

An Bord Pleanála Case Reference: [PA08.311233](#)

Objection to Proposed Shannon LNG Terminal Planning Application



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Table of Contents

1 Introduction	4
2 Grounds for Objection	5
2.1 Overview	5
2.2 Government policy is against LNG terminals being permitted.....	6
2.3 Climate and Biodiversity Emergency	6
2.3.1 Obligations to have regard to the Climate and Biodiversity Emergency.....	6
2.3.2 United Nations Framework Convention on Climate Change (UNFCCC)	7
2.3.3 Climate Action and Low Carbon Development (Amendment) Act 2021	7
2.4 No adequate assessment of alternative site locations.....	8
2.5 The source of the gas.....	9
2.5.1 Why we must assess the source of the gas	9
2.5.1.1 Carbon Leakage.....	9
2.5.1.2 Irish Government accepted that Shannon LNG “is largely proposed as a storage mechanism for fracked gas to be imported from the US”	10
2.5.1.3 Policy Statement Against Importation of Fracked Gas: Large-scale importation of Fracked gas would be via LNG Terminals	10
2.5.1.4 The Draft National Marine Planning Framework against fracked gas imports.....	11
2.5.1.5 Article 3 of the EIA Directive	11
2.5.1.6 Treaty on the Functioning of the European Union (TFEU), Ecocide and the Environmental Liability Directive.....	11
2.5.1.7 Oireachtas Climate Committee 2020 Recommendations to ban fracked gas and LNG terminals	12
2.5.1.8 Legal Opinion on conformity with International Trade Rules, the proportionality test and the necessity to protect human health, the environment and fundamental rights.....	12
2.5.1.9 The Programme for Government	13
2.5.1.10 Widespread Political Consensus Against Fracked Gas Imports	14
2.5.1.11 ‘Trade before Climate’ facing resistance within Europe.....	16
2.5.1.12 Peer-reviewed Scientific Findings: “One third of the total increased methane emissions from all sources globally over the decade before 2019 came from US fracked gas (shale gas)”. Importing Fracked Gas has a Worse Climate Impact than importing coal to Moneypoint in County Clare.....	17
2.5.1.13 Widespread National Public Consensus Against Fracked Gas Imports.....	18
2.5.1.14 International Calls for a Global ban on Fracking.....	18
2.5.2 Evidence that Shannon LNG is a US fracked gas import project	18

2.5.3 International Human Rights threatened by the adverse Impacts of Fracking - which cannot be mitigated through regulation	19
2.6 Environmental Issues	20
2.7 Legal Planning Issues.....	22
2.7.1 Strategic Infrastructure Act only applies to onshore terminals.....	22
2.7.2 Planning permission for the connecting 26km pipeline has expired.....	23
2.7.3 The address of the proposed site is incorrect.....	23
2.7.4 PCI Status of the Shannon LNG project is still under challenge in the Court of Appeal	23
2.7.5 Strategic Environmental Assessment (SEA)	24
2.7.6 Direct and indirect emissions from the proposed LNG terminal	25
2.8 Safety Issues.....	27
2.9 Issues raised in the original planning which are still 'Live'	29
3 Appendices.....	29
Appendix 1 - International Human Rights Impact of Fracking Report - May 2021	
Appendix 2 - Submission to Joint Committee on Climate Action for pre-legislative scrutiny of the Climate Action and Low Carbon Development (Amendment) Bill 2020: A Legislative Ban on Importing Fracked Gas - November 2020	
Appendix 3 - Evidence Shannon LNG Project is for Fracked Gas Imports.....	
Appendix 4 - Submission by Predator Oil & Gas to the Draft Cork County Development Plan 2022-2028 - June 2021	
Appendix 5 - Submission by Kilcolgan Residents Association to Original Planning Application by Shannon LNG PA0002 - November 2007.....	

1 Introduction

Shannon LNG obtained a ten-year planning permission for an onshore liquefied natural gas (LNG) Import Terminal in [2008](#)¹ at Tarbert, County Kerry on the Shannon Estuary in the south-west coast of Ireland. The [controversial](#)² terminal was never built. In July 2018, the company, having been bought over by New Fortress Energy, was granted an [extension](#)³ of planning permission by An Bord Pleanála - the first ever such extension granted under the fast-track legislation enacted by the Strategic Infrastructure Act 2006. However, the Irish High Court [ruled](#)⁴ in November 2020 that An Bord Pleanála had illegally granted the extension of planning and the High Court went on to quash all development consent for the proposed Shannon LNG US fracked gas import terminal on the Shannon Estuary.

In its pre-application [ruling](#)⁵ on June 2nd, An Bord Pleanála decided that the Shannon LNG terminal, as proposed, qualifies as a strategic infrastructure development and under the Strategic Infrastructure Act of 2006 would qualify for fast-track planning directly with An Bord Pleanála.

On May 18th, 2021, the Irish Government [published](#)⁶ a policy statement on the importation of fracked gas. The [policy statement](#)⁷ declared that “*pending the outcome of the review of the security of energy supply of Ireland’s electricity and natural gas systems, it would not be appropriate for the development of any LNG terminals in Ireland to be permitted or proceeded with*”.

Just over three months later, on August 27th, 2021, without waiting for the energy review to be completed, Shannon LNG insisted on [reapplying](#)⁸ for an offshore LNG terminal. This has allowed the company to try to take advantage of its status as a European-Union-listed Project of Common Interest (PCI) which, under Article 7 of the PCI regulation [347/2013](#)⁹, has the “status of the highest national significance possible and be treated as such in permit granting processes”. This status is due to expire in early 2022.

