

A STRANDED ASSET?

THE FUTURE OF GAS NETWORKS IRELAND PIPELINE INFRASTRUCTURE.

Sheikh Yamani the former Saudi Oil minister memorably said that the Stone Age would not come to an end because people ran out of stone, in considering the future of oil.

The history of transport and energy over the last two centuries is one of progressive redundancy of technologies and infrastructural systems. Examples include the redundancy of horse drawn transport in favour of steam or motor engines, of gas lighting systems in favour of electric.

The future of the Gas Networks Ireland (GNI) development strategy needs independent scrutiny as to whether it can address:

1. The limit on future oil and gas consumption set by meeting Paris Agreement targets to stabilise global climate to as near as possible to 1.5 degrees over pre industrial levels.
2. The requirement to keep most known existing oil and gas in the ground known as “Unburnable Carbon “
3. The impact of directing State, and general investment resources into continued fossil fuel exploration, and infrastructure to accommodate continued use in all sectors including heating and transport in undermining the investment needed in the level of energy conservation and renewable needed to supersede fossil fuel.
4. The transboundary legal and cost exposure of Governments, Directors of oil and gas exploration companies, their professional advisors and consultants and regulatory bodies licensing increased fossil fuel exploration and exploitation from climate litigation.

Impact of continued exploration

Globally fossil infrastructure companies whether privately owned, PLCs or State Owned like Gas Networks Ireland (GNI) are promoting a continued level of fossil fuel extraction and consumption, which if burned is incompatible with the level of decarbonisation required to stabilize global climate at as near as possible to 1.5 degrees as required by The Paris Agreement.

The extension of oil and gas exploration into new areas, and using problematic new technologies, extends from the Arctic wilderness to Central Africa. The 2010 Deepwater Horizon spill clearly highlights the risks involved in deep sea drilling. Oil and gas extraction in the Niger delta has a high carbon impact and is the cause of major local pollution. The increased level of extraction from Canadian Tar Sands is devastating in environmental impact and generates a much higher level of emissions than conventional wells. The Keystone XL pipeline proposal to link Alberta to the southern United States highlights the mounting conflict between the fossil fuel lobby and climate science. Fracking in the US has created new environmental risks and has significant additional climate impact through methane leakage

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Directors: Philip Kearney, Christopher Massi, Patricia Oliver, Judy Osborne (British), John Pierce (Chair), Charles Stanley-Smith (Secretary, British), John Sweeney

during the extraction process. While Ireland has banned land based fracking, the proposed development of a LNG terminal in the Shannon Estuary would allow US fracked gas to be injected into the GNI network

The rise of Climate litigation

There is growing litigation across the world against fossil fuel exploration and extraction companies and State regulatory bodies, of with the current Friends of the Irish Environment Climate Case against the adequacy of the National Mitigation Plan and case against the Shannon LNG terminal in Ireland is part.

Oil and gas exploration and extraction companies and regulatory bodies which could include the Commission for Regulation of Utilities in Ireland in the future are facing an increasing number of lawsuits that aim to hold them responsible for the impacts of climate change. What the companies or regulators knew about their contributions to global warming will answer some key legal questions, including whether they have continued or issued licenses or consents for exploration extraction increased consumption and use of fossil fuel, while knowing they would cause public harm. Liability also extends to State and public bodies granting licenses for oil and gas exploration, extraction, and continuing or increased consumption.

<https://www.climateliabilitynews.org/2018/04/05/climate-change-oil-companies-knew-shell-exxon/>

These issues now face all oil and gas exploration and extraction companies and regulatory bodies in Ireland.

At the same time there is a growing momentum for institutional and pension fund divestment from fossil fuels, as fund managers may also be joined to legal action. .

New York joins [a growing chorus](#) of institutional investors that have committed to divest in full or part. Cities like Paris, Capetown, and San Francisco; [pension funds](#) like the California Public Employees' Retirement System; faith-based groups like the Church of England; philanthropies like the Rockefeller Family Fund; and universities like Oxford, Stanford, and Georgetown have mobilized to divest over \$6 trillion in total assets from the fossil fuel industry.

