Germany are particularly striking. Ireland's total fuel consumption in 2010 was 12 MTOE[9], 66% above 1990 levels. While EPA data published in October 2013 shows a reduction of 5.9% in 2012 (on 2011 emissions), this is attributed to a milder winter, and not efficiency measures.

The fundamental problems of a poorly insulated national building stock and inefficient fossil fuel use, both residential commercial and public sector, allied to high levels open peat and coal fires, taken together with individual oil and gas central heating systems across the residential sector, are not being remotely grasped. Combine this with the failure to provide an exit strategy for ceasing peat and coal use in electricity generation and the work ahead the Department is significant.

The consultation document states that:

> *...energy efficient gains achieved to the end of 2012 account for over 36% (11,350GWWh) of the 2020 target*

This target does not meet the level of efficiency gains needed to contribute to Ireland's EU target – to secure an overall 20% reduction of emissions by 2020 - or the higher targets which will be required if an effective climate agreement is to be secured by 2015. The strategic planning for the much higher emission reductions that will be required post 2020 is not yet remotely in place.

Ireland's second national Energy Efficiency Action Plan was published in late 2012, and contains 97 actions to deliver a 20% energy saving by 2020, with a 33% target for the public sector. This target is inadequate since it does not adequately address Ireland's high per capita energy consumption, and the level of emission reductions in

[9] Million Tonnes of Oil Equivalent

the heating and transport sectors that will be needed to met to achieve the EU 2020 target. Research has shown that the regarding public sector targets: they are not disaggregated according to achievability; the start date baseline is vaguely defined enabling over-estimates of 2020 achievement; energy suppliers are poorly regulated; and achievement is already seriously compromised by a lack of applied expertise and underinvestment in long-term energy management measures due to short-term focused budget cutbacks (see summary of Price, 2012[10]).

Government departments continue to ignore the fact that the combined future sectoral cumulative total emissions (CTE) must add up to Ireland's national CTE, its fair portion of the global CTE. Given this reality, projected emissions of the Department of Agriculture Food Harvest 2020 policy, forecasts that agricultural emissions will grow. Food Harvest 2020 has already resulted in a 3% increase of agricultural emissions in 2012 over 2011 levels. If this is to occur then the Energy Policy needs to acknowledge that a corresponding decrease in Energy emissions is required by immediately making greatly increased investments in energy saving and decarbonisation of energy supply. This is what carbon budget accounting means.

Current Irish policy and fiscal measures for achieving energy efficiency targets are undermined by:

- the lack of climate legislation with legally binding with legally binding sectoral targets,
- An inadequate level of carbon tax,
- The failure to ring-fence carbon tax revenue in energy efficient, low carbon investment,
- The failure to link the Budget 2014 home improvement tax relief scheme to energy efficiency, and
- The lack of any significant investment programme in insulation and efficient heating systems households in fuel poverty dependent on Social Protection fuel allowances with an annual fuel grant OF 211 Million Euro
- Lack of effective support for CHP and district heating schemes
- Lack of support for local area street or community energy co ops
- SEAI grant funding of new gas and oil heating boilers perpetuating fossil fuel dependence

Recommendation

Adopt binding annual greenhouse gas reduction targets as part of an effective national Climate Change Mitigation and Adaptation Act with cumulative total emission targets for all sectors including electricity generation, heating, agriculture and transport. Carbon budgeting requires that increased projected emissions in any one sector must result in corresponding decreases in another sector.

Impose effective legal and regulatory provisions to meet progressive energy efficiency targets and in particular phasing and terminal dates for sale and distribution of coal production and distribution of briquettes of peat and extraction of all sod peat.

[10] http://issuu.com/sustainabledevelopment/docs/wip_4_poster

Promote higher standards in the Building Regulations:

- Efficiency standards for all heating and ventilation systems;
- Standards for all energy systems appliances and installations in all sectors;
- Thermal performance installation building materials installation standards inspection and certification to meet progressive energy efficiency targets;
- Adopt model of most progressive European standards in Germany and Austria;
- Standards for production cultivation and use of biomass both imported and cultivated within Ireland to ensure avoidance of land-use conflict with biodiversity and food production and low carbon cycle rating.

Introduce more advanced fiscal measures:

- Ireland should take international leadership in advocating the phasing out and removal of all current **fossil fuel subsidies** and the introduction of a **carbon accounting measure** that taxes all GHG producing fuel and energy sources, including biofuels and biomass, according to their carbon intensity, fully covering all stages of the energy production process.
- Remove fossil fuel subsidies and apply adequate carbon tax to all sectors allowing for social protection and households in fuel poverty.
- Extend carbon tax to peat sod extraction.
- Amend 2014 Budget Home Renovation Incentive Scheme which provides tax relief for home renovation works between 5,000 and 30,000 to require that all eligible works should be contingent on the dwelling unit being maintained or upgraded to a higher energy rating.

Provide a support structure in both urban, village and rural areas for residence, landowners and business to initiate area based energy efficiency schemes and energy sourcing from range of low carbon sources.

Support of pilot schemes in alternative energy sources to fossil fuel such as biogas combined heat and power (CHP).

