Fossil fuel subsidies in Ireland: Financing Climate Chaos

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Executive summary

- Natural gas is a highly potent fossil fuel that can trap heat up to 86 times more efficiently than carbon dioxide in a 20-year period. According to the IPCC, there is no pathway to remain within 1.5°C that is compatible with natural gas expansion. [1]

- However, the fossil fuel industry presents energy interests as a critical element of Ireland's transition. Irish energy and climate policy describe gas as a 'transition' fuel whose share in the energy mix is consistent with Ireland's climate objectives. [2]

- Conversely, a central element of a transition underpinned by science and climate justice requires governments to make financial flows '*consistent with a pathway towards low greenhouse gas emissions and climate-resilient development*' in accordance with Article 2.1c of the Paris agreement.

- The reallocation of global capital is a fundamental prerequisite to remaining within 1.5°C[3], yet the Irish government continues to subsidize the fossil fuel industry by €2.5 billion per year.[4]

- Moreover, subsidies allocated to the production of natural gas work to actively cut costs and reduce risks for natural gas producers, thus creating perverse incentives to continue exploration for new gas reserves. This will result in exhausting Ireland's fair share of the global 1.5°C carbon budget, creating dependency on a carbon-intensive energy system for decades to come, and exposing the public to undue financial risk if natural gas reserves and associated assets become stranded

- Natural gas subsidies encompass the entire production process, including:
    - Public finance,
    - Tax breaks
    - Investments by State-owned enterprises
    - Fiscal support.

(1) Public Finance

The recently announced decision by the European Investment Bank to end financing of fossil fuel projects is welcome, but the bank's updated energy lending policy contains worrying loopholes. The EIB is authorized to finance gas projects included on its 'Projects of Common Interest list' before the end of 2021, and may allow funding for natural gas projects to continue beyond 2021.

EIB financing of gas infrastructure in Ireland has already increased the likelihood of Ireland exhausting its fair share of the Paris-aligned global carbon budget and of generating carbon lock-in and stranded assets. There is risk that the EIB will finance further, unnecessary gas infrastructure in Ireland.

- A €100 million loan was granted by the EIB to Gas Networks Ireland in 2018 to upgrade Ireland's gas network. No independent assessment was carried out to determine how this loan aligned with demand for gas in Ireland, and the evidence that the loan will facilitate the decarbonization of Ireland's gas grid is thin.

- The highly contested Shannon LNG terminal, which would import fracked liquefied natural gas from the US, is currently listed on the EU's PCI list, thus making the terminal potentially eligible for financing from the EIB. Ireland wisely instituted a domestic fracking ban based on health and environmental concerns in 2017, and we do not need to import it now. In any case, the very legality of including the Shannon LNG terminal on the PCI list is dubious, considering that planning permission for the terminal is currently caught up in a legal challenge before the European Court of Justice. [5]

(2) Tax breaks (i.e. fossil fuel welfare)

Subsidies that pose the greatest threat to remaining within 1.5°C are those that assume the liability of upfront costs associated with natural gas production, such as allowing exploration costs to be written off against tax. Such subsidies effectively socialize the financial risks associated with exploring for new gas reserves, whilst profits are privatized. This can ultimately lead to increased investment into natural gas extraction on a long-term basis and carbon 'lock-in.' [6]

Ireland's licensing regime for gas extraction is among the most liberal in the world.

- Companies that receive license to drill for gas are taxed at a paltry 25%, against which all operating costs of the business can be offset.

- Oil and gas exploration companies pay no royalties in Ireland.[7]

Lower upfront exploration costs can potentially discourage responsible environmental management. Despite the generous terms provided to private gas companies by the Irish government, the location of drilling for oil and gas is effectively led by industry, as the Department prioritizes 'determining where they can obtain the best level of interest.[8] Yet the Petroleum Affairs Division of the DCCAE has never required an Environmental Impact Assessment to be carried out for the exploration of oil and gas in Irish waters. [9]

(3) Investments by State-owned Enterprises

Investments by State-owned enterprises not only create risk of stranded assets and carbon lock-in; they give investors the impression of financial certainty around the future of gas.[10] The Electricity Supply Board (ESB), a 95% State-owned company, announced plans in 2019 to build four new gas plants in North Dublin, at the cost of an alleged €700 million in public funds.[11] The company has so far applied for planning permission to begin the construction of a Flexible Generation Thermal Station (Flexgen) for the generation of electricity in Poolbeg.[12]

The ESB did not provide information on the emissions impact of the plant and has not been requested by Dublin City Council to do so, despite being required to under EU law.

The ESB assertsed that the gas from the new plant is not for any specific end user but will be fed into the grid. However, in reality, Eirgrid projects that by 2027, 31% of electricity demand will come from data centers. If data centers in Ireland are run on combined gas -fired units, they will add 1.5 million tonnes to Ireland's carbon emissions by 2030[13]. Data centers are owned by tech giants such as Microsoft, Amazon, and Google – whose company structures and subsidiaries are designed to avoid corporation tax.

Furthermore, the distinction between the fossil fuel industry and big tech is itself becoming increasingly blurred.

- Google, Amazon, and Microsoft have quietly become 'the new innovative arm of the fossil fuel industry,' investing heavily in researching and developing artificial intelligence to enhance the efficiency of oil and gas extraction. [14]

- Amazon threatened to fire its employees for speaking out against the company's contracts with the fossil fuel industry and for donating to climate denying politicians. [15]

- Shannon LNG developers plan to build data centers to 'manufacture' their own demand for natural gas in Ireland.[16]

The ESB is investing in new natural gas infrastructure to facilitate a small, lucrative industry that contributes little in tax to Ireland's economy. Data centers offer few jobs, and the ones that are available often involve 'gruelling' hours with insecure contracts.

(4) Fiscal Support

Government fiscal support of industry-led research provides a double subsidy to the natural gas industry, as the research is partially State-funded and it is directed towards industry interests. As an additional bonus, academic partnerships offer an objective position from which industry can influence policy.

The Irish Centre for Research in Applied Geosciences (iCrag) is a public research centre funded by Science Foundation Ireland(SFI)[17], Ireland's European Structural and Investment Funds Programme, and the European Regional Development Fund. iCrag counts among its 60 industry partners carbon majors such as Exxon, Shell, Chevron and BP.

- Shell's Regulatory Affairs Planning Manager and Ireland's Country Manager for Woodside (Australia's largest oil and gas firm) occupy positions on iCrag's Industry Advisory Committee, alongside representatives from the Department of Communications, Climate Action and the Environment

- The executive director of Tullow Oil and the head of the department of Regional Geoscience Studies and New Opportunities Selection of ENI (a multinational oil and gas company based in Italy) are both members of iCrag's Governance Committee.

- The Chair of the Irish Offshore Operators Association (IOOA) sits on the Executive Management Committee of iCrag. The IOOA lobbied heavily against the Climate Emergency Measures Bill in 2019.

The CSO found that research and development of fossil fuels had not received any public financing since 2015. However, a report in the Sunday Business post found that SFI (a semi-State body) granted €4.7 million in public funds to iCrag's research on 'commercially focused oil and gas exploration.[18]

If the ultimate goal of aligning financial flows with 1.5°C is to create an energy system supported solely by renewables, why waste scarce public capital on a temporary 'bridge,' fuel? By placing the interests of a sunset industry at the heart of Ireland's transition, the Irish government is effectively guaranteeing a more disruptive and burdensome transition to a low carbon future. In a carbon and budget-constrained world, the Irish government must instead adopt an 'unburnable carbon,' approach to its fiscal and energy policies and end public financing of natural gas production.

Impressum

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Introduction

In ratifying the United Nations 2015 Paris agreement[19], governments endorsed its headline goal, Article 2.1c, of making financial flows *"consistent with a pathway towards low greenhouse gas emissions and climate-resilient development."*[20] Research has found that the reallocation of capital is a fundamental prerequisite to remaining within 1.5°C [21] (the politically agreed 'safe,' limit of global temperature increase, compared to pre-industrial temperature levels). **The United Nations 2018 Intergovernmental Panel for Climate Change Special Report on the Impacts of 1.5c Warming (– henceforth, IPCC SR15)** report further reinforced the significance of finance in maintaining global temperature increase below 1.5°C, calling for a "major reallocation of the investment portfolio."[22]

Although Ireland's fair share of the global 1.5°C 'carbon budget,'[23] will be exhausted by 2024,[24] the Central Statistics Office estimates that the Irish government subsidizes the fossil fuel industry by €2.5 billion per year. [25]

This report therefore seeks to qualitatively evaluate Ireland's subsidization of natural gas production with our obligation to align financial flows with 1.5c

Firstly, natural gas has been selected owing to assertions that natural gas can be used as a 'transition fuel,' as Ireland decarbonizes its energy system. Secondly, production subsidies are emphasized over consumption subsidies as they arguably have a far more tangible impact on emissions. Subsidies allocated to the production of natural gas:

- signal to private investors the future profitability and policy certainty of gas;
- cut risks associated with producing natural gas, thereby making it cheaper to bring more gas into production;
- bring more gas into production, therefore breaking the carbon budget, creating dependency on an emissions intensive energy system ('carbon lock-in') and exposing the public to risks of debt from gas reserves and its ancillary infrastructure becoming 'stranded.'

To provide a quick roadmap of the paper, the layout is as follows.

The first section contextualizes the dangers of expanding natural gas in a climate crisis, and the current role of natural gas in Ireland. The second section of the paper addresses the complexity of subsidy definitions and the importance of phasing out production subsidies. The paper then turns to the four case studies which detail the dangerous implications of allocating scarce public finance to producing natural gas. Finally, the fourth section presents a brief conclusion and policy recommendations. Implicit in subsidies allocated toward the production of natural gas is a rise in global temperature far beyond what human civilization can sustain to survive.