New York City is also [suing five oil majors](#)—BP, Chevron, Conoco Phillips, Exxon, and Royal Dutch Shell—for their contributions to climate change and efforts to [cover up scientific evidence of its reality](#)

<https://phys.org/news/2018-01-nyc-fossil-fuel-investmentshere.html>

The Global Carbon Budget

Rapid global warming and resulting climate change now taking place has a simple cause: Every addition of carbon dioxide (CO₂) due to human causes traps a corresponding additional amount of solar energy in Earth's atmosphere and ocean. This warming due to the accumulation of CO₂ is irreversible on human timescales – once emitted the CO₂ levels remain raised. Therefore, limiting climate change will require substantial and sustained reductions of greenhouse gas emissions from now on. At some point net emissions will need to be zero to stop further warming. The agreed 2°C limit to global warming (above pre-industrial temperatures) therefore requires an absolute limit on the nett carbon emissions that can ever

be emitted globally. This remaining total amount of future CO₂ emissions to limit warming to 2°C is called the 'global carbon budget'.

Even such a small change in the Earth's average surface temperature can have profound changes on the climate, geography, and biosphere that are the basis for all life, and for modern society, including the supply of crops for food. During the last ice age the average global temperature was only about 5°C colder than today, yet sea level was 120m (400ft) lower and many areas populated today were deep under ice. In the last 10,000 years, a very stable climate, due to very steady natural CO₂ levels, enabled agricultural civilisation to emerge and to thrive.

The problem for modern human civilisation which depends on large scale burning of fossil fuels for energy, thereby releasing CO₂, is that at current, increasing rates of annual emissions, the remaining less than 2°C global carbon budget will be entirely exhausted within as little as 15 to 30 years. Moreover, there is enough carbon stored in proven reserves of peat, coal, oil and gas to result in extremely dangerous global warming of 6°C or even more.

Due to greenhouse gases from fossil fuel burning, livestock agriculture and deforestation, about 0.8°C of warming has occurred since industrialisation. Now though, due to rapidly rising CO₂ – and also due to other greenhouse gases, especially methane – oceans and atmosphere are warming rapidly by accumulating very large amounts of additional solar energy. Continuing the current pathway of ever increasing emissions would mean that a rise of 4°C is entirely possible by 2100. This is a very dangerous rate of warming, faster than any known rise, even faster than during geological extinction events. On this dangerous track, it is quite certain that within ninety years every part of the world will be entirely changed and will continue to change, with very serious negative consequences for human civilisation and for all ecosystems. The only certain way for humanity to limit dangerous climate risk is to limit emissions within the available carbon budget. This means rapid and major changes in consumption patterns and energy production are needed. To do this at least cost means starting very soon and proceeding very quickly. The biggest question for humanity is how to divide the less than 2°C carbon budget equitably between nations and future generations. There is no doubt though, that the greatest responsibility to act for change, and act fast, lies with wealthy nations and institutions.

Arguments justifying the continued exploration for fossil gas as a "transition" are also unjustified. In 2018 Oil Change International, alongside 20 partners from around the world, released a new briefing on gas production in G20 countries and why fossil gas is NOT a bridge fuel. <http://priceofoil.org/debunked-g20-clean-gas-myth>