We are objecting in the strongest manner possible to any development consent being granted to Shannon LNG on planning, climate-mitigation, public-health, environmental-protection and human-rights grounds. We are deeply concerned that

¹ <https://archive.pleanala.ie/en-ie/case/Pa0002>

² <http://safetybeforelng.ie/news.htm>

³ <https://www.pleanala.ie/en-ie/case/pm0014>

⁴

<http://safetybeforelng.ie/pressreleases/pressrelease20201109ShannonLNGFrackedGasImportTerminallosesPlanningPermission.html>

⁵ <https://www.pleanala.ie/en-ie/case/304007>

⁶ <https://www.gov.ie/en/press-release/dbe48-policy-statement-on-the-importation-of-fracked-gas-published/>

⁷ <https://www.gov.ie/en/publication/f3774-policy-statement-on-the-importation-of-fracked-gas/>

⁸ <https://www.pleanala.ie/en-ie/case/311233>

⁹ <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex%3A32013R0347>

all relevant EU Directives and Regulations are complied with in the processing of this planning application.

2 Grounds for Objection

2.1 Overview

This planning application is premature and predatorial at a very transformative time in Ireland for climate action, given the climate and biodiversity emergency the country has declared. The Irish Government published a policy statement on May 18th, 2021 recommending that it would not be appropriate for LNG terminals to receive planning permission or even be proceeded with until a review of Irish Energy is completed. In addition, the publication of the new Climate Action Plan 2021 is imminent. Yet, this was ignored by the company, which, it would seem, is attempting to benefit from a EU PCI status it will shortly lose once the new 5th PCI list is published in early 2022. When there is uncertainty of the cumulative impacts this project proposes then the planning authority must apply the EU precautionary principle of preventative decision making until all the environmental information is first made available. This planning application is a pre-emptive strike by a greedy fossil fuel giant attempting to gain development rights before the ongoing energy review is completed. This is simply unacceptable.

Shannon LNG refers consistently throughout the planning application to emissions-reductions targets and supporting renewable targets, but it is clear, even from a layman's perspective, that importing LNG by ship from across the world, be it fracked gas or not, has much more adverse impacts on the climate, environment, human rights, public health, safety and planning than importing via the 2 existing pipelines from the UK. If gas is a transitional fuel there is no logic in building new fossil fuel infrastructure which will lock the country into more dependence on fossil fuels and which the renewable energy sector will not be able to compete with. In the EIA presented with this application, the company is not assessing the full lifecycle, upstream non-territorial or downstream indirect emissions or adverse impacts of its project. This '*gaslighting*', evident throughout the thousands of pages of its planning documentation, is simply not acceptable for any planning authority that has any basic notions of proper and sustainable development.

Shannon LNG has stated that its master plan is to build massive data centres on the site of the LNG terminal powered by its own LNG-fuelled power station on the same site. Rather than reducing overall electricity consumption, its plan is to increase demand with no consideration for the national strategic approach to energy in this country. A developer cannot be allowed to determine Irish Energy policy at such a transformative time in a game of 'possession is nine-tenths of the law' - gaining development rights and an expectation of profit it can then vigorously litigate for in the courts. Shannon LNG, we note, has found itself in the Irish courts multiple times already, so the precedent of its predatorial approach is very clear for all to witness.

2.2 Government policy is against LNG terminals being permitted

On May 18th, 2021, the Irish Government [published](#)¹⁰ a policy statement on the importation of fracked gas. The [policy statement](#)¹¹ declared that “*pending the outcome of the review of the security of energy supply of Ireland’s electricity and natural gas systems, it would not be appropriate for the development of any LNG terminals in Ireland to be permitted or proceeded with*”.

2.3 Climate and Biodiversity Emergency

2.3.1 Obligations to have regard to the Climate and Biodiversity Emergency

Ireland declared a climate and biodiversity emergency on [May 9th, 2019](#)¹² with the words:

“That Dáil Éireann declares a climate and biodiversity emergency and accepts and endorses the [Report](#)¹³ of the Joint Committee on Climate Action entitled “Climate Change: A Cross Party Consensus on Climate Action, copies of which were laid before Dáil Éireann on 29th March, 2019” .

For Strategic Infrastructure Projects, such as this application by Shannon LNG, applying for development consent directly with An Bord Pleanála, The Board is the planning authority of first instance and in this case is not a referral body. This places a higher responsibility on An Bord Pleanála to have regard to its obligations under the climate and biodiversity emergency.

One example of this is priority recommendation 6.8 which states:

*“The Committee recommends a suite of measures to incentivise climate action by citizens, businesses, and the State. Specifically it recommends: 1. All large planned and new public **infrastructure projects should be priced for their climate impact** using the revised shadow price of carbon. This should include: a) An appraisal of the climate mitigation impact of all planned*

¹⁰ <https://www.gov.ie/en/press-release/dbe48-policy-statement-on-the-importation-of-fracked-gas-published/>

¹¹ <https://assets.gov.ie/135271/3226a65b-c49c-458e-9ab9-83b2d1196af2.pdf>

¹² <https://www.thejournal.ie/climate-emergency-dail-vote-4627748-May2019/>

¹³

https://data.oireachtas.ie/ie/oireachtas/committee/dail/32/joint_committee_on_climate_action/reports/2019/2019-03-28_report-climate-change-a-cross-party-consensus-for-action_en.pdf

and new public infrastructure projects as part of the cost benefit analysis that is necessary for Government approval”.