Take more progressive sectoral actions in areas such as:

- Residential:
    - Public Housing Stock: Adopt anannual clear target for retrofitting public housing stock local authority and voluntary housing associations with an appropriate annual budget and measurement of annual emission savings on tenant fuel subsidy.
    - Household's Dependant on Social Protection Fuel Allowances: Annual budget and support of energy efficiency measures for old age pensioners and other fuel allowance dependant households/units with measurement of annual emissions savings and reduction of fuel subsidy. By simply reallocating the existing allowances toward building upgrades for those in fuel poverty can demonstrably reduce fuel poverty, decrease emissions and greatly increase health outcomes producing very large long term societal benefits and

exchequer savings (see summary of Scheer, 2012[11]).
    - *Other Housing Stock*: Recognition of varying income levels, levels of fuel poverty, levels of efficiency and thermal performance and capacity of households to invest in or to participate in the proposed 'pay as you save' (PAYS) scheme to be introduced.
- Commercial/Industrial
    - *Tax Relief Measures*: To invest in energy efficiency contingent on appropriate standards.
- Public Sector
    - Adequate budgetary technical support and implementation measure for all state and public body, local authority, HSE and schools to achieve energy efficiency targets including investment in retrofitting and alternative heating systems.

The Energy Policy, must be cognisant of other development policies affecting energy and, therefore, must have the overall objective of significantly reducing transport demand by creating compact walkable settlement patterns and include detailed policies on walking and cycling.

5.5.2 Carbon Stores

An Taisce disagrees with the justification for further subsidies for peat-burning, as suggested in an Annex to a press release issued by the Department of Energy on 8 July 2014[12]. Referring to an as-yet unpublished bioenergy plan, the above-mentioned press release states that Ireland '*proposes to introduce an Exchequer-funded Renewable Heat Incentive (RHI) in 2016 subject to State Aid approval from the European Commission and further Government approval*'.

Critically, the same Annex continues, stating that '*the Plan also recommends the continuation of existing bioenergy measures such as REFIT 3 which rewards the generation of electricity from biomass, including co-firing with peat...*'

In very specific terms, An Taisce would ask that any new REFIT scheme does not make available any state support (financial or regulatory) in situations where co-firing takes place with peat. This is in order for Ireland to comply with EU law and on environmental, financial and reputational grounds.

Co-firing with peat, which currently takes place at the Edenderry power plant, involves burning 78% peat and 22% biomass (2012 data). To seek to introduce a subsidy based on the biomass element is to either

1. create unfair conditions in the market for biomass, which is unlawful;
2. to cross-subsidise the burning of peat, which is similarly unlawful, or
3. engage in some combination of the first two unlawful activities.

[11] http://fuelpoverty.eu/2012/08/28/alleviating-energy-poverty-in-ireland-an-efficient-sustainable-approach/
[12] http://www.dcenr.gov.ie/Press+Releases/2014/Bioenergy+Plan+agreed+by+Government.htm

It might be argued that subsidisation through energy bills paid for by customers could take the payments outside of State Aid. An Taisce does not agree that routing the subsidy through the Commission for Energy Regulation (i.e. placing the financial burden directly on consumers) takes the proposed measure outside the definition of State Aid. Clearly, the REFIT programme is itself Government-created, bringing the fiscal transfer within the definition of State Aid.

Any subsidy (referred to above) would be much better spent up skilling employees to undertake home energy saving enhancements. Subsidies to peat-burning power stations have been rising steadily since the mid-2000s and now stand at €60 - €80 million per year. These subsidies, which were introduced in 2001 and are set to run to 2019 (in the case of two of Irelands three peat-burning power plants), will amount to far more than half a billion euro by 2019. If it cost €35,000 to up skill an employee at a peat plant (or someone in the associated supply chain), then the up skilling of 700 direct / indirect employees would incur a once-off cost of €24.5m. Based on a good quality home-energy retrofit costing €35,000, then 1,000 homes year could be enhanced for €35 million. The foresight to embrace such an annual programme would, after a number of years, see more energy saved than is generated by the peat-burning plants annually.

When introduced in 2001 the policy basis for peat subsidies was energy security. And it was never envisaged that so much money would be paid out for so little electricity. As we can now see, energy saving can better achieve the energy security objective sought – and at far lower cost to consumers and taxpayers.

Due to the dysfunctional nature of the Emissions Trading Scheme, the environmental and social costs of the circa 3 million tonnes of C02 emissions emitted by the peat-burning power stations are not currently paid. Nominating an (extremely low) figure of €30 per tonne for the environmental and social costs of CO2 emissions, the true average annual cost is €90 million p.a. higher than that currently accounted for, i.e. another half a billion euro by the end of 2019. Clearly, state aid to continue peat burning makes no financial sense.

Ireland is attempting to prevent peat extraction on bogs designated under Natura 2000. If any new scheme of direct or indirect subsidies for peat-burning power stations is introduced, advocates for continued household burning of turf / peat - particularly those extracting on EU protected bogs - will note the encouragement given to large commercial entities to burn peat to the point of being paid to burn it. "*With peat being such a valuable store of carbon, why is the Government giving subsidies to large operators to extract and burn it*?" turf cutters on Natura 2000 bogs are entitled to ask. Such questions expose the policy shortcomings (to put it gently) at play regarding peat in Ireland, with three departments (Dept of Environment, Dept of Arts & Heritage and the Dept of Finance) increasingly recognising peatlands as a valuable store of carbon but another department (Energy) seeking approval to put a scheme in place to give out consumers' money to sending this valuable resource up in smoke.

With the success of attempts to secure the protection of the Natura 2000 bogs far from assured, the Department of Energy would be adding fuel to what is recognised as a very difficult fire.

Time and again in Ireland we ask other counties to protect their rich stores of carbon, the compromising of which worsens climate change. Peatlands are one of the world's most important ecosystems. Covering a mere 3% of the world's terrestrial surface, peatlands contain 550 Gigatonnes (Gt) of carbon making them the most important long term carbon sink in the terrestrial biosphere. This ability of peatlands to store CO_2 and other greenhouse gas means they have a net cooling effect on the global climate. It has been estimated that in the last 10,000 years since the last Ice Age the atmospheric carbon sequestered in peats has served to reduce global temperatures by about 1.5 – 2 °C.