If the ultimate goal is to align energy policy with climate science, and therefore create an energy system supported solely by renewables, why waste scarce public capital on a temporary 'bridge,' fuel? By placing the interests of sunset industry at the heart of Ireland's transition, the Irish government is effectively guaranteeing a more disruptive and burdensome transition to a low carbon future. **In a carbon and budget-constrained world, the Irish government must instead adopt an 'unburnable carbon,' approach toto Ireland's fiscal and energy policy and end public financing of natural gas production.**

1.1

‘Meet the new boss, same as the old boss’

The myth of natural gas as a transition fuel[26]

[26]

Natural gas is a potent fossil fuel composed mostly of methane, a greenhouse gas responsible for 20% of overall global warming since the beginning of the Industrial Revolution. According to the United Nations 2018 Intergovernmental Panel for Climate Change Special Report on the Impacts of 1.5c Warming (– henceforth, IPCC SR15) methane is between 86 - 100 times more efficient at trapping heat than carbon dioxide in a 20 -year period. The report warned with 'high confidence,' that pathways remaining within a 1.5C threshold require deep and immediate cuts in methane production. Indeed, given that the need to transition to zero-emissions is already dangerously overdue,[27] the IPCC SR15 notes that levels of methane "strongly influence," whether remaining within a 1.5C threshold is even possible. [28]

At the point of combustion, a natural gas plant produces roughly half the carbon dioxide emissions of a coal plant. The fossil fuel industry has used this misleading comparison to promote natural gas as an essential part of an undisruptive transition to a low carbon economy and society. Expensive lobbying and advertising campaigns have worked to persuade policymakers that the sustained use of natural gas is environmentally compatible with this transition (see section 1.2). There are several issues with this discourse.

1) Emissions at the point of combustion ≠ lifecycle emissions of natural gas.

Given methane's efficiency at trapping heat, natural gas plants can have a more powerful impact on global temperature increase than coal plants if leakage rates exceed just 2 – 3%. Leakage occurs throughout the entire lifecycle of natural gas (i.e. extraction, processing, and transport). **A recent leak from a US gas well produced more methane than many nations do in a year[29] and global methane levels reached a dangerous historic high in 2019 caused by fracking[30] for gas in the US.[31]** Although energy companies have pledged to improve regulatory mechanisms to prevent leakage,[32] there is little evidence to demonstrate how this could be effectively achieved. Leakage costs the gas industry over $2 billion per year;[33] surely if industry could avoid such substantial losses, the issue would have already been solved.

2) Beating coal is not good enough.

The International Energy Agency note that 'beating coal on environmental grounds sets a low bar for natural gas, given there are lower-emissions and lower cost alternatives to both fuels.'[34] Indeed, Bloomberg New Energy Finance projected that **if coal were phased out by 2035, and natural gas replaced it, we would surpass a highly dangerous 2C carbon budget.** In any case, the benchmark for policymakers should not be whether an energy source is preferable to coal – it should be whether an energy source can prevent the worst impacts of climate breakdown. In short, natural gas can't.

3) It breaks the 1.5°C carbon budget

Even without accounting for methane leaks, and even if coal were fully phased out, **burning known reserves of gas alone would be inconsistent with the Paris agreement.** Even optimistic IPCC scenarios for a 1.5°C compatible pathway show that there is no room for an expansion of natural gas.[35] Furthermore, committed emissions from *existing* fossil fuel infrastructure already exceed the 1.5C limit.[36] A managed decline of all fossil fuel infrastructure currently in operation is required; additional natural gas reserves must be commercially unrecoverable if we are to understand that the Irish government has committed to the Paris agreement in good faith.

4) There are no plans to transition away from natural gas, even in the medium to long-term

Ireland will have used up its (minimally) fair share of the 1.5°C global carbon budget by 2024.[37] If the goal is to ultimately create an energy system run on 100% renewables, why waste public capital now on a temporary 'bridge' or 'transition' fuel? Currently there are no government policies or plans to fully displace gas from Ireland's energy mix, even in the long-term. **Investments in natural gas infrastructure assume at 40 -50 year operation timeline.[38] Subsidizing the production of natural gas is not financing a transition – it is financing climate chaos.**

We do not need additional gas for grid stability.

A combination of battery storage, demand response and transmission[39] are far more effective and cost competitive than natural gas in backing up wind and solar power on the grid.[40] Academic research since 2014 has demonstrated that Ireland's grid could run entirely on renewable energy with appropriate policies and supports.[41]

1.2

Shaping transition narratives

Since 2018, Gas Networks Ireland (GNI)[42] has been running '*Progress Naturally*,'[43] a colourful and family-focused advertising campaign which claims that 'thanks to natural gas, our network already connects Irish homes, businesses and industries to cleaner, affordable and efficient energy.' [Emphasis added]. Central to fossil fuel greenwash campaigns is the representation of fossil fuel production as environmentally sustainable, ensuring reliance on natural gas for decades to come..

However, describing natural gas as 'cleaner' may be perceived as misleading advertising.[44] The video claims that 'change – it takes energy. That's why at Gas Networks Ireland we're changing Ireland's energy future.' As Ladd notes, 'like fat-free donuts, or interest-free loans,' claims of clean fossil fuels are only 'an advertising slogan.'[45] However, GNI through their Progress Naturally campaign is not simply advertising a product – **GNI instead, it is advertising Irish energy policy, and a vision of energy industry interests as a critical element of Ireland's transition to a low-carbon economy..**

1. In 2017, Shell and Exxon were censored for claiming that natural gas was the "cleanest," fossil fuel, as a Dutch advertising watchdog found that the claim was incorrect.[46]

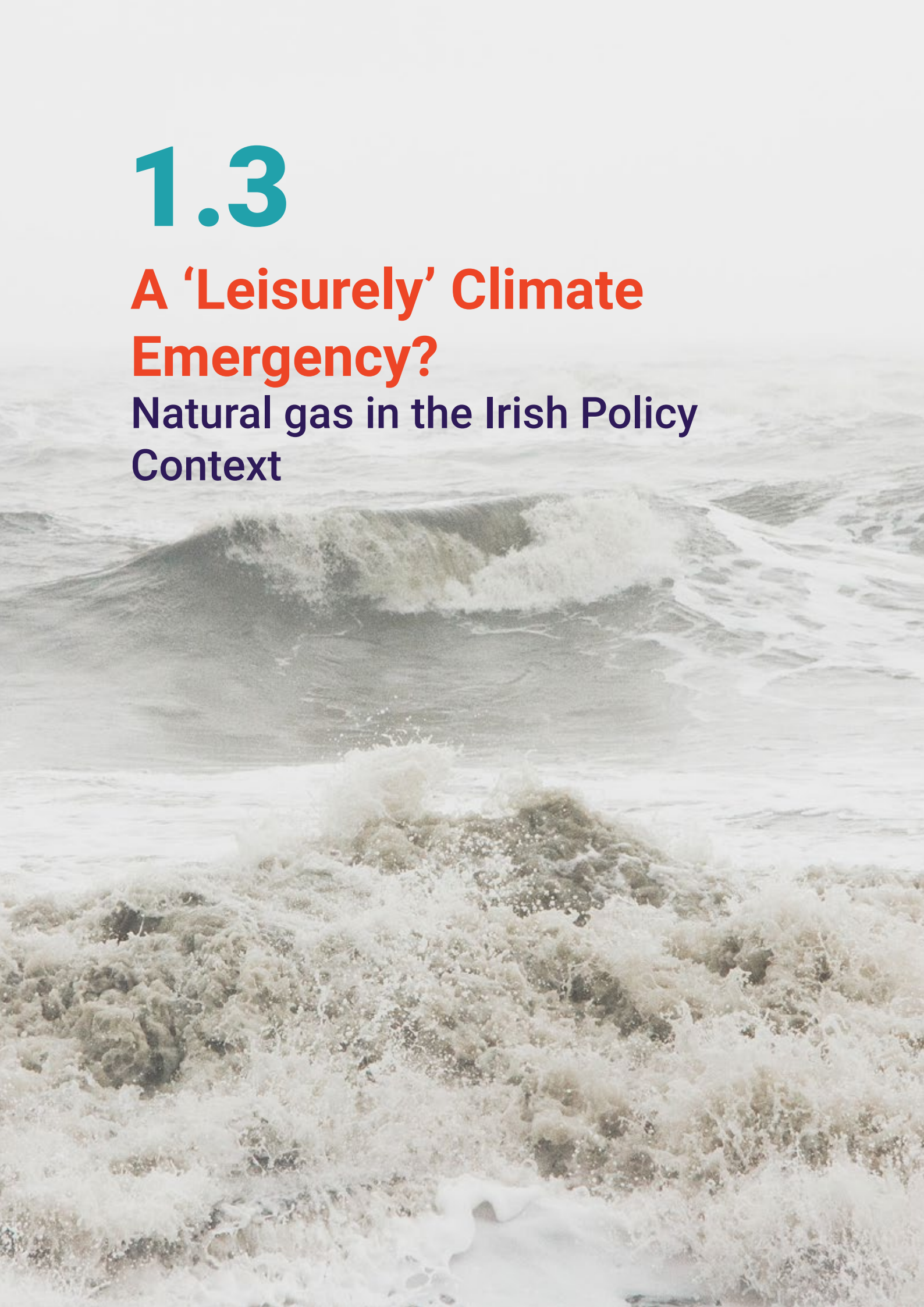
2. In 2019 the UK's advertising authority banned an Equinor ad which implied that natural gas is a 'low-carbon' energy source on the grounds that 'gas is not a low-carbon fuel.' [47]

3. UK NGO ClientEarth launched a formal legal complaint against BP's advertising campaigns in 2019, including claims that natural gas is 'cleaner.' [48] Although it is undoubtedly dangerous for the private sector to engage in misleading advertising, it is arguably worse when public sector firms, which ought to have a mandate for the public good, spend public money on misguided fossil fuel advertising. In 2019, **Progress Naturally cost 'c.€1 million' in public finance[49], and GNI has additionally spent over €2.3 million on the promotion of natural gas through radio, tv and cultural event sponsorships.** [50]

1.3

A ‘Leisurely’ Climate Emergency?