2.3.2 United Nations Framework Convention on Climate Change (UNFCCC)

An Bord Pleanála must also contribute to the maximum extent possible to the objective set out in Article 2 of the 1992 United Nations Framework Convention on Climate Change (UNFCCC), which states:

“The ultimate objective of this Convention and any related legal instruments that the Conference of the Parties may adopt is to achieve, in accordance with the relevant provisions of the Convention, stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.”

In other words, and as the [Programme](#)¹⁴ for Government and policy statement against fracked gas imports acknowledge, An Bord Pleanála should account not only for greenhouse gas emissions that occur within the jurisdiction but also for its contributions to extra-territorial greenhouse gas emissions through the decisions it chooses to make.

2.3.3 Climate Action and Low Carbon Development (Amendment) Act 2021

The construction of the Shannon LNG import terminal would not be consistent with the objectives laid throughout the [Climate Action and Low Carbon Development \(Amendment\) Act 2021](#)¹⁵ and this planning application should be rejected for that reason.

¹⁴ <https://assets.gov.ie/94092/50f892b9-a93e-43fc-81d1-778ff9954d9f.pdf>

¹⁵ <https://www.irishstatutebook.ie/eli/2021/act/32/enacted/en/print.html>

2.4 No adequate assessment of alternative site locations

Article 13 of the [Seveso III Directive](#)¹⁶ states:

“Member States shall ensure that their land-use or other relevant policies and the procedures for implementing those policies take account of the need, in the long term a) to maintain appropriate safety distances between establishments covered by this Directive and residential areas, buildings and areas of public use, recreational areas, and, as far as possible, major transport routes b) to protect areas of particular natural sensitivity or interest in the vicinity of establishments, where appropriate through appropriate safety distances or other relevant measures”.

In the case of the proposed Shannon LNG FSRU, and as argued by Friends of the Irish Environment in [2008](#)¹⁷, given the proximity to centres of population and the riparian location in a Special Area of Conservation (SAC) protected under the Habitats Directive, we are concerned that the issues of alternative locations were not properly addressed in the Environmental Impact Statement.

In the Environmental Impact Assessment (EIA) Report (EIAR Volume 4 Appendix A3-2 - Site Selection Assessment Report), 67 sites were screened as possible locations for an LNG terminal. However, this list did not include the much-publicised Floating LNG Terminal proposed by [Predator Oil and Gas](#)¹⁸ 50 kilometres off the coast of Cork as laid out in a [submission](#)¹⁹ to Cork County Council in June 2021 which would use the existing subsea Petronas (Kinsale Energy) 24” export pipeline from the decommissioned Kinsale Head Gas Field that ties directly into the Irish gas transmission network at the onshore Inch Terminal where there is a GNI entry point. In addition, in its original planning application [PA0002](#)²⁰ for an LNG terminal in 2007, Shannon LNG did, in fact, dedicate an entire section in the [EIS](#)²¹ to the consideration of offshore siting in [Volume 2, section 4.1](#)²². No such consideration of offshore siting exists in the current EIA Report and no mention whatsoever is made of the location for the proposed Predator Oil and Gas LNG terminal.

Article 5 of the [EIA Directive](#)²³ also requires an assessment of the reasonable alternatives (for example in terms of project design, technology, location, size and scale) “studied by the developer”. The aim of Article 5 is very clear in that it obliges

¹⁶ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32012L0018>

¹⁷ <http://safetybeforelng.ie/licensing/lngterminal/foieterminal.htm>

¹⁸ <https://www.spglobal.com/platts/en/market-insights/latest-news/natural-gas/062521-uk-listed-predator-moves-forward-with-plans-for-floating-irish-lng-terminal>

¹⁹

https://drive.google.com/file/d/16gbRr3iQbZMEVzgcypk3M_1PaD1TZ4hQ/view?usp=sharing (see Appendix 4)

²⁰ <https://archive.pleanala.ie/en-ie/case/Pa0002>

²¹ <https://drive.google.com/drive/folders/1Hnn1nmfwE-5Rf-NpAsf6QP-Bx6nlfnt?usp=sharing>

²²

<https://drive.google.com/file/d/1MQmKOjHnqhtPXoYoWwvttfz9ZeXopb9m/view?usp=sharing>

²³ https://ec.europa.eu/environment/eia/pdf/EIA_Directive_informal.pdf

the developer to lay out the “likely significant effects of the project on the environment” and “the reasonable alternatives studied by the developer” which could “avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment”. The developer had already studied offshore siting in the PA002 planning application EIA in 2008 but has not assessed the reasonable alternative that such an option would represent, which is all the more strange since Predator had flagged their intentions in the media from at least as far back as [June 2020](#)²⁴ for the development of an LNG terminal in a non-SAC location.

2.5 The source of the gas

2.5.1 Why we must assess the source of the gas

Shannon LNG refuses to include the source of the gas when it states in its EIA ([Volume 2, page 270 , 7-18](#)²⁵):

"The application does not propose or request permission for any extraction, refining or liquefaction of natural gas. The potential sources of liquefied natural gas (LNG) are varied and, although not possible to identify, will all be located outside of the State and almost all will be located outside of the European Union. The pre-application observations made by the Development Applications Unit of the Department of Tourism, Culture, Arts, Gaeltacht, Sport and Media suggest that the impacts of source gas extraction should be examined, where such data is available. In accordance with the decision of the High Court in An Taisce v. An Bord Pleanála [2021] IEHC 254 and 422, any impacts on the environment from extraction, refining or liquefaction of source gas are too remote from the Proposed Development to require examination, analysis and evaluation within the environmental impact assessment and appropriate assessment of the Proposed Development. We are advised that, for this reason, it is neither necessary nor appropriate to include particulars of any one place where source gas might be extracted."