In terms of encouraging the fostering of terrestrial carbon sequestration Ireland is uniquely placed. The Republic of Ireland is third only to Finland and Canada in proportional area of peatland cover. According the EPA's Bogland report (2011) peat soils cover 20.6% of Irelands national land area and contain more than 75% of the national soil organic carbon. Near-intact peatlands may actively sequester c. 57,402 t C/year over the whole country.

Neither our past nor our current management of peatlands in Ireland has been sustainable. Disturbances in the form of industrial and domestic peat extraction, private afforestation, overgrazing, wind farms and recreational activities have had and are having major negative impacts on the hydrology and ecology of these habitats. There are no more intact raised bog landscapes in Ireland. The current area of active raised bog stands at a mere 2,000 ha, less than 6% of the protected raised bog area. It is estimated that between 2% and 4% (40–80 ha) of this active area is being lost every year mainly as a result of turf cutting. Even if turf cutting were to cease, peat oxidation would continue (due to drainage) unless measures were employed to stop and revert the deterioration. Damaged peatlands are a persistent source of carbon dioxide (CO_2) and, at the national level, Irish peatlands are a large net source of carbon, estimated currently at around 2.64 Mt C/year.

Carbon dynamics should be a key driver of Energy Policy. The rewetting and restoration of peatlands has the capacity to secure existing carbon stocks and reinitiate the carbon sequestration capacity of degraded peatlands. International climate change talks have agreed that carbon savings from rewetting drained peatlands, and other forms of peatland restoration, may be used to meet emissions reduction targets, alongside those from other land use activities such as new forest planting.

Peatland restoration projects have been recognised by the Kyoto Protocol and should be incorporated into Energy Policy. Active and remedial management options, such as avoiding drainage (conserving) and re-wetting may be effective ways to maintain the carbon storage of peatlands and to recreate conditions whereby the peatland may actively sequester carbon in the future.

Ireland's forests have also been identified by the Irish authorities as a potential area where we can increase carbon sequestration. Outside of commercial forestry and native woodland establishment the enhancement of hedges/trees/field margins have been identified as a way to improve carbon storage across the Irish landscape. While Ireland was once largely covered in broadleaf woodland we now have the second lowest level of forest cover in the EU. Globally Ireland therefore is one of the countries with the greatest potential for afforestation. One of the aims of Ireland's national forestry policy is to encourage planting by private landholders in order to achieve a forest cover of 18% by the year 2046. This is a conservative goal given the fact that the EU average is above 30%. At the end of 2012, forests covered 10.5% of the Ireland's land area.

Forestry is one of the tools which must be fully utilised nationally to deal with the threat posed by climate change. By increasing Irelands forest cover a significant carbon sink will be established. Increased native forest cover would also provide other ecosystem services such as flood mitigation and it could provide a sustainable source of biofuel to offset future reductions in fossil fuel use. Biofuels produced through coppicing native species of willow (Salix), alder (Alnus glutinosa) and birch (Betula pendula and Betula pubescens) could be used as an alternative to turf thereby facilitating the conservation of our peatlands.

The Department must be become informed of the current situation globally in relation to carbon credits. There may be the possibility that a scheme could however been developed within Europe that that also focuses on the role of conservation, sustainable management of forests, and the enhancement of forest carbon stocks.

However, as is the case with any of these environmental actions that affect carbon conservation and sequestration, the need to enhance and improve this must also be considered against the potential difficulties in terms of measurement, controls and verification of carbon sequestration.

Recommendation

The Department should not proceed with further subsidies for peat-burning, as suggested in an Annex to a press release issued by the Department of Energy on 8 July 2014 and instead invest this finance in energy saving measures.

The Energy Policy must state that peat-based electricity generation will cease immediately and provide a timetabled phase-out of all peat, coal and oil in domestic heating.

The Energy Policy must be driven by carbon dynamics, which would include measures for the rewetting and restoration of peatlands which have significant capacity to secure existing carbon stocks and reinitiate the carbon sequestration capacity of degraded peatlands.

The Energy Policy should recognise and support peatland restoration projects including active and remedial management options, such as avoiding drainage and re-wetting.

The Energy Policy should promote forestry as one of the tools which must be fully utilised

nationally to deal with the threat posed by climate change. By increasing Ireland's forest cover a significant carbon sink will be established.

5.5.3 Cumulative Total Emissions

The findings of the 5th Assessment Report of the IPCC have changed the climate equation. There is now an overwhelming scientific consensus that:

- Greenhouse gases (GHGs) generated primarily by human activity are causing increasing global warming;
- Carbon dioxide accumulates in the atmosphere and will remain for millennia: the disruption now being created in the globe's climate systems will be irreversible on human timescales;
- There is a direct linear connection between the total amount of CO2 and similar gases accumulated in the atmosphere and the consequent increase in the global average temperature;
- We could, collectively, stop ratcheting up this global thermostat – but thus far we are not doing so.

At Copenhagen in 2009 the international community agreed that it is essential to limit the increase in average global temperature to a maximum of 2ºC (above pre-industrial levels) to set some absolute limit on the risk of catastrophic climate change on a global scale (which would affect all nations, all peoples). It was also agreed that this should be done on the basis of equity between nations.

To date the policy responses and plans proposed nationally and internationally to stay within this limit has failed to incorporate the inexorable logic of the mounting toll of cumulative total emissions. Not only has the absolute amount of greenhouse gases in the atmosphere continued to rise inexorably, but even the rate of this rise (the "annual emissions" that add to the accumulated total each year) has increased. Far from applying the brake, we are actually accelerating toward known disaster.