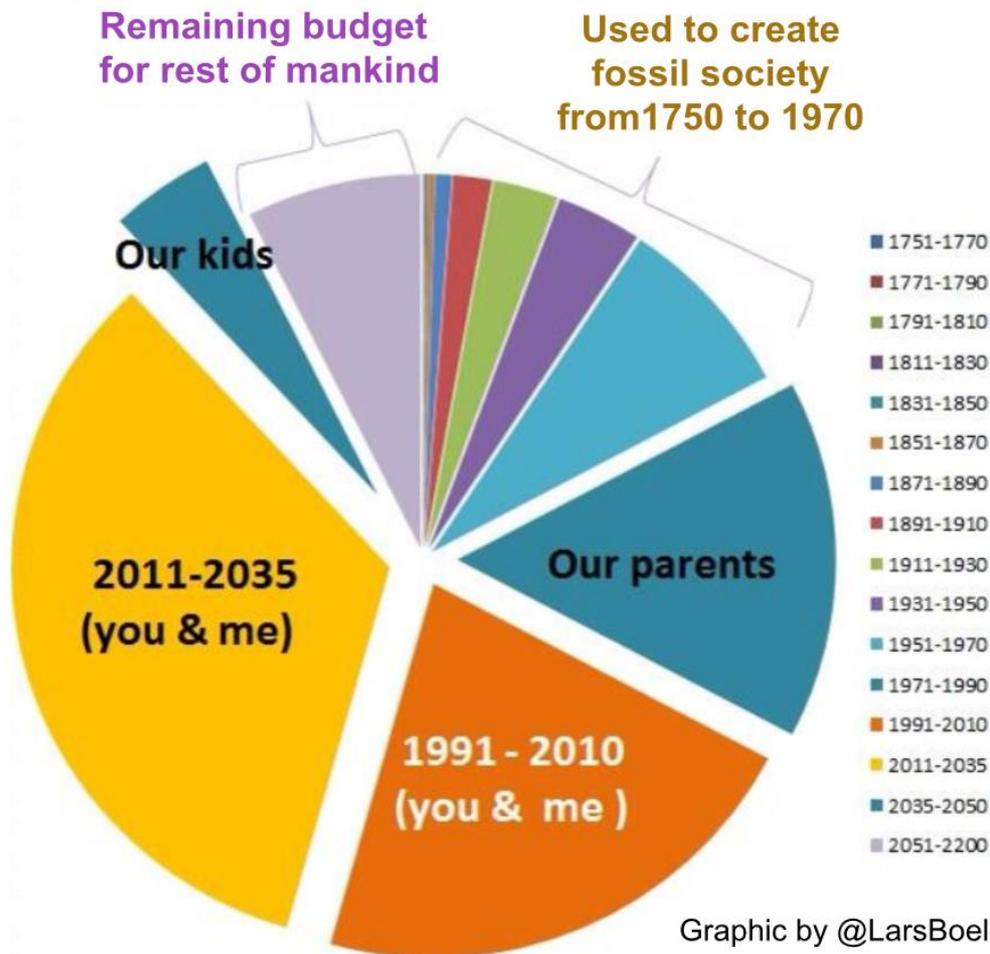


Figure 1 - Carbon Budget per Generation for 2°C: more than a third of emissions have been since 1970. The available remaining budget to limit warming to 2°C is being exhausted rapidly

The scientific case for ceasing fossil fuel exploration

There is a convergence of research and reports by leading scientific authorities on the implication of allowing warming to exceed 2 degree Celsius, and the action needed in limiting burning of fossil fuel other climate impacts.

There is an extensive peer review literature on Unburnable Carbon by recognized independent scientists. A good overview is provided in the paper in NATURE-International Journal of Science on 17 Jan 2015 “ *The geographical distribution of fossil fuels unused when limiting global warming to 2°C* [Christophe McGlade](#) & [Paul Ekins](#)

“Policy makers have generally agreed that the average global temperature rise caused by greenhouse gas emissions should not exceed 2 C above the average global temperature of pre-industrial times¹. It has been estimated that to have at least a 50 per cent chance of keeping warming below 2°C throughout the twenty-first century, the cumulative carbon emissions between 2011 and 2050 need to be limited to around 1,100 gigatonnes of carbon dioxide (Gt CO₂)^{2,3}. However, the greenhouse gas emissions contained in present estimates of global fossil fuel reserves are around three times higher than this^{2,4}, and so the unabated use of all current fossil fuel reserves is incompatible with a warming limit of 2 C. Here we use a single integrated assessment model that contains estimates of the

quantities, locations and nature of the world's oil, gas and coal reserves and resources, and which is shown to be consistent with a wide variety of modelling approaches with different assumptions [5](#), to explore the implications of this emissions limit for fossil fuel production in different regions. Our results suggest that, globally, a third of oil reserves, half of gas reserves and over 80 per cent of current coal reserves should remain unused from 2010 to 2050 in order to meet the target of 2 °C.

We show that development of resources in the Arctic and any increase in unconventional oil production are incommensurate with efforts to limit average global warming to 2 °C. Our results show that policy makers' instincts to exploit rapidly and completely their territorial fossil fuels are, in aggregate, inconsistent with their commitments to this temperature limit. Implementation of this policy commitment would also render unnecessary continued substantial expenditure on fossil fuel exploration, because any new discoveries could not lead to increased aggregate production.

<https://www.nature.com/articles/nature14016>

Among the other most significant reports are the following:

Carbon Tracker Initiative and the Grantham Research Institute on Climate Change and the Environment (2013). *Unburnable Carbon 2013: Wasted capital and stranded assets*. London: (Carbon Tracker & The Grantham Research Institute).¹

This assessed the consequence of burning existing total fossil fuel reserves against global atmosphere capacity to absorb the emissions generated if temperatures are not to exceed 2 degrees above preindustrial levels.