However, an assessment of the source of the gas is necessary because

2.5.1.1 Carbon Leakage

Section 4 (Climate action plan and national long term climate action strategy) of the Planning and Development Act 2000 (as amended by 6 of the Climate Action and

²⁴ <https://www.offshore-energy.biz/predator-sets-up-irish-fsru-unit/>

²⁵ https://www.pleanala.ie/publicaccess/EIAR-NIS/311233/EIAR%20Volumes%201%20to%204/STEP%20EIAR_Volume%202_Main%20Text.pdf?r=793937485058

Low Carbon Development (Amendment) Act 2021 (the '[Climate Act](#)²⁶') defines *carbon leakage* as “the transfer, due to climate policies, of production to other countries with less restrictive policies with regard to greenhouse gas emissions”. Section 4(8)(j) obliges the Minister and the Government in the performance of their respective functions to have regard to “the risk of substantial and unreasonable carbon leakage as a consequence of measures implemented by the State to pursue the national climate objective”. The 'Prohibition of Onshore Hydraulic Fracturing Act 2017' (the [fracking ban](#)²⁷) banned fracking in Ireland in recognition of the health and climate impacts of exploiting shale gas reserves. Importing fracked gas would amount to 'Carbon Leakage' as defined in the Climate Act. The [policy statement](#)²⁸ against fracked gas imports recognises this fact and has declared that “pending the outcome of the review of the security of energy supply of Ireland’s electricity and natural gas systems, it would not be appropriate for the development of any LNG terminals in Ireland to be permitted or proceeded with”. An Bord Pleanála, must therefore comply with the policy statement as supported by the Climate Act.

2.5.1.2 Irish Government accepted that Shannon LNG “is largely proposed as a storage mechanism for fracked gas to be imported from the US”

Fine Gael Deputy Leader and then Tánaiste, [Simon Coveney, admitted on June 20th, 2020 that Shannon LNG was largely for fracked gas](#)²⁹. He said:

*“We have banned fracking in Ireland and we are not going to have fracked gas produced in Ireland as part of our energy mix and so the thinking in relation to **Shannon LNG which is largely being proposed as a storage mechanism for fracked gas to be imported from the US** is something that wasn't consistent with that policy direction. But I can assure you energy security is very much a part of our policy discussion and I think we can be really ambitious in terms of a shift to renewables, while at the same time continuing to have a reliance on gas as we move to a new energy future which clearly the rest of the world also needs to move to but Ireland can be a world leader on, given the natural resources we have, particularly in wind offshore and onshore”.*

2.5.1.3 Policy Statement Against Importation of Fracked Gas: Large-scale importation of Fracked gas would be via LNG Terminals

The Official Government [Policy Statement](#)³⁰ of May 18th 2021 on the importation of fracked gas makes a distinction between fracked gas and non-fracked gas and recognises that most fracked gas imports would be coming into the country via LNG terminals when it states:

“Ireland imports much of its natural gas via the two interconnector pipelines from Moffat in Scotland, which provide the majority of natural

²⁶ <https://www.irishstatutebook.ie/eli/2021/act/32/enacted/en/print.html>

²⁷ <https://www.irishstatutebook.ie/eli/2017/act/15/enacted/en/print.html>

²⁸ <https://assets.gov.ie/135271/3226a65b-c49c-458e-9ab9-83b2d1196af2.pdf>

²⁹ <https://youtu.be/nS4dzFsFTno>

³⁰ <https://assets.gov.ie/135271/3226a65b-c49c-458e-9ab9-83b2d1196af2.pdf>

gas currently used in Ireland. Given the level of fracked gas in the imports from Scotland is considered very low, the highest risk of fracked gas being imported into Ireland on a large-scale would be via liquefied natural gas (LNG) terminals, if any were to be constructed."

2.5.1.4 The Draft National Marine Planning Framework against fracked gas imports

The [Draft National Marine Planning Framework](#)³¹ approved by Cabinet on March 23rd, has a further nationally-approved policy against fracked gas imports where it states: "*Transmission Policy 6 Subject to required assessments for the protection of the environment, and only where in keeping with the outcome of the review of the security of energy supply of Ireland's electricity and natural gas systems (which is being carried out by Department of the Environment, Climate and Communications), and not involving the importation of fracked gas, additional proposals for natural gas transmission/import infrastructure should be supported.*"

2.5.1.5 Article 3 of the EIA Directive

Article 3 of the [EIA Directive](#)³², obliges an assessment of the direct and indirect significant effects of a project on population and human health, biodiversity, land, soil, water, air, climate. This obligation is not limited to the national territory.

2.5.1.6 Treaty on the Functioning of the European Union (TFEU), Ecocide and the Environmental Liability Directive

[Article 194 TFEU](#)³³ allows each Member State to determine "*its choice between different energy sources*".