Most proposals are of the 'percentage decrease in annual emissions by X date compared to Y date' kind without any explicit ceiling on what these annual emissions will still add up to year after year. But it is only the latter that matters for ultimate climate change impacts. This accumulation has already reached dangerous levels. It is as if we are driving on a motorway at 180kpm – at night, it's raining hard, and there is a dense fog; and the radio has just warned of a pile-up within the next kilometre (or less). Planning merely to "start slowing down" is not enough – we have to come to an emergency halt (zero nett emissions) and we must do so within the uncertain, but rapidly diminishing "stopping distance" that is set by the now tiny remaining cumulative GHG "capacity" before planetary climate stability is irreversibly disrupted. Only the latter finite "stopping distance" formula applied across all sectors can ensure that we respond meaningfully, proportionately, and in time. By contrast, the 'percentage decrease' approach - aspiring to slow down, and even that only in "the long term" - facilitates significant political obfuscation and delay in taking action, and can result in a sustained and substantial increase in emissions before reductions even start to be implemented ("let's just continue to accelerate a little longer – sure

we can just pay a speeding fine if we get caught ...”). Every delay, every extra tonne of carbon emitted, adds permanently to the long-term burden and cumulative impacts on coming generations and ecosystems. “Slowing down” emissions sometime in the future will not be able to undo, mitigate or reverse any of that.

The bald fact is that the “safe” atmospheric GHG capacity is being rapidly used up. On current trends, it could be fully exhausted in as little as another 20 years. Once it is gone, it is gone. A global agreement to achieve radical emissions reductions in the short-term must be based on an understanding of this implacable 'cumulative total emissions' or CTE limit. The consequence of this is that all sectors of society and all nations must engage in rapid and extensive emissions reductions based on a calculation that reflects their remaining allowable contributions to the cumulative total. The wealthy developed countries with long track records of emissions must accept much lower limits to their share of the finite remaining cumulative GHG capacity (after which they must cease all nett emissions entirely).

Attached as an appendix is a more detailed commentary on Cumulative Total Emissions

Recommendation

The Energy Policy needs to recognise and accept this physical, chemical, ecological and political environments. Every day of delay, with continuing, accumulating, emissions renders the challenge of averting highly disruptive climate impacts more intractable. The potential impacts include drastic food, water and energy shortages, major population movements, widespread species extinction and ecosystem collapse.

The Energy Policy must be informed by the global CTE constraint and make it underpin the international negotiations leading to the proposed climate agreement to be endorsed at CoP21 in Paris.

5.6 Driving Economic Opportunities

The Energy Policy places particular emphasis on the importance of the economy. It should be remembered **the economy is a 'wholly-owned subsidiary' of the natural environment** – on the island of Ireland, regionally and globally**.** An unhealthy environment will result in an unhealthy society and economy and ultimately in collapse of the ecosystems on which society and civilisation depends. Although the link between sustainable economic development and natural resources has been widely ignored and eschewed by conventional economic policy makers, the onset of climate change and energy scarcity is precipitating a long overdue reappraisal of this costly misjudgement.



The Economy is a subset of the Environment and Society

Understandably much of the current national political and media focus is on promoting economic development and employment. All mainstream commentators and politicians eulogize the accepted wisdom of the virtues of a return to economic growth as the conventional solution to our current economic, unemployment and fiscal difficulties. However, it should be borne in mind that there is an inherent contradiction between the current model of economic growth and environmental and resource sustainability. Our society is currently locked into an economic system that has a GDP growth imperative that is based on increasing fossil fuel energy demand, increased greenhouse gas emissions, especially from transport and agriculture, and increased resource throughput and depletion.

Our ecological debts are as unstable as our financial debts. Neither is properly accounted for in the relentless pursuit of unsustainably-based consumption growth. This contradiction is placing further pressure on the carrying capacity of the environment to support society and the economy. Claimed 'growth' based on decreasing future capacity is not growth, like the Celtic tiger's burst bubble it will prove short-lived unless a radical change to a sustainable course can be achieved through public involvement and strong planning. If the rest of the world does not also alter change course then at least Ireland could develop a more resilient course in an increasingly dangerous future.

Current efforts are additionally hampered by using GDP as a measure of economic growth. GDP is a highly imperfect and counter-productive measure of human progress as it measures only income and does not account for the consumption of natural capital (resources), social inequality or the significant costs of anthropogenic pollution[13].

For example, a 2 per cent per annum growth in GDP would mean the carbon occasioned by each unit of economic output would have to be 130 times lower in 2050 than it is today otherwise we cross a threshold in terms of carbon emissions from which future generations are unable to recover. Economic growth is therefore inconsistent with the requirement to abate greenhouse gas emissions or reduce oil dependency. In any event, 2% GDP growth would mean the total size of the Irish economy would double every 35 years. This is not physically possible in a finite world and we should therefore not be planning for it. To seek to double the size the economy over the next 30 to 40 years is counterproductive; to meet with success with such a wrong-headed objective is to further impoverish our children and their children.

Current Government policy is to promote the Smart Economy and a return to an export-led economy. While this strategy has many virtues it is based on the premise that Ireland cannot compete with manufacturing industries in low-cost developing nations in a globalised economy. As a consequence, the structure of modern developed economies such as Ireland has typically tended to move progressively away from domestic manufacturing resulting in more and more finished and semi-finished goods needing to be imported from abroad and expanding the financial and services sector to pay for it. Of course, this strategy is extremely vulnerable to global economic instability, oil price inflation (for transport) and outsources environmental degradation to less regulated countries.

Current national economic development policies demonstrate a long-term blindness to the limitations of the physical world. Responses to the crisis which aim to restore the status quo are misguided and doomed to failure. Income today means nothing if it undermines the conditions upon which the prosperity of tomorrow depends.