Natural gas in the Irish Policy Context



Ireland made international headlines by becoming the second country in the world to declare a climate and biodiversity emergency in 2019[51]. Yet little has been done to curb Ireland's overreliance on fossil fuels. **Fossil fuels currently contribute to 90% of Ireland's energy mix,[52]** composed of natural gas (30%), as well as oil, peat, and coal. Although demand for natural gas in Ireland decreased through the last decade,[53] it is used in residential heating[54] and accounted for 51% of Ireland's electricity use in 2017.[55] Ireland's emissions rank among the highest in Europe[56], and in 2018 our ambition on climate action was rated worst in the EU for the second year in a row. [57]

Efforts to curb the production of natural gas in accordance with best available climate science were proposed through the Petroleum and Other Minerals Development (Amendment) (Climate Emergency Measures) Bill 2018 (i.e. CEM Bill) by Bríd Smith, People Before Profit TD. The bill sought to ban the issuance of new licenses for oil and gas exploration. Despite winning a majority vote in the Dáil twice, the CEM bill was blocked by the Ceann Comhairle using a

'money message,' - a strategy described by legal academics as 'constitutionally dubious.'[58] TDs were not allowed to even debate the bill following the issuance of the money message. People Before Profit have since received leave from the High Court to challenge the legality of the Ceann Comhairle's decision. [59]

Shortly thereafter, the Irish government announced at the United Nations Climate Summit in New York that it would no longer issue licenses for oil exploration in 80% of Irish waters, but that private companies would still be permitted to search for and extract natural gas.[60] However, there is no scientific method to predict whether oil or gas will be present below the seabed before drilling. It is therefore impossible to grant new licenses to drill exclusively for gas. This announcement was made following the recommendation of the Climate Change Advisory Council (CCAC) that 'the continued exploration for, and recovery of new offshore natural gas reserves can be consistent with a low carbon transition.'[61]

Expansion of natural gas during a climate crisis is predicated upon three beliefs: (i) faith in technology, (ii) the need for fossil fuels to ensure security of energy supply, (iii) the climate crisis can be addressed through individual behavior and responsibility.

(i) Faith in technology

The advice from the Climate Change Advisory Council (CCAC) to continue drilling for natural gas was contingent upon the 'need for significant deployment of CCS [carbon capture and storage] with natural gas as a component of Ireland's energy system.' [62] Carbon capture and storage (CCS) is the process of removing carbon dioxide from the air and storing it underground. It is a yet unproven and expensive technology, fraught with uncertainty, and has mostly been used to increase oil and gas extraction through a process known as "enhanced oil recovery."[63] Even if CCS were used solely to reduce emissions, it is not yet viable at scale. There is currently no large carbon capture and storage plant under construction anywhere in the world.[64]

Lead author of the IPCC sr15 chapter on CCS, Dr. Joeri Rogelj, explained that:

"There are two issues with planning for continued use of natural gas with CCS, which are also illustrated in the four illustrative pathways included in the SR15 report. A first issue is that natural gas with CCS still results in residual emissions, first because of incomplete capture rates, but also because of CH4 [Methane] leakage. This thus puts a larger burden on the availability of carbon-dioxide removal technologies to compensate for these residual emissions in order to bring global emission to net zero...

A second issue is that upscaling of CCS infrastructure is also limited by constraints of technology diffusion and deployment. In a transition where one tries to emit quite literally as little CO2 as possible, a focus on reducing gross CO2 emissions and using any CCS upscaling for achieving carbon-dioxide removal would probably be a more robust trajectory."[65]

Ireland has enviable renewable energy potential[66] and **renewable energies have been demonstrated to reduce thirty-five times more emissions per year than the complete and accumulative efforts of CCS on a global scale.**[67] It makes far more sense to invest heavily in the deployment of indigenous renewable energy, rather than underpinning an unabated use of natural gas with risky technology.

It is perhaps worth noting that the chairperson of the CCAC occupies a position on the governance committee of iCrag[68] – a research center partnered with fossil fuel companies[69], including some of the biggest 'carbon majors,'[70] such as Exxon, Chevron, and Shell.

(ii) The need to develop indigenous fossil fuels to ensure security of energy supply

The fossil fuel industry has raised concerns regarding the viability of Ireland's security of energy supply in the case of a no-deal Brexit and due to decreasing supplies at Corrib. Such arguments seem to conflate security of energy supply with security of natural gas supply.

Firstly, Gas Networks Ireland, the operator of Ireland's transmission and distribution gas network has repeatedly affirmed that even in the case of a no-deal scenario, Brexit will not impact Ireland's security of gas supply. All EU gas legislation has been transposed into UK law, and furthermore, no tariffs will be imposed on gas flowing from the UK to Ireland in the event of a disorderly exit by the UK from the EU.[71] The gas Ireland needs to rely on in the short-term will evidently continue to be imported.

Secondly, depleting supplies at Corrib gas field are not a justification to drill for more gas - even exclusively from a security of supply perspective. Corrib was discovered in 1997 and did not connect to Ireland's grid until 2015. There is no benefit to Ireland's security of energy supply from new fossil fuel reserves coming into operation within the next two decades. However, more importantly, security of supply concerns cannot be untethered from climate science. McMullin et al (2018) found that developing new fossil fuel reserves anywhere will result in a direct increase in overall global emissions.[72] Ireland's reliance on imported fossil fuels should therefore be replaced by developing indigenous renewable energy, not by destabilizing the chemical composition of our atmosphere.

Finally, there is no benefit to Ireland's security of energy supply by continuing gas exploration as Ireland's oil and gas industry is entirely privatized. Any oil or natural gas reserves found in Irish waters belong to private companies, not the State. In

the event that a company succeeds in accessing oil or natural gas reserves, they have full discretion in deciding where to sell their fuel. **There is no obligation to sell reserves found in Irish waters back to the government.** In any case, drilling in Irish waters offers such little chance of success that even if all climate and environmental impacts were entirely removed from the equation, Ireland would not be able to drill its way to energy security.[73]

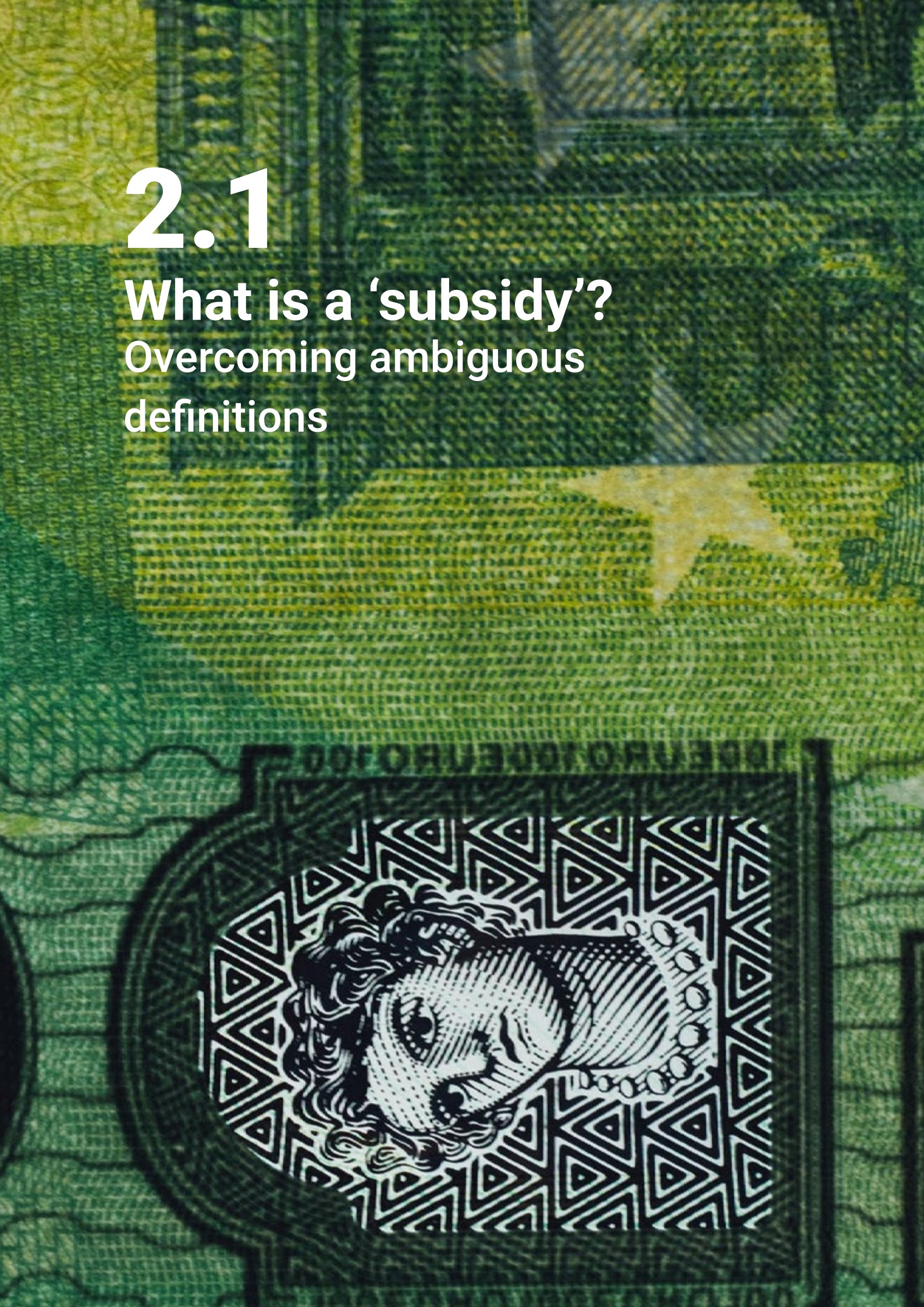
(iii) The climate crisis can be addressed through individual behavior and responsibility.

As Huber notes, since the 1950s the fossil fuel industry has closely associated its products with a conception of 'the good life,' asserting the unavoidability of life without fossil fuels to equivocate corporate responsibility with that of citizens. This narrative stresses the centrality of individual action in creating a sustainable future, whilst insulating the fossil fuel industry from criticism, and minimizing the role industry plays in allowing society to remain within 1.5°C[74]. Even in 2019, the second hottest year on record which saw the Amazon Rainforest blaze, Greenland ice melt near a tipping point[75], and a quarter of humanity face water crises,[76] the Irish government failed to outlaw drilling for natural gas in the Irish offshore. Instead it announced a goal to have one million electric vehicles on Irish roads by 2030, imposed a levy on coffee cups[77] and repeatedly said that 'tackling climate change will involve changing the habits of a lifetime.' [78] However, changing the habits of oil and gas companies largely responsible for the climate crisis[79] remains entirely overlooked.

Furthermore, whilst the government continues to promote private offshore drilling and incentivize behavioral change, 400,000 homes in Ireland suffer from energy poverty - classified as spending 10% of income on energy.[80] One third of those stricken by fuel poverty live in private or local authority rental accommodation and are reliant on landlords to invest in retrofitting or the installation of a heat pump or renewable power. Furthermore, electricity and gas prices are 50% higher than they were in 2016[81] and are projected to increase by an additional 4% this year - the equivalent of €60 for the average Irish household.[82]

Allowing ongoing natural gas production indicates that despite hollow declarations, the Irish government considers the climate and biodiversity crisis as a 'leisurely,' emergency.