The EU Precautionary Principle carries an obligation to assess the *particulars of any one place where source gas might be extracted*. Trade in fracked gas cannot be unreservedly prioritised ahead of climate, environmental, human rights and public health considerations and not assessed in this application in the hope that 'out of sight is out of mind'. It is clear that the temptation to take an as-low-as-reasonably-possible (ALARP) approach to these considerations at a development-consent level instead of a precautionary approach is breaches the EU Precautionary Principle as obliged under [Article 191 TFEU](#)³⁴ and as further explained in an EU [Communication](#)³⁵ in 2000. The Precautionary Principle aims at ensuring a higher level of environmental protection through preventative decision-taking in the case of risk. Indeed, we assert that the destruction of the natural environment by deliberate or negligent human action by turning a blind eye to the fracking source of the gas for

³¹ <https://drive.google.com/file/d/1B-L2D8QTszE8Gp06Ce3GcM2JS4wjGy8/view?usp=sharing>

³² https://ec.europa.eu/environment/eia/pdf/EIA_Directive_informal.pdf

³³ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A12016E191>

³⁴ <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:12008E194:EN:HTML>

³⁵ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=LEGISSUM%3A132042>

the proposed Shannon LNG terminal amounts to **Ecocide**. Article 5 of the [Environmental Liability Directive](#)³⁶ also puts an obligation on An Bord Pleanála, as the competent authority in this case, to take preventive measures against the imminent threat of environmental damage from fracking and Fracked Gas by Shannon LNG and its suppliers who may not be identified due to Shannon LNG's refusal to *"include particulars of any one place where source gas might be extracted"*.

2.5.1.7 Oireachtas Climate Committee 2020 Recommendations to ban fracked gas and LNG terminals

On December 18th, 2020 the Oireachtas Climate Committee's third main recommendation in its pre-legislative scrutiny (PLS) report was that the new Climate Bill be significantly strengthened to include a legislative ban on the importation of fracked gas and liquefied natural gas (LNG) terminals. The Committee [recommended](#)³⁷ *"that the Minister address in the Bill and/or revert to the Committee with a comprehensive plan to ban the importation of fracked gas and specifically to ban LNG terminals in Ireland within the year 2021"*. By doing this, the Committee has demonstrated a willingness to tackle the world's largest single super emitter of methane and one of the worst contributors to climate change. This also demonstrated solidarity and empathy with communities in Pennsylvania, Texas, Northern Ireland and elsewhere affected by, or threatened with, the scourge of fracking. Such a ban would set Ireland on course to become a Global Climate Leader. Ireland would be the first country in the world to ban the importation of fracked gas having already implemented a legislative ban on fracking in [2017](#)³⁸. The global trade in LNG is being fueled by the boom in climate-destructive fracking and both are inextricably linked. The [Irish Times](#)³⁹ reported on February 2nd, 2021 that *"a ban on the processing of imported fracked gas in liquefied natural gas (LNG) terminals is to come under separate legislation"*.

2.5.1.8 Legal Opinion on conformity with International Trade Rules, the proportionality test and the necessity to protect human health, the environment and fundamental rights

[Legal opinion](#)⁴⁰ from experts (a large collaborative effort, prepared over one year) at the Irish Centre for Human Rights, NUI Galway informed the Committee on Climate Action in its final recommendation to support a legislative ban on fracked gas imports. The legal opinion confirmed that the world's first fracked gas import ban in

³⁶ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32004L0035>

³⁷ <https://www.oireachtas.ie/en/press-centre/press-releases/20201218-joint-committee-on-climate-action-launch-report-on-pre-legislative-scrutiny-on-the-draft-of-the-climate-action-and-low-carbon-development-amendment-bill-2020/>

³⁸ <http://www.irishstatutebook.ie/eli/2017/act/15/section/1/enacted/en/html>

³⁹ <https://www.irishtimes.com/news/environment/revised-climate-bill-to-ban-oil-and-gas-extraction-goes-before-cabinet-1.4473426>

⁴⁰ <https://drive.google.com/file/d/1BI5xFr-eg6fXKPw4dL2XjWV6-qxMLtU/view?usp=sharing>
and Appendix 2

the Climate Bill would be compatible with legal EU, European Free Trade Association (EFTA) and World Trade Organization (WTO) trade rules. The legal opinion argues why a measure against the importation of fracked gas is necessary and proportionate in order to protect human health, the environment and fundamental right. We submit this legal opinion in its entirety here to support our argument why An Bord Pleanála **can and should** refuse to grant planning permission to Shannon LNG. A refusal would prevent fracked gas imports from entering the Irish energy mix “**on a large scale**” as aspired to in the published policy against fracked gas imports which states: “*Given the level of fracked gas in the imports from Scotland is considered very low, the highest risk of fracked gas being imported into Ireland on a large-scale would be via liquefied natural gas (LNG) terminals, if any were to be constructed.[...] fracked gas can have significantly higher greenhouse gas emissions than conventional natural gas, both nationally and globally, and the **widespread use** of fracked gas would not be consistent with Ireland’s 2030 and 2050 climate objectives nor globally with the Paris Agreement;*”

2.5.1.9 The Programme for Government

In June 2020, Fianna Fáil, Fine Gael and the Green Party, in the Programme for Government reached a consensus policy position against fracked gas imports which stated⁴¹ that “*As Ireland moves towards carbon neutrality, we do not believe that it makes sense to develop LNG gas import terminals importing fracked gas, accordingly we shall withdraw the Shannon LNG terminal from the EU Projects of Common Interest list in 2021. We do not support the importation of fracked gas and shall develop a policy statement to establish that approach [...] We are conscious of the limitations of examining greenhouse gas emissions solely on a production basis. We will conduct a review of greenhouse gas emissions on a consumption basis, with a goal of ensuring that Irish and EU action to reduce emissions supports emission reductions globally, as well as on our own territories*”. On May 18th, 2021, the Irish Government published⁴² the agreed policy statement on the importation of fracked gas. The Security of Energy Supply review currently being undertaken by the Government was consequently updated to declare that fracked gas imports cannot be considered as a gas supply option following the commitments made in the Programme for Government⁴³. Before the Green Party Members voted on going into