Continued GDP economic growth in the Irish economy is unlikely and, in any event, is unsustainable in the long-term. It is prudent to plan now for a different economic future including low-growth, no-growth or contraction scenarios. The Energy Policy must move quickly to a plan to accommodate higher and more volatile energy prices (and high material costs too) and to use this window of opportunity to transition the country into a post-carbon, low energy, low consumption and resilient state.

Recommendation

Given the impacts of energy scarcity continued GDP economic growth in the Irish economy is unsustainable in the long-term. It is prudent to plan now for a different economic future including low-growth, no-growth or contraction scenarios.

In light of conventional peak oil, the Energy Policy must plan for higher and more volatile energy prices (and high material costs too) and to use this window of opportunity to

[13] Prosperity without Growth – The Transition to A Sustainable Economy, UK Sustainable Development Commission, 2009

transition the Ireland into a post-carbon, low energy, low consumption and resilient region.

The Energy Policy should promote use of an "Oil Vulnerability & Carbon Price Impact Assessment" on proposals to 'drive economic opportunities' to explore the threats from inflated and volatile oil prices together with the future (shadow) price of carbon. This should be undertaken for both capital and operational functions.

6.0 Implementation & Monitoring

Over the past fifteen years there has been no shortage of very well intentioned policy statement documents published in Ireland by Government, Quasi-Government and Non-Governmental Organisations.

However, the reality has been (and remains) a widespread absence of implementation and an almost complete divergence between policy and practice. Policy guidance documents have been heretofore habitually ignored in favour of pressing short-term economic requirements, the requirement to promote commercial rate revenue and lobbying from special interest groups. As a result and it must be recognised, the direct legacy of the recent 'Celtic Tiger' era and associated expansion in construction activity is that Ireland now has one of the most unsustainable, economically inefficient, structurally weak and spatially dispersed settlement patterns anywhere in Europe. In the current economic circumstances within which Ireland finds itself, there is a very real danger that we will revert to the failed and near-sighted *'all development is good development'* mantra of the past without paying adequate attention to the long-term consequences and costs.

It is therefore submited that it is now, more than ever, of paramount importance that the Department moves beyond the mere rhetoric of commendable policy objectives within the text of the forthcoming Energy Policy and towards **robust targets, actions and measures** to achieve the tangible implementation and a transition to a low-carbon, low-energy and sustainable society. Implementation of policy has been the Achilles heel of development in Ireland and must therefore now at this critical juncture be the focus of the Energy Policy.

Recommendation

The Energy Policy must include a detailed implementation and monitoring schedule which outlines the manner in which the Energy Policy envisages the future development of Ireland

A designated implementation group must be appointed to oversee the implementation of the Energy Policy and ensure joined up thinking between all government departments.

7.0 Conclusion

The Energy Policy must provide a transition to a low-carbon society and economy and to mitigate the significant risks associated with rising energy costs and climate change adaptation. The Energy Policy must be methodical, evidence-based in approach and demonstrate rational 'joined up' assessment for Ireland's energy future.

Given the clear and present dangers of inaction business-as-usual is no longer an option, system change is required in governance, societal behaviour and economics. We can no longer afford to continue the pursuit of the failed, short-sighted policy approaches of the past and must ensure that our collective future will contribute to reducing avoidable risks and building resilience to damaging impacts associated with climate change and energy scarcity.

It is critical that the urgency of necessary rapid and deep decarbonisation is appreciated by the public. The Energy Policy needs a strong focus on public engagement to increase the level of debate will be greatly enhanced by appreciating projected global climate and energy reality debate. Any transition to a low carbon future must be based on the reality of cumulative carbon budgets and be informed by the work of the IPCC and the monitoring of the EPA, otherwise short-term political deference to local preferences and short-term cost saving will in the long-term prove costly both socially and economically.

The international and national economic recession has provided a narrow window of opportunity to take action to concentrate investment and focus policy on the transition to a post-oil, low-carbon, globally respectful and locally resilient society. This is the major challenge of our time and requires urgent understanding of the nature and scale of the unprecedented consequences which will confront us if we do not take dramatic action in the near-term.

This will require decisive political leadership and a radical change of direction together with robust and, in some instances, radical policy implementation which only is politically acceptable in the near-term if the risks are effectively communicated to the public. The coordinated actions of all government departments are critical to effective action and the statutory planning system, through the regulation of physical development and land use, has a critical role to play in facilitating this transition.

The success or otherwise of the forthcoming Energy Policy can only be judged against verifiable and implementable criteria which are subject to ongoing monitoring.

8.0 Appendix

'Cumulative Total Emissions' Must Be Stated For National and Sectoral Climate Policies

This An Taisce briefing explains that any climate policy must state the intended emission path and associated cumulative greenhouse gas emissions. Current government policy statements are therefore entirely inadequate, encourage inaction and are thereby deeply misleading.

An Taisce Climate Change Committee
By Paul Price
5th July 2014

Cumulative Total Emissions Determine Global Warming

The IPCC Fifth Assessment, the most intensive expert assessment of any subject ever undertaken, endorsed by the world's leading climate scientists and also by all participating nations, states:

> *Cumulative emissions of CO2 largely determine global mean surface warming by the late 21st century and beyond.* *IPCC AR5 WG1 SPM 2014:27*

In other words, the sum total of past, present and future, human-caused emissions added to the atmosphere linearly determines the resulting level of global warming. It has long been well understood that adding additional carbon dioxide (CO_2) to the atmosphere causes surface warming, now the IPCC assessment has endorsed the science showing that every tonne of carbon adds to the accumulating carbon in the atmosphere by human activities directly produces a defined added amount of irreversible global warming. Every tonne added has effects that will last for hundreds of thousands of years; this is why action is so critical to making the best possible future.