2.1
What is a ‘subsidy’?
Overcoming ambiguous definitions



Subsidies can generally be understood as any form of government action that lowers the cost of natural gas, reduces market risks associated with natural gas, and pays the costs to environment and public health caused by extracting and burning natural gas. The only legally binding definition of 'subsidy,' is provided by the World Trade Organization (WTO), and endorsed by all 164 member states.[83] This paper uses four categories of subsidies, three of which (public finance, investments by State-owned enterprises and fiscal support) are based on the methodology of the Overseas Development Institute (ODI) and Climate Action Network (CAN) (which are equally based on the WTO's classification).[84] Revenue forgone, included in the WTO definition, is added here as an additional categorization relevant to Ireland.

1. **Public finance** refers to the provision of loans, grants and guarantees, and shall be examined through the European Investment Bank's financing of natural gas infrastructure in Ireland.

2. **Revenue forgone** refers to "uncollected," revenue, which is examined through the failure to tax the private extraction of natural gas in Ireland.

3. **Investments by State-owned enterprises** refer to public money spent through State-owned companies and shall be assessed through the Electricity Supply Board's plans to construct four new gas plants in Ireland.

4. **Fiscal support** refers to direct spending by government and shall be analyzed through publicly funded research carried out in partnership with the natural gas industry.

Despite the framework provided by the WTO, the interpretation of 'subsidies' by various international institutions and governments seems both politically and value laden. The discrepancy in how fossil fuel subsidies are measured can be easily observed through the strikingly different numbers calculated by international institutions.

Fossil Fuel Subsidies

International Energy Agency = €400 billion[85]

The Organization of Economic Cooperation and Development = $340 billion[86]

The International Monetary Fund = $5.2 trillion [87]

This lack of transparency surrounding subsidies means that there is no international consensus on either how, or when, subsidies should be reported or measured, making it problematic for researchers to monitor both the scale of subsidies allocated to fossil fuels, and the progress (or lack thereof) governments make in phasing fossil fuel subsidies out. This ambiguity additionally makes it difficult to draw comparisons across countries. Furthermore, key international regimes such as the UN Framework Convention for Climate Change have consistently ignored fossil fuel subsidies[88], even whilst negotiating climate finance.

Despite these barriers, subsidies allocated to the production of natural gas warrant examination. Research on social tipping points found that reallocating or removing fossil fuel subsidies are the "tipping interventions that are needed for the take-off and diffusion of fossil fuel–free energy systems."[89]

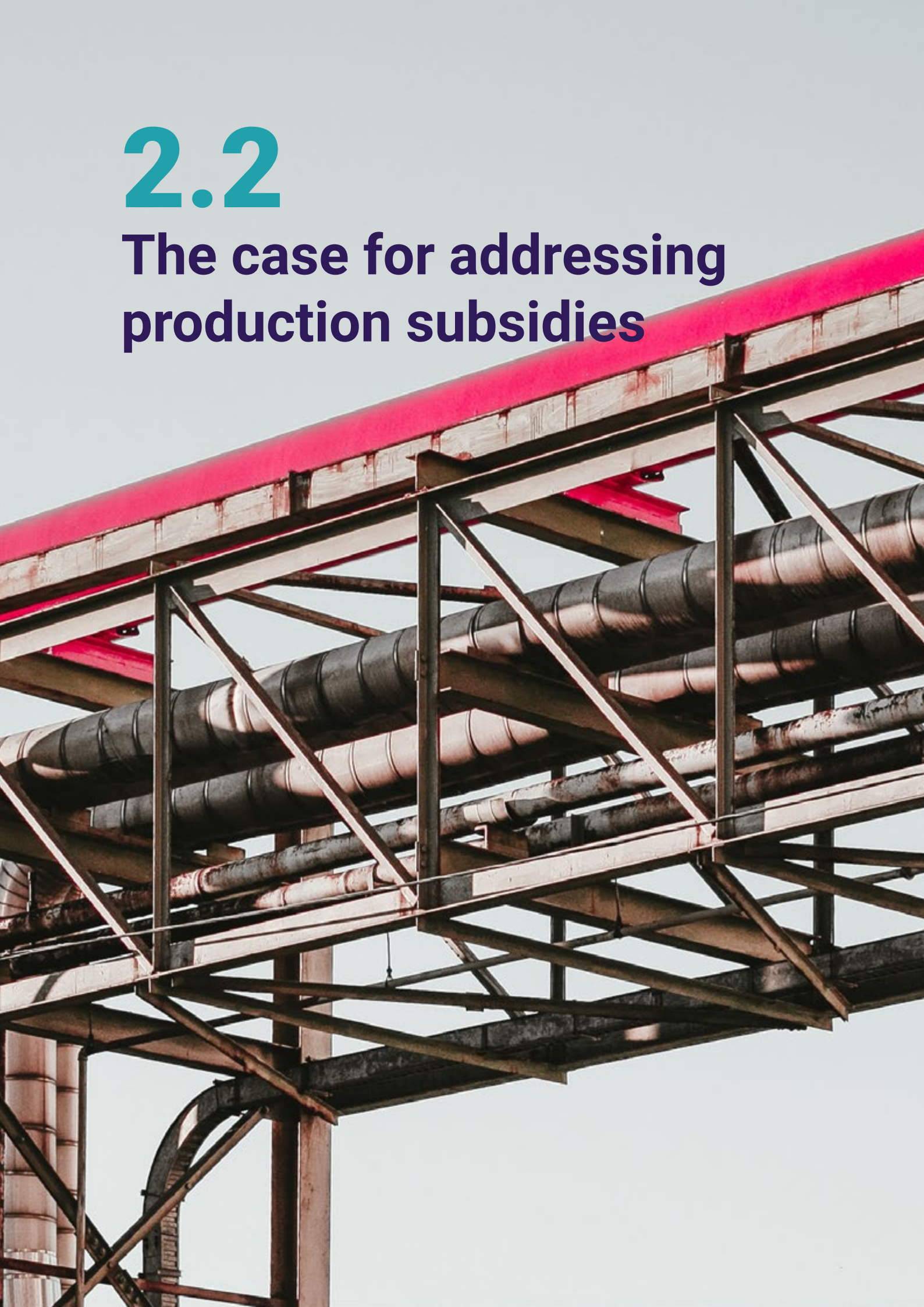
- Fossil fuels account for 85% of global subsidies, according to the International Monetary Fund (IMF).[90]

- Public financial support of fossil fuels matches 6.5% of global GDP, five times what is invested in renewables within the G7 group.[91]

- If subsidies continue to support fossil fuel infrastructure through 2020, the cost of transitioning to a low-carbon energy system will be four times higher through 2035. Such costs will most likely be shouldered by taxpayers.[92]

- If fossil fuel subsidies had been phased out in 2015, global CO2 emissions would have decreased by 28% and 46% of air pollution deaths would have been avoided.[93]

2.2
The case for addressing production subsidies



Although subsidies can address both producers and consumers of fossil fuels, research has demonstrated that public support for climate policies relies on distributional fairness. **If people perceive that the costs of a climate policy will be borne by polluting industries, they are more likely to support it.** Furthermore, efforts to curtail the production of fossil fuels have "yielded significant public mobilization."[94] This perhaps marks a turning point between what is perceived as ambitious climate action, and what is not. Production subsidies aim to cut costs and reduce risks for natural gas producers and therefore have a far more tangible impact on emissions than consumer subsidies. Put simply: the cheaper it is to bring new natural gas reserves into operation, the more gas we will have. This will inevitably lead to increased emissions from its combustion **and will make it exceedingly difficult for renewables to compete.**

As Lenferna has noted, although the climate crisis has largely been blamed on neoliberal capitalism[95], it is not entirely true that the forces of the free market are solely to blame. Markets do not choose our energy sources for us, and a considerable degree of fossil fuel production would not be economically viable were it not for direct state intervention (what Lenferna has dubbed as 'fossil fuel welfare')[96]. This is not a defense of capitalism; it is to say that even within an economic system dependent on the unbridled consumption of finite resources, governments have played a central role in dangerously prolonging overreliance on fossil fuels. For instance, **50% of oil production in the US would not be profitable without expansive government subsidies**.[97] Furthermore, **whilst many fossil fuel companies have become strong advocates of carbon taxes, their silence on the need to remove fossil fuel subsidies is telling**. Fossil fuel production subsidies act as 'a negative tax on carbon,'[98] whose benefits are enjoyed by a minority of fossil fuel producers, while the costs are borne across society.

Natural gas production subsidies provide a useful barometer in assessing the Irish government's commitment to the Paris agreement – arguably more so than declared emission reduction targets, which to date have failed to be accompanied by actionable pathways. **Ireland's direct and indirect subsidies to fossil fuels amount to €2.5 billion per year, almost 200 times what we contribute to the UN Climate Fund.**[99] Indeed it is notable that the push to remove fossil fuel subsidies has come not only from environmental organizations, but financial institutions too. The IMF, the OECD and the Central Bank have repeatedly argued that fossil fuel subsidies are inefficient, a poor use of scarce public finance, and hamper the transition to a low carbon economy. The Irish government should not need the most conservative players in the global economy to warn them of the perils associated with subsidizing the production of natural gas.

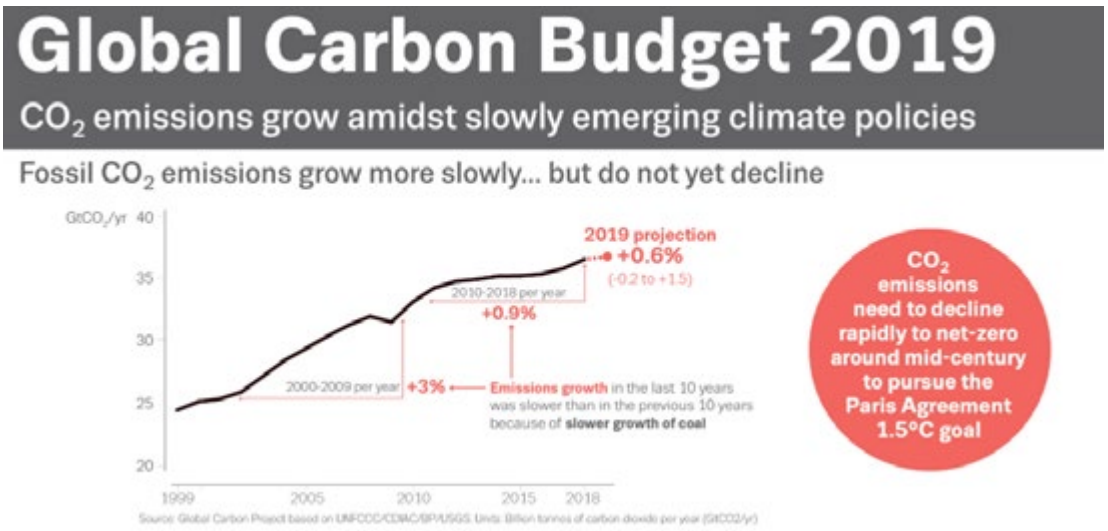
Approaching gas production subsidies from the perspective of 'unburnable carbon,' illustrates why it is essential to end public financing of natural gas.