⁴¹ <https://assets.gov.ie/94092/50f892b9-a93e-43fc-81d1-778ff9954d9f.pdf>

⁴² <https://www.gov.ie/en/press-release/dbe48-policy-statement-on-the-importation-of-fracked-gas-published/>

⁴³ The request for Tenders (https://irl.eu-supply.com/ctm/Supplier/PublicPurchase/177146/0/0?returnUrl=ctm/Supplier/publictenders&b=ETENDERS_SIMPLE) put out by the Department for the Environment in November 2020 for the provision of consultancy services to undertake a technical analysis to inform a review of the security of energy supply of Ireland’s Electricity and Natural gas system, was immediately updated to conform with the Programme for Government where the tender document (https://drive.google.com/file/d/1c-in_Y9qBT4pdsKugr56k1_VHjVilBpC/view?usp=sharing) stated:

a power-sharing coalition after the Programme for Government was published, Minister Ryan had specifically [promised](#)⁴⁴ campaigners on June 22nd: ". @SafetyBeforeLng be rest assured, if we can agree to the #PFG we will implement the policies which will see an end to the importation of fracked gas via any LNG terminals in Ireland".

2.5.1.10 Widespread Political Consensus Against Fracked Gas Imports

193 General election candidates, of which 74 are current T.D.s, are already signatories to the [#Pledge4Climate](#)⁴⁵ which [states](#)⁴⁶ "I am opposed to the importation of US fracked Gas into Ireland via LNG import terminals. If elected, I, as a T.D., will work to find a way in the next Dáil to prevent fracked Gas from entering the Irish energy mix via fixed or floating LNG terminals. I am opposed to fracking in Northern Ireland. If elected, I, as a T.D., will work constructively in the next Dáil to prevent fracking from taking place in Northern Ireland". Those 74 TDs include all the elected T.D.s from the Labour Party, The Social Democrats, People Before Profit, The Green Party, Independents for Change, and Sinn Fein, along with leading elected Fianna Fail and Fine Gael T.D.s Eamon O'Cuiv, Marc McSharry and Frank Feighan. These numbers were boosted by the clear positions against Fracking taken by [Fianna Fail](#)⁴⁷ in the Dáil on October 3rd, 2019 "in recognition of the health and climate impacts of exploiting shale gas reserves". Already, on [October 3rd 2019](#)⁴⁸, the Majority of Ireland's MEPs had told the European Commission not to allow fracked gas into Ireland via the Projects of Common Interest list. The Irish MEPs were supporting a motion co-signed by 44 TDs initiated by Brid Smith of 'People Before Profit', submitted to the Dáil on September 26th, 2019 [calling](#)⁴⁹ on the Irish Government: "to remove any project from the proposed list of Projects of Common Interest that could support the building of an LNG facility in Ireland that will act as a gateway for fracked gas entering the Irish energy mix; and – to build support in Europe to prioritise sustainability criteria in the assessment of candidate PCI projects, that will address fossil fuel lock in and the long-term impacts of fracked gas in the European energy mix, given the expected change in climatic conditions." On November 15th, 2019, at the Youth Assembly on Climate Change held in Dáil

*"Any options identified must be in keeping with the commitments in the Programme for Government. This includes any policy statement that is developed to establish the approach to the Government's stated commitment **not to support the importation of fracked gas**"*

⁴⁴ <https://twitter.com/SafetyBeforeLng/status/1275102803942346753>

⁴⁵ <http://safetybeforelng.ie/pressreleases/pressrelease20200419 - AlmostHalfOfIrishParliamentariansSignedPledgeAgainstFrackedGasLNGImportTerminals.html>

⁴⁶ <http://safetybeforelng.ie/pressreleases/pressrelease20200419 - AlmostHalfOfIrishParliamentariansSignedPledgeAgainstFrackedGasLNGImportTerminals.html>

⁴⁷ <https://www.oireachtas.ie/en/debates/debate/dail/2019-10-03/18/>

⁴⁸ <http://safetybeforelng.ie/pressreleases/pressrelease20191002-MajorityOfIrishMEPSayNoToFrackedGasInIreland.html>

⁴⁹ http://safetybeforelng.ie/images/MEP_Demands_on_NSI_West_Gas_PCI_Approval_Process.pdf

Éireann, Roisín Keegan-O'Rourke informed the House that the Youth Assembly was proposing: "[for Ireland to ban the importation of fracked gas and invest solely in renewables](#)"⁵⁰. On November 27th, 2019, in a signal of Government softening on the issue, Taoiseach Leo Varadkar, speaking in the Dáil [stated](#)⁵¹: "*The Government banned fracking in Ireland, through a Private Members' Bill introduced by my colleague, Deputy McLoughlin. I am not sure whether we are in a position to ban the import of fracked gas from other jurisdictions. I will have to check it out*". On February 12th, 2020 the [majority of Irish MEPs](#)⁵² (including Fine Gael's [Maria Walsh](#)⁵³) voted against the 4th PCI list which included the proposed Shannon LNG fracked gas import project. And over 150 NGOS and academics supported a proposed LNG energy policy [statement](#)⁵⁴ wording to be included in the Programme for Government which was: "*Liquefied Natural Gas: The new Government is not supportive of new fossil fuel infrastructure in the form of LNG import terminals that could facilitate the entry of unconventional liquefied natural gas into the Irish energy mix. Such imports may create a functional interdependence between Irish energy consumption and global warming due to the high levels of non-territorial methane emissions linked to the exploitation of global shale gas resources.*" [Sligo](#)⁵⁵ [County Council](#) and [Donegal](#)⁵⁶ [County Council](#) have explicit policies against fracking in their County Development Plans. Councils across the country have passed strong motions against fracking and fracked gas imports, including [Leitrim](#)⁵⁷ [County Council](#), [Cork City](#)⁵⁸ [Council](#), [Cork County](#)⁵⁹ [Council](#), [South Dublin](#)⁶⁰ [County Council](#) [Dún Laoghaire-Rathdown](#)⁶¹ [County Council](#) and [Fermanagh and Omagh](#)⁶² [District Council](#). And in October 2020, the [Northern Ireland Assembly](#)⁶³ unanimously passed a motion stating "*That this Assembly recognises the moratoria, in various forms, on fracking in England, Scotland and Wales and the ban on fracking in the Republic of Ireland; notes that this motion builds on the 2015 Strategic Planning Policy*"