We now know, within a confidence interval, how much carbon can be emitted for any policy-stated limit to average global surface warming above pre-industrial average temperature. For the politically accepted 2ºC limit that Ireland has agreed to, the total remaining carbon that can ever be emitted by future, human-caused fossil fuel use and land-use globally will be entirely used up within 25 years. This is a choice humanity is making now through the policy decisions being made every day. Instead of business as usual the remaining atmospheric emissions capacity for 2ºC must be made to last much longer by acting urgently and radically to peak and reduce global emissions as soon and as equably as possible. Wealthy countries like Ireland must act fastest and invest most. This is the only logical science-informed interpretation of Ireland's commitment to the Copenhagen Accord to restrict global warming to less than 2ºC in line with science's findings and global equity.

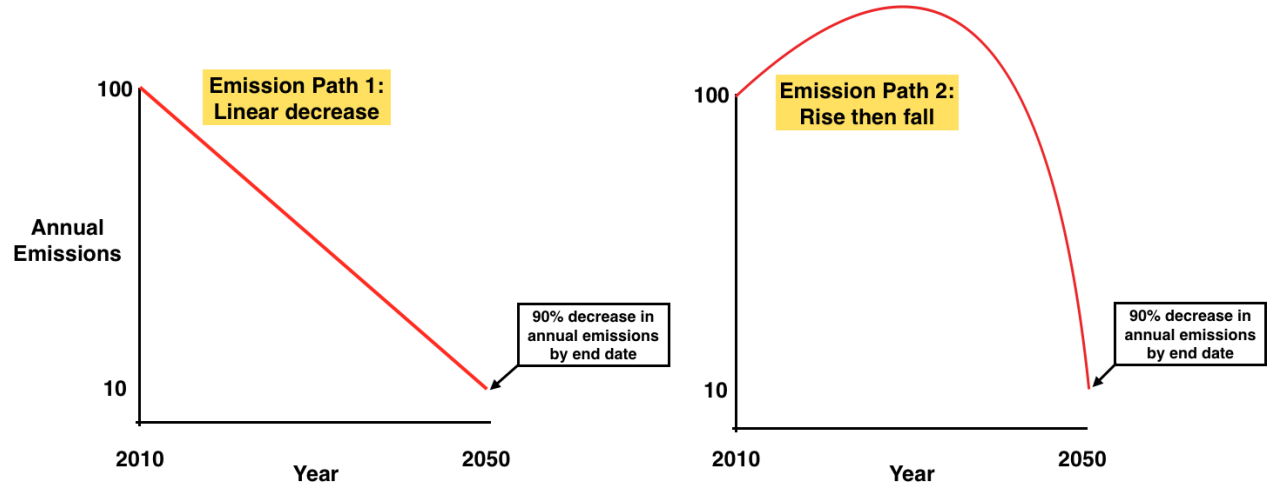
Continuing as we are risks climate impacts likely to be increasingly intolerable to human and ecological systems. Defining national emission paths and future cumulative emissions is critical to defining a global emission path to limiting the irreversible climate change now occurring. To drive innovation and inspire hope Ireland can and must develop climate policy based on reality.

Current Climate Policy: What Could Possibly Be Wrong?

Currently, standard climate policy phrasing – in Ireland, the EU and around the world – is to say something like: starting in 2011 "we aim to reduce annual carbon emissions by 90% by 2050", a percent decrease in annual emissions by a certain date relative to another date. This sounds like a worthwhile aspiration but note that there are two potential problems: first, only the start and end points of the policy are specified; and second, no 'emissions path' of annual carbon budgets over the period is identified.

This is very convenient politically. Governments at the start of the period are not bound to any emission path so they can increase emissions if they like, claiming that emissions can always be decreased later and governments at the end of the period can blame previous governments if they don't meet target. Also, and importantly given that the science is now very clear that it is sum total emissions that matter, there is no mention whatsoever in this policy wording of a need to constrain the sum total of the emissions over the period.

For example, here are two alternative emission paths for this proposed 90% decrease in annual emissions over the time: Emissions Path 1 shows a linear path with a steady decrease in annual emissions over time and Emissions Path 2 shows the politically attractive continued rise in emissions and the difficult, perhaps unachievable, sudden drop in emissions needed to meet the target value for 2050.

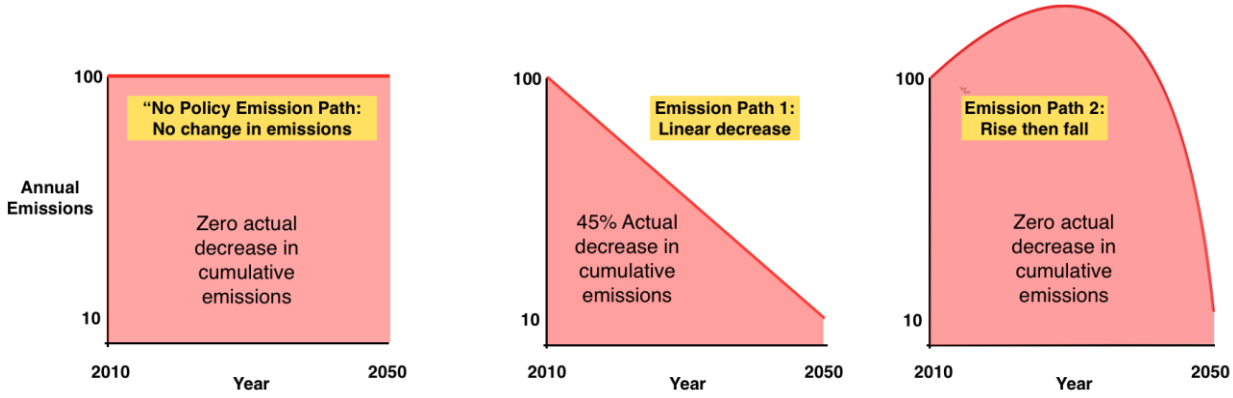


Cumulative Emissions Shows What's Wrong

Now, let's look at the cumulative emissions for these two alternative emission paths. Cumulative total emissions are simply calculated by adding together the annual emissions values for every year of the period. Visually, the cumulative total emission is the same as the area under the Emission Path.