1. The world is already awash with fossil fuels we cannot ecologically afford to burn.

Earth has already warmed by approximately 1.1°C since the Industrial Revolution. There is now less than 0.4°C additional warming to go before the 1.5°C ceiling is surpassed. So, how much more carbon can we pour into the atmosphere before we reach 1.5°C - i.e. what is our 'carbon budget'?[100]

Research in 2019 found that to have a (mere) 50% chance of remaining within 1.5C, 480 gigatonnes of CO2 (GtCO2) can be burned. In other words, to have a 1 in 2 chance of avoiding the worst impacts of climate change, we must reach global zero-emissions before we have exceeded 480 GtCO2. This is the equivalent of 12 years of current emissions. [101]

As the Paris Agreement is predicated on 'common but differentiated responsibilities,' countries that have historically contributed more to the climate crisis have a responsibility now to lead global decarbonization efforts. In Ireland, based on current and projected emissions, we have until 2024 before our minimally equitable share of the 1.5c global carbon budget is exhausted[102]. We have no space in our minimally equitable carbon budget to invest in natural gas infrastructure that will last for many decades to come.



2. Unburnable carbon could be a financial as well as a climate problem. [103]

According to the World Energy Outlook 2012, 2860 Gt CO2 is already contained in the known fossil fuel reserves owned by companies and states. In other words, we have enough carbon to burn through our remaining carbon budget of 480GtCO2 almost six times over. Or to put a finer point on it, **there are more fossil fuel reserves on the balance sheets of fossil fuel producers than can ever be monetized if we are to maintain a habitable planet.**

Given that most fossil fuel reserves must remain in the ground, this could cause the market valuation of fossil fuel companies to tumble. **That 2860 Gt CO2 of 'unburnable carbon,'[104] is worth $27 trillion[105]. By comparison, the bailout of stranded mortgage assets that triggered the 2008 financial crisis, cost $250 billion[106].** Fossil fuel reserves, along with their associated assets (investments, infrastructure, and equipment) could therefore suffer devaluations, or become liabilities – i.e. assets and reserves could effectively become prematurely "stranded." [107]

How soon natural gas reserves and assets could become stranded remains speculative, but the Bank of England[108], the Central Bank[109], and the IMF[110] are already hedging their bets. Demand for gas in Ireland[111] and Europe is decreasing and is projected to decline in the medium to long-term[112]. In 2017, Liquefied Natural Gas[113] terminals in Europe operated at only 25% of their capacity, which industry noted as a marked improvement. Deloitte reported that "the current decade has witnessed a trend of decreasing profitability of many European gas-fired power plants." [114]

Declining demand for gas in Europe reflects broader trends in the global energy market. In 2014, 50 gas fired power stations were shut down across the EU, costing an estimated €6 billion[115]. Between 2012 and 2015, US utility companies suffered write downs of $12 billion per year. In California, a gas power plant closed after only a third of its lifetime capacity as it was no longer economically viable, given the competition posed by renewables. The site was instead sold to a company that makes battery storage for wind and solar power.[116]

Building new renewable energy infrastructure is likely to be cheaper than the operating costs of existing gas infrastructure within just two decades, a "sobering risk," for investors.[117] Indeed, the price of gas will always be somewhat unstable, subject to sharp increases depending on the inherently volatile global energy market, and the availability of gas as a commodity. **The price of renewables, on the other hand, is not dependent on a finite commodity, but relies only on technology costs,** which are rapidly falling. Wind energy has decreased 30-40% in price since 2010, and the price of solar has plummeted 80%.[118]

Investing scarce resources in natural gas production not only threatens our capacity to remain within 1.5°C, it is an unjustifiable waste of public finance that may result in massive public debt. Irish taxpayers will have to pay €150 million on carbon credits to compensate for the State's failure to meet the EU's legally binding 2020 emission reduction targets.[119] Over €120 million has already been spent by the public on carbon credits to date.[120] This is to say nothing of the true cost of the climate crisis - those that cannot be quantified, including life[121], culture[122], and traditions.[123] (See note in annex 1 on the considerable limitations associated with cost-framing the climate crisis).

3. Carbon lock-in

Once investments in natural gas are made, producers are likely to continue production until they have recovered their costs, even if the market price is lower than the long-term costs of production. As Sovacool notes, 'subsidies become self-replicating because, once enacted, they continue to shape energy choices through the long-lived infrastructure and capital stock they create. This justifies further expenditures to operate, maintain, and improve existing technologies."[124]

Gas terminals and pipelines once built are designed to last decades, and money invested in bringing new reserves into operation could make it legally, politically, and economically very difficult to keep that carbon in the ground. Instead, we would be locked into a carbon intensive energy system for decades to come. Avoiding carbon-lock in therefore allows cheaper mitigation costs and reduces the risk of stranded assets.

3.1

Case Study 1:
Public Finance as a Pillar for Natural Gas Infrastructure

Despite its relatively low-profile, the European Investment Bank (EIB) is the biggest public bank in the world. It is financed through the issuance of bonds which are backed by EU member state governments. In other words, loans granted by the EIB are directly funded by EU taxpayers. In 2019, the bank announced that it will phase out finance for new fossil fuel energy projects under its revised energy lending policy. However, the lending policy contains significant loopholes and will only come into effect by the end of 2021.

1. Fossil fuel projects currently being assessed by the bank may receive EIB financing, as well as new fossil fuel projects yet to be submitted before the end of 2021.
2. The bank can approve gas infrastructure projects included under the 4th list of Projects of Common Interest before the end of 2021.
3. Fossil fuel plants that emit less than 250 g of CO2 per kilowatt hour of electricity generated over their lifetime will be eligible for funding after 2021.
4. 'Low-carbon gas,' projects, such as hydrogen and biogas will continue to be eligible for funding beyond 2021.[125]

Gas Not Ireland. Loan from the EIB

EIB financing of natural gas infrastructure in Ireland has already created considerable risk of breaking Ireland's carbon budget, creating carbon lock-in, and burdening the public with stranded asset debt. **In December 2018, Gas Networks Ireland (GNI) received a €100 million loan from the EIB - the equivalent of the entire EU-wide budget for renewable energy.**[126] According to GNI, the loan was intended to *"support the introduction of renewable gas to the grid," to "facilitate GNI's ambition to have 20% renewable gas on the gas network by 2030."* The core investments of the project are *"the construction of the Cluden to Brighouse pipeline [in Scotland], the upgrade of the gas network, and refurbishment and replacement programmes of both the transmission and the distribution networks."*[127]

The loan was granted without any independent assessment of demand for natural gas in Ireland. GNI cited projections by the International Energy Agency (IEA) in the use of natural gas in a low-carbon economy to support their outlook, but IEA scenarios are not aligned with remaining within 1.5°C. GNI stated that they were not concerned about Ireland's gas network becoming stranded:

"given the potential to use gas infrastructure as an essential element of decarbonisation. With Renewable Gas, Compressed Natural Gas, Carbon Capture and Storage and Hydrogen all likely to be key components in Ireland's energy mix, in power generation, heating and transport, Ireland's gas network will continue to play a vital role for Ireland." [128]

Faith in technological solutions are often central to persuading policymakers that fossil fuel production can be married with environmental protection.[129] Unfortunately, these proposals will not facilitate the decarbonization of Ireland's gas network. Subsidizing the upgrade of gas infrastructure in Ireland should not be based on the unproven assumption that the network will distribute renewable energy or decarbonized gas at some point in the future.

1) Renewable gas

Renewable gas refers to the creation of biomethane through anaerobic digestion[130] of raw materials, such as agricultural waste, food waste, or grass silage.[131] [132]Biomethane contains over 90% methane, and leakage from biomethane production is similar to levels found through the lifecycle of natural gas.[133] The risk of leakage in the production and transportation of biomethane suggests that its use at scale would require "extremely robust and potentially costly independent regulation and monitoring of production sites." [134]

Furthermore, its deployment may rely heavily on nitrogen fertilizer (to grow more grass) increasing nitrous oxide emissions[135] - a gas that can trap heat even more efficiently than carbon dioxide or methane over a 100 year period[136]. Anaerobic digestion depends on 'energy crops,' such as maize, which have extremely damaging impacts on soil and water, and compete with food crops for land use.[137] Finally, biomethane is up to five times more expensive than natural gas,[138] and would likely require significant investment.

2) Compressed natural gas

The EIB loan to GNI was not only for the development of natural gas in the energy sector – the company plans to expand into transport and heating too. GNI is currently researching the installation of 70 Compressed Natural Gas (CNG) stations across Ireland[139] based on claims that CNG offers promising solutions to emission and air pollution issues compared to diesel cars.The first public station has already opened in Topaz Dublin Port.[140] However, CNG vehicles have similar carbon emissions performance as other fossil fueled vehicles. When methane leakage is accounted for, CNG offers no climate benefits compared to petroleum-based fossil fuels.[141]

3) Carbon Capture and Storage

Carbon capture and Cstorage is a risky and expensive technology, presently unviable at scale, and does not forestall the need to rapidly reduce reliance on fossil fuels, including natural gas. See section 1.3.