⁵⁰ https://www.youtube.com/watch?time_continue=14&v=8YwqjitaCTig&feature=emb_title

⁵¹ <https://www.oireachtas.ie/en/debates/debate/dail/2019-11-27/19/>

⁵² <https://twitter.com/SafetyBeforeLng/status/1227601856198856704>

⁵³ <https://greennews.ie/maria-walsh-fracking-gas/>

⁵⁴ <https://docs.google.com/document/d/16-dutSYFCiWEGVVO-xjNzntfSZPdMHgZRzMinwAvMYk/edit?usp=sharing>

⁵⁵ https://www.sligococo.ie/cdp/Volume1_MainWrittenStatement.pdf

⁵⁶

<http://www.donegalcoco.ie/media/donegalcountyc/planning/pdfs/viewdevelopmentplans/countydonegaldevelopmentplan2018-2024/partaandb/Document.pdf>

⁵⁷ [http://leitrimcoco.ie/eng/Your-](http://leitrimcoco.ie/eng/Your-Council/Meetings_Councillors/Council_Meeting_Minutes/Council-Meetings-2018/Minutes-5th-Nov-2018.pdf)

[Council/Meetings_Councillors/Council Meeting Minutes/Council-Meetings-2018/Minutes-5th-Nov-2018.pdf](http://leitrimcoco.ie/eng/Your-Council/Meetings_Councillors/Council_Meeting_Minutes/Council-Meetings-2018/Minutes-5th-Nov-2018.pdf)

⁵⁸ <https://www.corkcity.ie/en/media-folder/councillors-democracy/meetings-and-minutes/2019-11-11-minutes-council-meeting1.pdf>

⁵⁹ <https://www.corkcoco.ie/sites/default/files/2020-01/full-council-minutes-25-11-2019.docx>

⁶⁰ <http://www.sdublincoco.ie/Meetings/ViewDocument/67186>

⁶¹ <https://twitter.com/SeafraBlackrock/status/1348723298901893121?s=20>

⁶² <https://www.fermanaghomagh.com/motion/fermanagh-and-omagh-district-council-opposition-to-fracking/>

⁶³ <http://aims.niassembly.gov.uk/plenary/details.aspx?&doc=308310&sid=td&pn=0>

Statement presumption against the exploitation of unconventional hydrocarbon extraction in Northern Ireland; acknowledges its responsibility to protect public health and the environment; and calls on the Executive to instigate an immediate moratorium on petroleum licencing for all exploration for, drilling for and extraction of hydrocarbons until legislation is brought forward that bans all exploration for, drilling for and extraction of hydrocarbons in Northern Ireland.” A ban on fracked gas imports would send a strong market signal to the fracking industry that Ireland would not be a market for fracked gas from Northern Ireland and would undermine the business case for fracking in Northern Ireland as we await and encourage a full moratorium and ban on fracking in Northern Ireland noting that 74 TDs have already [pledged](#)⁶⁴ to “work constructively in the next Dáil to prevent fracking from taking place in Northern Ireland”.

2.5.1.11 ‘Trade before Climate’ facing resistance within Europe

The intense US pressure to find new overseas markets for its Methane from fracking (such as in the Joint Statement on Trade between the US and Europe in [July 2018](#)⁶⁵ which, in putting Trade before Climate, agreed an Energy Plan for Europe to build more terminals to import LNG from the US on a massive scale) is not sustainable and is now facing strong resistance from within the EU itself. On December 15th 2020 the European Commission adopted a [proposal](#)⁶⁶ to revise the EU rules on Trans-European Networks for Energy (the TEN-E Regulation) to achieve the objectives of the European Green Deal and end support for oil and natural gas infrastructure. This new proposal will not ban new fracked gas infrastructure, only no longer give it financial support, but it is a clear recognition by the European Commission of the climate risk posed by fossil gas.

Even the October 2020 [EU Methane Strategy](#)⁶⁷ pointed out that “As the largest importer of oil and gas, the EU has the leverage to promote energy-related methane emission reductions globally. Estimates show that the external carbon or methane emissions associated with EU fossil gas consumption (i.e. the emissions released outside the EU to produce and deliver fossil gas to the EU) are between three to eight times the quantity of emissions occurring within the EU. The Commission therefore intends to mobilise a coalition of key import countries to coordinate efforts on energy sector methane emissions”; going on to equally make a commitment that “the Commission will examine options as regards possible methane emission reduction targets or standards or other incentives on fossil energy consumed and imported in the EU”. Refusing development consent for Shannon LNG would therefore be a climate mitigation action under the precautionary principle conforming

⁶⁴ <http://safetybeforelng.ie/pressreleases/pressrelease20200419 - AlmostHalfOfIrishParliamentariansSignedPledgeAgainstFrackedGasLNGImportTerminals.html>

⁶⁵ https://ec.europa.eu/commission/presscorner/detail/en/IP_19_2313

⁶⁶ https://ec.europa.eu/energy/sites/ener/files/revised_ten-e_regulation.pdf

⁶⁷ https://www.worldbiogasassociation.org/wp-content/uploads/securepdfs/2020/10/eu_methane_strategy.pdf

with both the EU Methane Strategy and the “do no harm” principle as set out in the [EU Green Deal](#)⁶⁸ of December 11th, 2019.