In the figure below, the left hand chart shows a "No Policy" emission path where the annual emissions stay the same in every year as they were for the first year of the period. In the No Policy path and for Emission Paths 1 and 2 the area below the paths, equivalent to the cumulative total emissions is shaded. As shown, the "No policy" case gives a good

basis with which "Policy" pathways can be compared in terms of cumulative emissions, meaning the areas under the emission paths shown by the red lines.



Even at a glance it is obvious that in terms of cumulative emissions these three alternatives present very different climate outcomes with profound implications for climate policy statements and targets.

For Emission Path 1 compared with "No Change Policy" it is clear that the claimed "90% reduction in emissions" is true only in comparing the end year against the start year annual emissions. But from climate science we now know that only cumulative emissions matter for any climate policy informed by reality. In fact then, the real decrease that can be claimed for this linearly decreasing pathway to the target is not 90% but only 45%.

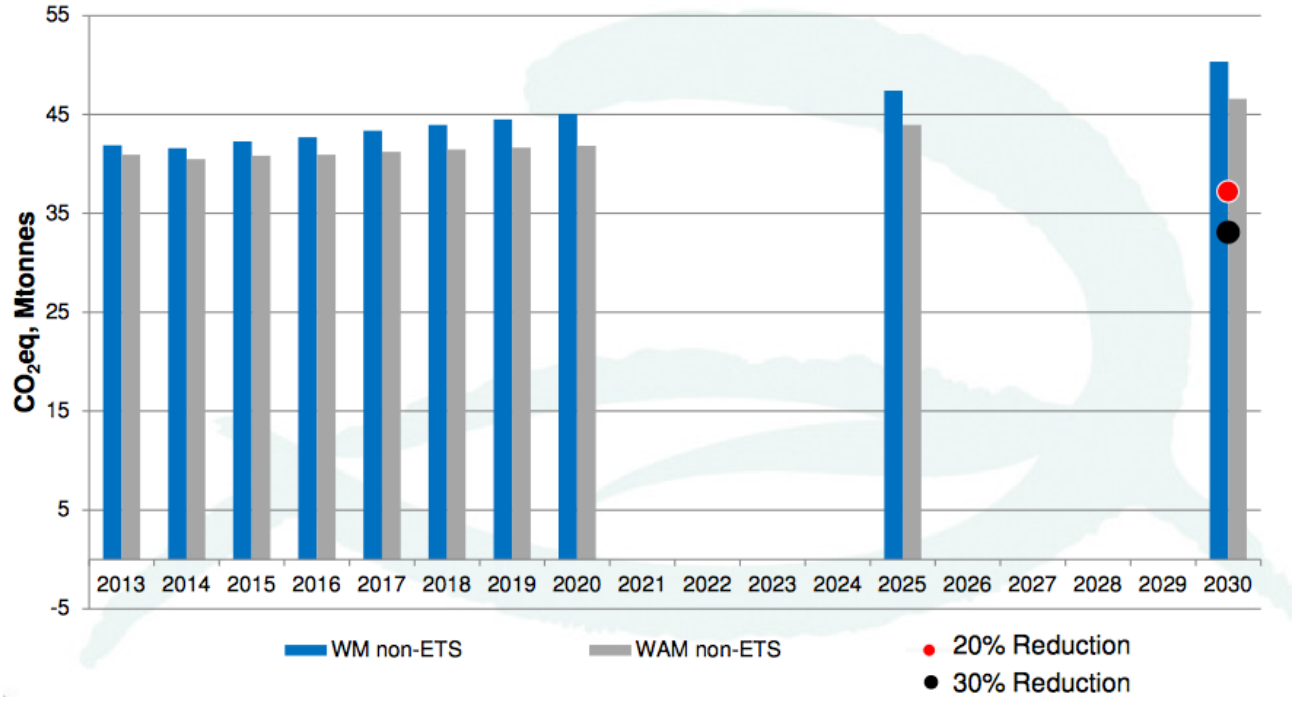
Much worse though is Emission Path 2. Again it is true that the claimed "90% reduction in emissions" is true in comparing the end year against the start year annual emissions annual emissions. However, visually it is obvious that the area under the curve is much the same as for "No Policy", so despite apparently achieving a "90% reduction in emissions" the actual policy-relevant cumulative emissions 'achievement' is of no benefit at all. Note also that in the entirely likely event that the end period steep annual emissions decline was not to be achieved and the target is missed then the cumulative emissions would be higher than the No Policy case. The EPA in particular should be pointing out this fact to the public and to government.

The conclusion is obvious. Any serious climate policy means declining emissions steadily year on year with as steep as emissions path as possible. The only way of achieving this is for all political actors to agree this and to publicly state the emissions path and the associated cumulative emissions that need to be followed. Any year in which annual emissions exceed the budgeted emissions for that year will have to be made up by lower than budgeted emissions in succeeding years. Variation is bound to occur but a real climate policy would strictly enforce the national carbon budget and penalise sectors with excess emissions. This policy approach is not only the safest but also the surest in giving certainty to the economy, inspiring innovation in the right direction

Any other approaches, the current policies and proposals included, are both unethical and dangerous, we should say so.

So How Is Ireland Doing?