4) Hydrogen

There are two methods of producing hydrogen with considerable climate and infrastructure implications. Firstly, natural gas can be chemically converted into hydrogen and CO2. The CO2 can be separated and (in theory) stored. This is known as Steam Methane Reformation (SMR) or 'Blue Hydrogen.' However, emissions are not removed from the production and transportation of hydrogen in the SMR process, so it cannot be considered an emissions-free gas. The constraints associated with CCS present an additional limitation. Furthermore, as hydrogen is a smaller molecule than methane, its production would require a complete overhaul of GNI's pipelines, storage systems and appliances. [142] [143]

Hydrogen can also be produced through the conversion of either fossil or renewable-based electricity through a process known as Power-to-Gas (PtG). Hydrogen is not a zero-emissions gas if produced through PtG using fossil-based electricity. Furthermore, whilst CO2 can be added to hydrogen in the PtG process to reduce the need for refitting the gas network, this would not create a zero-emissions hydrogen. If the PtG process uses renewable electricity and does not add CO2, the network will need to be upgraded to facilitate hydrogen as a smaller molecule than natural gas[144]. Finally, the likelihood that renewable hydrogen will be produced in the same volume as natural gas currently occupies

on our grid remains low, and its deployment may take decades, as GNI reported themselves[145].

Instead of directing scarce public finances toward a much-needed just transition in Ireland, the EIB loan to GNI simply downplays the scale and urgency of transformation required from the energy sector in allowing Ireland to meet its Paris objectives. Furthermore, there is risk that the EIB will finance additional dangerous gas infrastructure in Ireland.

As aforementioned, the EIB's updated energy lending policy allows the bank to 'approve gas infrastructure projects included under the 4th list of Projects of Common Interest before the end of 2021.' Projects of Common Interest (PCI) [146] enjoy numerous benefits, including streamlined environmental assessment, a broad range of EU subsidies, higher private investor visibility and confidence, and accelerated permits. [147]

One Irish project was included on the updated PCI list in 2019 – the highly contested Shannon LNG terminal which would facilitate the importation of liquefied natural gas (LNG) from the US into Ireland. Liquefied natural gas (LNG) is normally extracted through a lethal process known as hydraulic fracturing, or 'fracking,'[148] a lethal form of extracting gas associated with releasing carcinogenic compounds, polluting fresh water sources and causing earthquakes. The Irish government wisely instituted a domestic ban on fracking in 2017 on health and environmental grounds. Under the Trump administration, US fracking regulations have significantly deteriorated, and the resultant glut of natural gas in the US market is pushing industry to export its overflow. [149]

Ireland's international human rights record has already suffered major setbacks from the ESB's importation of 'blood coal,' from Colombia.[150] The hypocrisy of Ireland's refusal to tolerate the impacts of fracking in Ireland whilst subsidizing its importation from the US has been highlighted by grassroots organizations for years.[151] Furthermore, we simply don't need it. **The proposed LNG plant would add 10 billion cubic meters of natural gas to Ireland's energy mix – more than twice Ireland's annual energy demand (4.5 billion cubic meters)[152].** This is not financing the transition; it is financing the entrenchment of resource extraction policies responsible for the climate crisis.[153]

Furthermore, it is unclear why the government approved Shannon LNG's inclusion on the PCI list given that the terminal's planning permission has been indefinitely postponed following legal proceedings brought by Friends of the Irish Environment (FIE) in 2019. FIE challenged An Bord Pleanála's decision to extend Shannon LNG's planning permission without having required (1) an appropriate assessment, (2) a strategic environmental assessment, or (3) without having regard for Ireland's 2015 Climate Act. The case has been referred to the European Court of Justice and developers were ordered to halt development plans[154]. FIE have since declared a fresh legal challenge against Ireland and the European Commission's decision to assign the Shannon LNG terminal as a project of common interest, on the grounds that Ireland and the EU failed to carry out an independent analysis of the sustainability, climate and cost-benefit implications of the project.[155]

Policy recommendations for the EIB and the Irish Minister for Finance

1. **End financing of natural gas projects immediately.**
2. **Finance the democratization of the energy system.**

1) End financing of natural gas projects immediately.

- It is critical that the EIB removes all natural gas projects currently included on its PCI list. Public banks have a mandate to lead the way and signal to private banks and investors that dangerous fossil fuels will no longer receive valuable funding.

- The Irish Minister for Finance has a responsibility to vote against all fossil fuel projects that may be eligible for EIB financing between now and the end of 2021, including any natural gas projects currently on the PCI list.

- The EIB will review its energy lending policy in two years. The Irish Minister for Finance must work with other representatives to close all loopholes that may allow natural gas projects to be financed beyond 2021.

2) Finance the democratization of the energy system.

Despite the fact that the EIB considers itself a policy tool designed to support projects that are in the public interest and would not otherwise receive funding, stakeholders from the EIB and the Irish Department of Finance suggested that the EIB lacks institutional capacity to provide loans to small-scale community owned renewable energy projects.[156] The bank has a remarkably low number of staff given the scale of resources they deal with. In 2015 the EIB employed 2,544, compared to over 10,000 employed by the World Bank, which has a smaller lending portfolio. Furthermore, the Board only meets 10 times a year, creating pressure on decision-makers to reach conclusions within a short timeframe. There is often a quick turn-around period between project proposal and loan approval. This structure of the Bank arguably leads to "infrastructural lock-in," whereby strong preferences exist for centralized energy grids and large projects over decentralized local solutions and ownership structures.[157]

- To overcome this, the EIB could assist Member States to finance community-led renewable energy projects by establishing an intermediary body to bundle small loans together, which could ease the bank's capacity to review loan applications.

- Such a mechanism has already been created for small and medium enterprises (SMEs) likely to be impacted by Brexit. The Strategic Banking Corporation of Ireland provides SMEs with low cost funding from financial institutions (the EIB along with Kreditanstalt für Wiederaufbau (KfW the German promotional bank) and provides an 80% guarantee on qualifying loans to SMEs[158]. Creating a similar body to review community-scale loans within the EU could bridge EIB financing with EU energy and climate objectives, including the democratization of the European energy system. [159]

3.2

Case Study No. 2: Tax exemptions, i.e. fossil fuel welfare

G20 governments spend $88 billion on exploration subsidies per year – more than double what the biggest twenty private fossil fuel companies spend on exploration. **This suggests that private exploration for oil and gas relies heavily on public finance[160].** As the production of natural gas is extremely capital intensive, subsidies that can reduce the upfront costs associated with its production, such as allowing exploration costs to be written off against tax are highly attractive to investors[161]. Indeed, subsidies that pose the greatest threat to remaining within 1.5°C are therefore those that assume the liability of investment risks associated with gas extraction, as they incentivize investment into natural gas extraction on a long-term basis, creating risk of lock-in[162]. Such subsidies can effectively turn unprofitable fossil fuel projects into valuable investments. Research carried out in the US found that one dollar of subsidies allocated to the reduction of capital costs of fossil fuel extraction is worth triple the investment value of a dollar allocated to demand-side reductions (i.e. subsidies that make the consumption of fossil fuels cheap).[163]

The licensing regime for natural gas exploration and extraction in Ireland is among the most liberal in the world. Indeed, the scale of corporate benefit provided to multinational fossil fuel companies through tax breaks is staggering.

- Companies that receive license to drill for oil and gas in Ireland are required to pay 25% corporate tax on profits. Most countries tax profits on oil and gas extraction somewhere between 40 – 85%.

- 100% of the operating costs of the business can be offset against the 25% tax rate. The Irish government can therefore never receive even a quarter of the earnings of the exploitation of oil and gas. An analysis of 153 fiscal systems showed that Ireland had the second lowest tax in the world on profits.[164]

- Unused tax allowances on unsuccessful oil and gas exploration expenditure can be carried forward for up to 25 years.

- Although royalties to host governments are typically a mandatory compensation for the extraction of resources on State-owned land or waters, royalties on the profits of oil and gas extraction have been banned since 1987 in Ireland.

- Companies are required to pay 5% tax on profits from when production commences, which can also be offset as a cost on the 25% corporate tax paid on overall profits[165].

- Exploration companies own 100% of the oil and gas found under Irish waters and are not required to sell any reserves found back to the State. Granting licenses for oil and gas exploration are therefore of no benefit to Ireland's energy security. If reserves are sold back to the State, it is at full market value. [166]

The Petroleum Affairs Division within the Department of Communication, Climate Action and the Environment states that its role is to is to 'maximise the benefits to the State from exploration for and production of indigenous oil and gas resources.' It is clear however that the only benefactors of Ireland's generous licensing terms are the shareholders of oil and gas companies. Irish subsidizing of private fossil fuel companies guarantees no fiscal or energy security benefit to the Irish government. Taxpayers are instead required to buy back resources essentially ceded to private industry for free. Moreover, the revenue foregone from failing to appropriately tax fossil fuel extraction means that higher taxes on other economic activity is

Yet despite the overly generous terms of Ireland's licensing regime, oil and gas exploration is not a profitable venture in Ireland. Shell left Corrib in 2017 with losses of €2.5 billion[167]. The CEO of Providence Resources resigned in 2019 following 'a series of failures which ultimately left it without funding to progress drilling at its

key asset, Ballyroe.[168]' One week later, CEO of Tullow Oil quit after the company's shares dropped from £18.5 million to £3.1 million.[169]

Such losses are wholly unsurprising given that only two commercial wells have been found out of almost 160 drilled since 1962 in Ireland.[170] The Irish Offshore Operators Association and PWC confirmed that there is a mere 1 in 40 chance of finding natural gas in Ireland. Furthermore, although the private extraction of natural gas in Ireland is often defended as a job creator, the opportunities for employment within the sector are scarce. Aside from the fact that the licensing terms include no requirement to employ Irish residents on oil and gas rigs, **only 265 people are currently employed by the oil and gas sector in Ireland[171].** 10 of Providence Resources' 13 employees were made redundant in 2019[172], mirroring employment trends in the sector globally that have declined sharply in recent years.[173] Conversely, **over 10,000 people in Ireland are employed in the fisheries industry[174], and 150,000 – 250,000 work in tourism and hospitality[175].** These sectors rely on the health of Ireland's unique coastline, which drilling for natural gas directly harms.

As well as promoting hydrocarbon exploration in Ireland, the Petroleum Affairs Division is additionally responsible for the regulation of oil and gas extraction in Ireland, including environmental protection. The independent mediator in the Corrib gas dispute noted 'the unsatisfactory position where the same unit in the Department of Communication, Energy and Natural Resources charged with promoting gas and oil exploration was also charged with monitoring the construction and inspection regime of the pipeline. In light of these concerns he recommended that authority for up-stream safety should be reposed with the CER.'(Commission for Energy Regulation)[176][177].