It concluded that between 60-80% of coal oil and gas reserves of publically listed companies are unburnable if the world is to have any realistic chance of not exceeding global warming of 2 degrees Celsius. Conversely, if there is effective societal action to limit the extent of climate change, then this will raise the spectre of fossil fuel installations and distribution networks collapsing in value, with the global economy already facing 'the prospect of assets becoming stranded, with the problem only likely to get worse if current investment trends continue - in effect, a 'carbon bubble'.

The World Bank & Potsdam Institute for Climate Impact Research and Climate Analytics (2012). *Turn Down the Heat: Why a 4°C Warmer World Must be Avoided, The World Bank 2012*. Washington: The World Bank.²

This report assesses the scientific data on the implications of allowing emissions to exceed a 2 degree threshold. The abstract for the report states:

'This report focuses on the risks of climate change to development in Sub-Saharan Africa, South East Asia and South Asia. Building on the 2012 report, Turn Down the Heat: Why a 4°C Warmer World Must be Avoided, this new scientific analysis examines the likely impacts of present day, 2°C and 4°C warming on agricultural production, water resources, and coastal vulnerability for affected populations. It finds many significant climate and development impacts are already being felt in some regions, and in some cases multiple threats of increasing extreme heat waves, sea level rise, more severe storms, droughts and floods are

¹ <http://www.carbontracker.org/wp-content/uploads/2014/09/Unburnable-Carbon-2-Web-Version.pdf>

² <http://documents.worldbank.org/curated/en/2012/11/17097815/turn-down-heat-4%C2%B0c-warmer-world-must-avoided>

expected to have further severe negative implications for the poorest. Climate related extreme events could push households below the poverty trap threshold. High temperature extremes appear likely to affect yields of rice, wheat, maize and other important crops, adversely affecting food security. Promoting economic growth and the eradication of poverty and inequality will thus be an increasingly challenging task under future climate change. Immediate steps are needed to help countries adapt to the risks already locked in at current levels of 0.8°C warming, but with ambitious global action to drastically reduce greenhouse gas emissions, many of the worst projected climate impacts could still be avoided by holding warming below 2°C'

Price Waterhouse Cooper (2014). *Two degrees of separation: ambition and reality Low Carbon Economy Index 2014*. London: Price Waterhouse Cooper.³

The 6th Annual index published by PWC shows the mounting failure in global action on decarbonisation to meet the 2 degree target:

'The 2014 Low Carbon Economy Index (LCEI) shows an unmistakeable trend. For the sixth year running, the global economy has missed the decarbonisation target needed to limit global warming to 2°C. Confronted with the challenge in 2013 of decarbonising at 6% a year, we managed only 1.2%. To avoid two degrees of warming, the global economy now needs to decarbonise at 6.2% a year, more than five times faster than the current rate, every year from now till 2100. On our current burn rate we blow our carbon budget by 2034, sixty six years ahead of schedule. This trajectory, based on IPCC data, takes us to four degrees of warming by the end of the century'

Christophe McGlade & Paul Ekins. (2015). *The geographical distribution of fossil fuels unused when limiting global warming to 2°C*. *Nature*. 517 (187–190).⁴

In January 2015 the international scientific journal Nature published a major paper the level of fossil fuel burning compatible with maintaining a stable climate:

'If global warming is to be limited in this century to the much-publicized 2 °C rise compared to pre-industrial levels, fossil fuel use and the associated release of greenhouse gases will need to be severely limited. This raises questions regarding the specific quantities and locations of oil, gas and coal that can be safely exploited. Christophe McGlade and Paul Ekins use an integrated assessment model to explore the implications of the 2 °C warming limit for different regions' fossil fuel production. They find that, globally, a third of oil reserves, half of gas reserves and over 80% of current coal reserves should remain unused during the next 40 years in order to meet the 2 °C target and that the development of resources in the Arctic and any increase in unconventional oil production are incompatible with efforts to limit climate change'

³ <http://www.pwc.co.uk/assets/pdf/low-carbon-economy-index-2014.pdf>

⁴ <http://www.nature.com/nature/journal/v517/n7533/full/nature14016.html>

CONCLUSIONS

Ireland has taken international leadership in the divestment of the State investment fund, where the Fossil Fuel Divestment Bill has passed second stage in the Dail in January 2017. The leadership can now be followed by the cessation of issue of any further licences for hydrocarbon exploration or fossil fuel infrastructure whether on land or in the marine area.