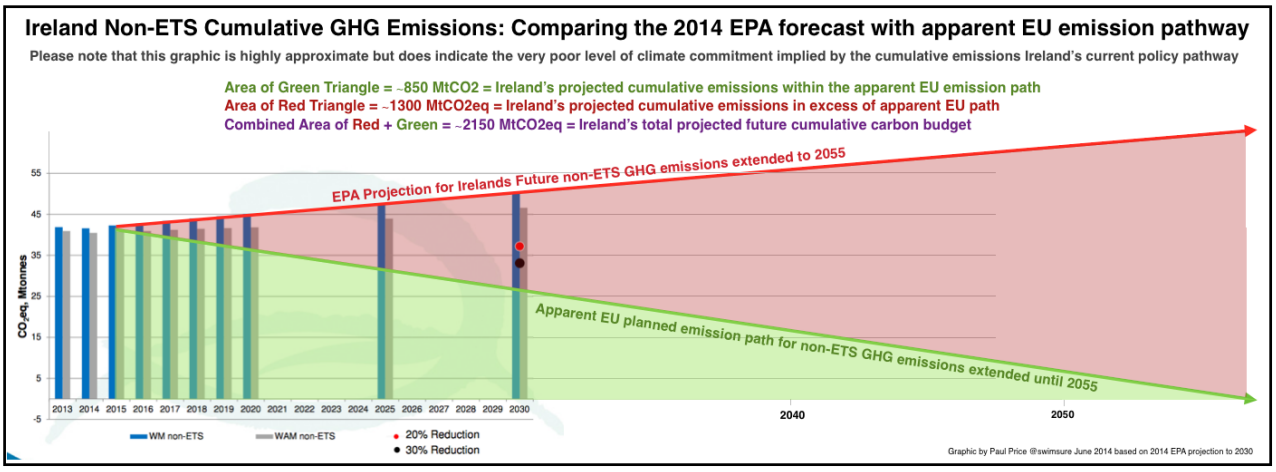
Let's look at the projected emissions path for Ireland as indicated approximately in the recent non-ETS emissions projections by the EPA up to 2030, blue and grey bars in the figure below. Note that the 'With Additional Measures' (WAM) policy proposal is very unlikely to be achieved and even the 'With Measures' (WM) policy seems increasingly ambitious if investments are not increased soon to achieve the 'measures'.



Looking at this it is evident that, Ireland's projected non-ETS emissions are projected to rise whichever scenario is used. This is not the emissions path of a wealthy country that is serious about climate policy.

Next let's use the above figure as a very rough approximation of the future and compare Ireland's cumulative total emissions for the projected non-ETS emissions 'With Measures' policy against a linear decrease EU policy to 90% of current emissions by 2050, see figure below.

Ireland's projected cumulative emissions are the total area under the red emissions path line – this is given by summing both the red and green triangle areas. The EU climate policy trajectory for Ireland is given by the area of the green triangle. (As above this linear 90 percent decrease in annual emissions is in fact only a 50% cut in total emissions compared to "No Policy").



Contrary then to Ireland's existing binding commitment to cut emissions by 20% by 2020 the Irish government is actually following a path to increase them. This is bad enough, but worse still, the total Irish cumulative emissions up to mid-century amount to well over double that for the EU trajectory, effectively stealing emissions from the future and committing others to increased dangerous climate risk. This goes unmentioned and unacknowledged but it is unacceptable.

Wishful Thinking is not a Climate Policy

It is clear that Ireland's government, government departments and agencies do not understand climate policy and do not want to understand climate reality. The proposed climate legislation has no specified emission paths or cumulative emissions limits. Sectoral policies proposed by Teagasc, the NRA and SEAI lack any such statements. The Department of Finance is seemingly entirely unaware of climate policy. The EPA is providing inadequate advice even though their scientists are well aware of the IPCC's conclusions. This level of failure cannot be allowed to stand.

The absence of a reality-based emission policy in Ireland will be costly in EU fines, notably these will be paid by the Irish taxpayer rather than the sectors that cause the excess emissions. Most importantly, inaction in controlling Ireland's emissions directly contributes to the current excessive Irish responsibility for irreversible global warming. The climate instability that Ireland is over-contributing to will be a direct cost to the future global economic system and the international security on which Ireland's prosperity and our future will depend.

As the IPCC state:

> *Limiting climate change will require substantial and sustained reductions of greenhouse gas emissions.* *IPCC AR5 WG1 SPM 2014:17*

In other words, business as usual (such as Ireland's emission projection) is not an option. Therefore, a critical part of climate policy is to achieve an enforced global cap on carbon emissions ideally as soon as the UNFCCC COP in Paris, 2015. Without this agreement, local and national efforts are likely to fail because 'savings' in emissions and costs will otherwise be 'spent' somewhere, sometime by someone as economic and emissions history clearly shows they always are. Without an enforced global cap these rebound effects will undermine all successful efforts whereas a cap supported by strong carbon pricing would drive and inspire rapid social, economic and technical change toward a low carbon future.

Both government and the EPA should publicly spell out the very serious, negative ethical and risk implications of Ireland's cumulative emissions policy failure, otherwise they are not communicating climate reality to Ireland's citizens. Sectoral policies must add up to the national emission path to zero carbon.

If we can understand the extreme climate risk we now face and act, together with all humanity, to contain total emissions. To do that all of Ireland's political parties and people must jointly realise that any policy – national, sectoral, financial, economic, energy, agriculture, transport or power generation – must state the policy's associated cumulative

total emissions for all of the future. Any policy that does not address reality this is not a realistic climate policy.

This is a difficult fact to face but there is really no option except to act in accord with climate reality and spell out sectoral, national, regional and global emissions paths to the safest possible future. The global limit on all future carbon emissions must be observed if dangerous climate change is to be minimised. Every nation, Ireland included, must radically decarbonize as soon as possible; rich countries like Ireland soonest of all.