This recommendation unfortunately was never heeded. **The Petroleum Affairs Division of the DCCAE has never required an Environmental Impact Assessment to be carried out for the exploration of oil and gas in Irish waters[178]**. Furthermore, the location of drilling for oil and gas is effectively led by industry, as the Department prioritizes 'determining where they can obtain the best level of interest.[179] In May 2019, ExxonMobil received license to drill in Ireland's sensitive Porcupine Basin – a critical ecosystem for whales and dolphins. Unsurprisingly, this venture was unsuccessful[180], but the environmental impacts of exploration alone are enormous. The impacts of seismic testing[181] on marine wildlife in Ireland has been well documented by Irish researchers[182], and in 2019, new research found that seismic testing has significantly reduced sightings of cetaceans.[183]

Ireland issued 15 new exploration licenses from 2018 through to June 2019.[184]

Recommendations

- Ireland's remarkably liberal fossil fuel tax regime offers Ireland one advantage in transitioning our economy away from fossil fuels. Unlike other countries, such as the Netherlands, Ireland's economy is not dependent on tax revenue generated by the private extraction of natural gas.

- Therefore, rather than simply repealing the (outrageously generous) tax breaks granted to the oil and gas industry on existing licenses. the government must instead end hydrocarbon exploration immediately.

- Even if the State could earn a return on future gas exploration licenses, there is no future in this industry, and any revenue earned would soon wind down.

- The government should however consider the imposition of a windfall tax on natural gas companies that have not paid tax in Ireland.[185] The money collected could be ringfenced as a legacy fund to finance Ireland's transition to a low-carbon economy.

3.3

Case Study Number 3:

Investments by State-Owned Enterprises

Investments in natural gas infrastructure by State-owned enterprises create risk of carbon lock-in, stranded assets, and give investors the impression of financial certainty around the future of gas[186]. The Electricity Supply Board (ESB), a 95% State-owned company, announced plans in 2019 to build four new gas plants in North Dublin, at the cost of an alleged €700 million in public funds[187]. The company aims to have the gas feeding into the grid by 2023, and at the time of writing, has applied for planning permission to begin the construction of a Flexible Generation

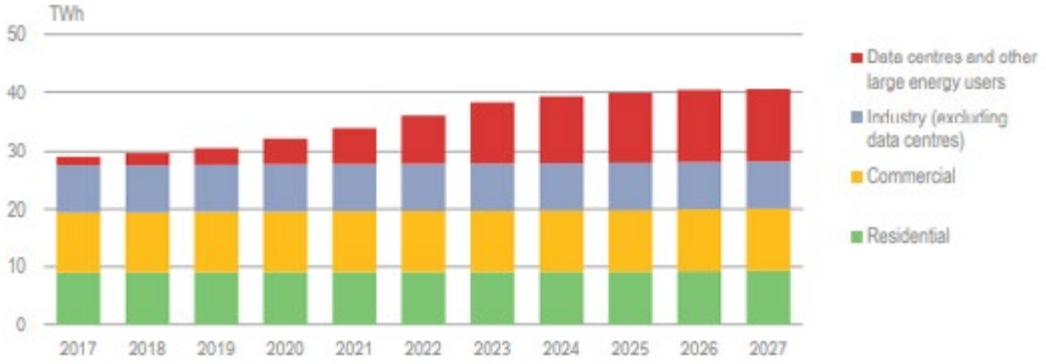
Plate 1 Aerial View of General Site Area and immediate environs

Thermal Station (Flexgen) for the generation of electricity in Poolbeg[188].
The proposed station at Poolbeg would run primarily on natural gas and rely on diesel as a back-up fuel. The Department of Culture, Heritage and the Gaeltacht noted the unique archeological potential of the area as the seabed below the site possibly contains wrecks.[189] Dublin City Council (DCC) found that "[T]he rationale for the location of the development is unclear," referring to the site's proximity to Bull Island, a Natura2000[190] site home to a rich variety of mammals, birds, fish, and insects. Waders, light bellied brent geese and waterfowl are commonly sighted in the 'hundreds of thousands,' at the island, and Dublin Bay's status as a UNESCO biosphere requires special protection as an area "not just of ecological value, but also areas around them and the communities that live and work within these areas."[191]

DCC has requested the ESB to carry out a noise, visual and landscape impact assessment and to provide details of its consultation with the Health and Safety Authority as to how it will counter the risks to health and environment given its location in a public open space. The ESB in its application did not provide information on the emissions impact of the plant and has not been requested by DCC to do so, despite being required to by law. The EU EIA Directive expressly mandates that EIAs must include 'the direct and indirect significant effects of a project on…c) land, soil, water, air and climate.'[192] The ESB did note in its application that it would be required to assess the emissions impact of the plant in its application for an Industrial Emissions License to the EPA but predicts that 'no significant impacts are anticipated in this regard.' This prediction is entirely inconsistent with climate science.

The company (separately) stated that their plans to construct new natural gas infrastructure form part of the ESB's plans to lead 'the transition to a low carbon economy,' as "gas is the least carbon intensive fossil fuel." The company is not concerned about the plant becoming stranded, stating that the 'ESB believes that the new gas plants will have a viable role to play as a bridging technology in the journey to a de-carbonised electricity system.' When asked what the new gas plant was required for, the ESB simply responded that 'all of the power will be fed into the electrical grid.' **Incidentally, Eirgrid projects that by 2027, 31% of electricity demand will come from data centers**. By 2030 data centers will account for 75% of new electricity demand growth.[193]

Figure 5.11 Annual demand forecast 2018-27, median demand scenario



Data centres and other large energy users are projected to grow rapidly and account for nearly one-third of total electricity demand by 2027.

Source: EirGrid. 2018. 'All-Island Generation Capacity Statement 2018-2027.' Available at : http://www.eirgridgroup.com/site-files/library/EirGrid/Generation_Capacity_Statement_2018.pdf

Data centers are large buildings used to centralize, store, and disseminate data collected largely by tech giants such as Microsoft, Apple, Amazon, Alphabet Inc (Google's parent company) and Facebook. Dublin has already become Europe's 'largest data hosting cluster,'[194] and in May 2019, there were 53 data centres active in Ireland, with a further 29 under development[195]. Investment in data centers in Ireland is predicted to reach €10 billion by 2022[196]. A single data centre demands the same energy as "a large town," in Ireland.[197] **If data centers are run on combined gas -fired units, they will add 1.5 million tonnes to Ireland's carbon emissions by 2030 – a 13% increase in electricity sector emissions[198].** Data centers are already fast outpacing Ireland's energy capacity and will significantly increase the cost of energy in Ireland as a result of the grid improvements that will be required as a result.[199]

Despite claims made by the tech industry that data centers can run on 100% renewable energy,[200] the sector's green credentials are largely owed to 'Renewable Energy Credits.' This is a market instrument designed to offset the climate impacts of data centers. For instance, Amazon has invested in two wind farms, one in Donegal and the other in Cork[201], but plans to build a data center that will consume 4.4% of Ireland's entire energy capacity[202]. Ireland's electricity grid relies on 69% fossil fuels. [203]

Following Apple's failure to secure planning permission to build a data center in Athenry and the controversy that ensued,[204] data centers are set to be classified as strategic infrastructure development (SID) projects in Ireland.[205] **This would significantly reduce the participatory rights citizens have in the planning process of data centers.** Instead of applying for planning permission to a local authority, SID status would grant tech companies right of access to apply directly to An Bord Pleanála. If a person wished to contest An Bord Pleanála's decision, they would have to bring a legal challenge before the High Court. According to the government, designating data centers as SIDs is intended to 'contribute to regional development, deliver associated economic activities and support the creation of high quality, sustainable jobs.' [206]

However, there is not a parallel between facilitating data centers and job creation. The average number of jobs at a data center is somewhere between five and thirty, and the hours demanded can be 'gruelling.'[207] Furthermore, employment security in data centers is very poor. The New York Times reported that data center operators 'fear for their jobs on a daily basis,' because tech companies will not support them if any technical glitch were to induce 'system failure.'[208] In the government's statement on data centers, they posit that 'it is important that Ireland retains the ongoing capacity to meet a range of energy intensive industry demands over time.'[209] The statement concedes that "a balance will need to be maintained between the distributional impacts of higher energy costs on the economy and the longer-term economic impacts of utility intensive enterprise investment."

That balance is already enormously skewed in favour of big tech and climate destruction. Tech companies have offices located in Ireland to expressly avoid paying tax,[210] [211][212] and are listed among the most profitable enterprises in the world, outpacing even carbon majors ExxonMobil and Shell in terms of their market share. In fact, the distinction between the fossil fuel industry and big tech is itself becoming increasingly blurred. Google, Amazon, and Microsoft have quietly become 'the new innovative arm of the fossil fuel industry,' investing heavily in researching and developing artificial intelligence to enhance the efficiency of oil and gas extraction.[213] Amazon recently threatened to fire its employees for speaking out against the company's contracts with the fossil fuel industry and for donating to climate denying politicians.[214] Shannon LNG developers plan to build data centres to 'manufacture,' their own demand for natural gas in Ireland.[215]

New natural gas infrastructure is being subsidized by the ESB to support the energy demands of a tiny, extremely lucrative industry that will contribute very little to the Irish economy in terms of tax take or secure employment, but will instead increase Ireland's energy costs and emissions.

Illustration source: 2017. 'The world's most valuable resource is no longer oil, but data.' 2017. The Economist.

Recommendations:

- Public funds, including those held by commercial semi-state bodies, should not be invested in new energy infrastructure without a detailed climate impact assessment showing that the project is consistent with a zero-emissions pathway and Ireland's legal obligations under the Paris Agreement and the European Convention on Human Rights.

- There is an urgent need to strengthen Ireland's climate legislation so that planning authorities must adhere to Ireland's climate policy objectives and the Paris Agreement when considering applications for projects that may contribute to additional greenhouse gas emissions.

- Publicly owned semi-state bodies such as the ESB should lead the way to a clean energy future by prioritising renewable energy and associated storage technologies throughout their activities.

- The government should revise its policy on supporting data centers to ensure that their cumulative impact and energy demand can be met sustainably with renewable energy resources.

3.4

Case Study number 4:
Fiscal Support of Industry-led Research

"Regulatory policy is increasingly made with the participation of experts, especially academics. A regulated firm or industry should be prepared wherever possible to coopt these experts. This is most effectively done by identifying the leading experts in each relevant field and hiring them as consultants or advisors, or giving them research grants and the like. This activity requires a modicum of finesse; it must not be too blatant, for the experts themselves must not recognize that they have lost their objectivity and freedom of action."[216]

This section illustrates how government fiscal support of industry-led research effectively doubly subsidizes the natural gas industry. Firstly, the research is partially State-funded and secondly it is directed towards the interests of the natural gas industry. As an additional bonus, academic partnerships offer an objective position from which industry can influence policy. Perhaps most significantly of all, the public relations value of partnering with a university cannot be overstated. It is considerably more valuable than advertising alone, which is recognized as self-interested; independent research instead is marked by its "disinterestedness."

One of the leading research objectives of the Irish Centre for Research in Applied Geosciences (iCrag) is 'to significantly de-risk Ireland's offshore and onshore hydrocarbon (i.e. oil and gas) and mineral resource exploration, thereby increasing exploration activities.'[217] The center receives funding from public bodies Science Foundation Ireland[218], Ireland's European Structural and Investment Funds Programme, and the European Regional Development Fund**. Among iCrag's 60 industry partners are fossil fuel giants Shell, ExxonMobil, BP, and Chevron, as well as local actors such as Providence Resources.**[219] These companies have been instrumental in establishing the narrative of natural gas as a "transition fuel,"[220] and have faced high-profile legal challenges as a result of their overwhelming contribution to the climate crisis.[221]

The involvement of the natural gas industry in academic research somewhat resembles the approach adopted by the tobacco industry in the 1950's when the detrimental health impacts of smoking began to emerge. This approach includes setting the research agenda, hiding industry involvement in research, and publishing research that supports industry's position.[222]

1) Set the research agenda.

Partnerships with public research centres afford natural gas industry members a position from which they can direct the scientific research agenda. iCrag's Industry Advisory Committee 'advises iCRAG on the prevailing industry trends and needs, and influences research agenda accordingly.' Shell's Regulatory Affairs Planning Manager and Ireland's Country Manager for Woodside (Australia's largest oil and gas firm) both occupy positions on this committee. A role on this Committee additionally offers Shell and Woodside a position from which they can work directly with State policymakers from the Petroleum Affairs Division (PAD) of the Department of Communications, Climate Action and the Environment, who also occupy seats on the committee. [223]

Industry influence extends to iCrag's Governance Committee, the group responsible for providing 'advice and guidance on the strategic development of the Centre.'[224] The executive director of Tullow Oil and the head of the department of Regional Geoscience Studies and New Opportunities Selection of ENI (a multinational oil and gas company based in Italy) are both members. Finally, the Chair of the Irish Offshore Operators Association (IOOA) sits on the Executive Management Committee of iCrag. The IOOA is the private representative and lobbying organization for all oil and gas companies in Ireland. In 2019, the IOOA lobbied heavily against the Climate Emergency Measures (CEM) Bill (proposed legislation to ban the issuance of new exploration licenses for oil and gas in Ireland).[225] It is perhaps unsurprising that iCrag posits that 'Natural gas will underpin Ireland's electricity generation to 2030 and beyond.'[226]

2) Hide industry involvement in research.

Public funding directed to iCrag is not even counted as a subsidy. The CSO analyzes subsidies directed towards fossil fuels in Ireland, including data on research and development directed to the "promotion of fossil fuels." The CSO found that research and development of fossil fuels had not received any public financing since 2015. However, a report in the Sunday Business post found that **Science Foundation Ireland (a semi-State body) granted €14.5 million in public funds to iCrag's research since 2015. €4.7 million of this was directly channeled to 'commercially focused oil and gas exploration.'**[227] This is not a criticism of the CSO's analysis – it is simply reflective of the lack of transparency in accounting for subsidies to fossil fuels in Ireland, and the opaque ties between the fossil fuel industry and public institutions.

Despite several attempts to interview representatives from iCrag, requests were never responded to, and **information on the funding provided by the fossil fuel industry to iCrag was denied in a Freedom of Information request.** Refusal was based on the fact that this information was 'not in the public interest,' and that 'disclosure would result in a material financial loss.' This response is potentially reflective of cuts to third level education in recent years[228] that have allowed the fossil fuel industry to become "an integral part of the economics of higher education."[229]

3) Publish research that supports industry's position.

The position of the fossil fuel industry is by no means uncertain – despite claims that investments in natural gas can facilitate the transition, the industry is making no progress to displace natural gas even in the medium to long-term to progress the transition to renewables. In 2018, carbon majors spent just 1% on renewables.[230] BP and Shell are planning on extracting enough fossil fuels to bring us into a 5C world[231], and Exxon has an aggressive growth plan to increase the company's profits 140% by 2025 [232] foresees no reduction in emissions between now and 2040, and does not expect that emissions will ever reach zero[233].

A focal point of iCrag's research interest is 'energy security.' This research is aimed at developing 'unconventional hydrocarbons,' because according to iCrag, 'especially gas, can play an increasing role in helping to bridge the energy demand gap, while also replacing coal-fired electricity generation to reduce carbon dioxide emissions.'[234] However, the development of natural gas reserves does not protect Ireland's security of energy supply[235]. Academic research in support of industry interests could be seriously compromising our response to the climate crisis. One module offered by the research center is 'Petroleum Geology and Exploration.' The module's objectives states that 'the last of the world's "easy" oil discoveries have been made and now there is increasing global economic pressure to explore for hydrocarbons in more and more inaccessible regions, in an attempt to stretch out the planet's last reserves.'[236] As Franta and Supran note, when involving the fossil fuel industry in academic research 'neither the public nor the future is well served.'[237]

Finally, iCrag is not the only source of direct State subsidization of natural gas exploration research. From 2010 – 2019, the Petroleum Infrastructure Program, jointly funded by the Petroleum Affairs Division of the Department of Communications, Climate Action and the Environment, and companies participating in frontier exploration licenses in Ireland, provided €234,996 in scholarships to programmes in 'topics of relevance to the development of Ireland's indigenous oil and gas resources.'[238]

Fiscal support of industry-led research

Recommendations:

- The subsidization of public research carried out in partnership with the gas industry may be compromising not only academic rigour but our response to the climate crisis. The key recommendation of this case study is therefore to fully cut all ties between public research centers and the gas industry.

- End public funding for the Petroleum Infrastructure Program and redirect the subsidies to scholarships in the environmental sciences or humanities instead.

4.

Conclusion and policy recommendations

Aligning public finance with the Paris objective of remaining within 1.5°C is both urgent and dangerously overdue. There is no rationale to continue natural gas production subsidies signal profitability and policy certainty around the future of natural gas; and make gas cheaper to bring into production; create serious risk of overrunning Ireland's carbon budget, leading to carbon lock-in and stranded assets. This paper demonstrates that decarbonizing our society and economy requires cutting ties between the fossil fuel industry and the thing it depends on most: scarce public finance. This paper further illustrates that State endorsement of industry narratives positioning natural gas at the center of Ireland's transition plans will only derail the holistic social and ecological transformation that is needed.

Subsidies provided to natural gas in Ireland overwhelmingly favor private corporate interests over the public good. The government must instead adopt an 'unburnable carbon,' approach to its fiscal and energy policies to ensure decisions are underpinned by an understanding of our budget and carbon constrained world, rather than short-term corporate interests. Phasing out subsidies to fossil fuel production and mapping out a timeline for the ultimate elimination of natural gas from Ireland's energy mix is essential.

Removing natural gas production subsidies is only one tool in enabling Ireland to ramp up its efforts in meeting its obligations under the Paris agreement. A single economic instrument will not bring about the transformative change required, but indeed there is no 'silver bullet,' approach that can be taken to address the climate crisis, and fossil fuel production subsidies provide an opportune place to start. This proposal therefore is not in contest with other measures, such as banning fossil fuel exploration - it should instead complement such measures.

In addition to the specific case study recommendations, steps on how to end natural gas production subsidies are also suggested:

1. Increase transparency by determining precisely how much public capital is directed towards fossil fuel production.

2. Determine how these subsidies can be phased out as quickly as possible.

3. Redirect savings toward investment in areas in Ireland that have already been badly affected by unfair just transition policies

4. Ensure that subsidies aimed at financing renewable energies do not support fossil fuels.

5. Include fossil fuel subsidy reform as part of Ireland's Nationally Determined Contribution.

In carrying out all of these steps, consult with local and national CSOs (civil society organisations) that have been working to raise awareness of the problems with natural gas and its alternatives.

Annex 1: Research limitations and methodology.

Research for this report was carried out through analysis of specialized literature on both subsidies and natural gas, including policies, legislation, and climate science. Interviews with key stakeholders were carried out to provide additional context to the case studies, including representatives of the European Investment Bank and the Irish Department of Finance, Gas Networks Ireland, and the Electricity Supply Board.

There are some important limitations contained in this report.

1.5C

This paper refers throughout to the goal of remaining within 1.5C of global temperature rise in accordance with the Paris agreement. This is not to suggest that 1.5C is a safe level of global warming. It is simply the bare minimum politicians have agreed to work toward. The Paris agreement and the IPCC reports have been agreed upon and endorsed word for word by UN member states, Ireland included. However, what is acceptable to politicians is not at all acceptable to frontline communities battling the climate crisis, located predominantly in the global South. There is no acceptable or safe level of global warming.

Costs of the climate crisis

As this paper is focused on the financial implications of the climate crisis, this paper refers throughout to the financial costs and risks associated with subsidizing natural gas. However, the language of capital does not capture the breadth of risks associated with runaway climate change. For instance, the concept of stranded assets is based on the economic belief that "the efficient allocation of capital requires financial due diligence," and that companies must therefore comply with full and transparent disclosure of all potential risks. While it is commendable that insurance companies, banks and international financial institutions have called for greater action on climate change, cost framing by the financial sector remains thoroughly inadequate. For instance, flooding in Ireland compared to Bangladesh comprise vastly different levels of risk when evaluated solely through price. Although far more lives are likely to be lost in Bangladesh, the "cost," of flooding in Ireland would be estimated at a much higher price owing to the value of insured life and property, and the value of economic productivity and wages forgone.[239] Most importantly, the true cost of the climate crisis cannot be quantified.

Annex

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and a big issue, but I remind the committee that no crisis that was ever predicted in human history has come to pass." (See: https://www.oireachtas.ie/en/debates/debate/joint_committee_on_climate_action/2018-10-18/2/)

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