2.5.1.12 Peer-reviewed Scientific Findings: “One third of the total increased methane emissions from all sources globally over the decade before 2019 came from US fracked gas (shale gas)”. Importing Fracked Gas has a Worse Climate Impact than importing coal to Moneypoint in County Clare

Shannon LNG asserts in the EIA (volume 2, section 4.1.3.4 Pg 4-11) that “*all of the LNG required for the Proposed Development represents only 1% of the globally traded non fracked LNG*”. However, the latest peer-reviewed scientific studies, found in 2019 that [one third of the total increased methane emissions from all sources globally over the previous decade was coming from US fracked gas \(shale gas\)](#)⁶⁹ - the world’s largest single super emitter of Methane. Scientists have also found that methane emissions are accelerating global warming because methane has a Global Warming Potential (GWP) [87 times greater](#)⁷⁰ than carbon dioxide over a 20-year period. Addressing these non-territorial emissions, scientists informed the Irish Parliamentary Committee on Climate Action in October 2019 that importing US fracked gas into Ireland has a carbon-equivalent footprint of at least [44% greater than importing coal](#)⁷¹ over the full life-cycle. Scientists have shown that, unlike the case for carbon dioxide, the Climate System responds quickly to a reduction in methane emissions which, along with CO2 reduction measures, could provide the opportunity to immediately slow the rate of global warming by around [half a degree celsius](#)⁷². The scientific [evidence](#)⁷³ of serious health and environmental harm from

⁶⁸ <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1576150542719&uri=COM%3A2019%3A640%3AFIN>

⁶⁹ Howarth, R. W.: Ideas and perspectives: is shale gas a major driver of recent increase in global atmospheric methane?, *Biogeosciences*, 16, 3033–3046, <https://doi.org/10.5194/bg-16-3033-2019>, 2019.

⁷⁰ Myhre, G., D. Shindell, F.-M. Bréon, W. Collins, J. Fuglestedt, J. Huang, D. Koch, J.-F. Lamarque, D. Lee, B. Mendoza, T. Nakajima, A. Robock, G. Stephens, T. Takemura and H. Zhang, 2013: Anthropogenic and Natural Radiative Forcing. In: *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Stocker, T.F., D. Qin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA chapter 8 page 714 Table 8.7

https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_Chapter08_FINAL.pdf

⁷¹ <http://www.safetybeforelng.ie/pressreleases/pressrelease20191014-ScienceAgainstFrackedGasImportsBeatsRaceToTheBottom.html>

⁷² <https://www.youtube.com/watch?v=qR5TqEyQLJ4> and Shindell et al., “Simultaneously Mitigating Near-Term Climate Change and Improving Human Health and Food Security”, *Science*, 13 Jan 2012, Vol. 335, Issue 6065, pp. 183-189, Figure 1.DOI: 10.1126/science.1210026

fracking already irrefutably exists and **no acceptable mitigation of fracking** has been implemented anywhere in the world.

2.5.1.13 Widespread National Public Consensus Against Fracked Gas Imports

There is therefore a national consensus position against Fracked gas imports to Ireland as evidenced in the thousands of political and civil society actions of concern outlined here and in Annex III of the [Legal Opinion](#)⁷⁴ supporting a pragmatic fracking import ban in the Climate bill prepared by the Irish Centre for Human Rights. This is further grounds for assessing the source of the gas.

2.5.1.14 International Calls for a Global ban on Fracking

A wide variety of over 700 science, academic, grassroots, religious and NGO groups across the world have already signed up to a petition supporting Ireland proposing a call for a [global ban on fracking](#)⁷⁵ at the United Nations. This 'Global Ban on Fracking' Initiative demonstrates that the International community has a very clear understanding that the global expansion of LNG is directly facilitating the expansion of fracking and An Bord Pleanála should therefore consider the source of the gas for this Shannon LNG Import terminal proposed by New Fortress Energy.

2.5.2 Evidence that Shannon LNG is a US fracked gas import project

This is a proposed US fracked gas import terminal project.

The evidence that the Shannon LNG Terminal is intended for the importation of US fracked gas can be viewed [here](#)⁷⁶. This evidence includes the fact that New Fortress Energy declared specifically in its company filings to the US Securities and Exchange Commission (SEC) in November 2018 that it intended to supply all existing and future customers with LNG produced primarily at its own liquefaction facilities, including from the Pennsylvania facilities it is currently developing. In addition, [Reuters](#)⁷⁷ news Agency reported on December 9th 2020 that the Delaware

⁷³ Compendium of Scientific, Medial, and Media Findings Demonstrating Risks and Harms of Fracking (Unconventional Gas and Oil Extraction) Seventh Edition, December, 2020
<https://seureservercdn.net/166.62.112.150/ejr.4eb.myftpupload.com/wp-content/uploads/2020/12/CHPNY-PSR-Fracking-Science-Compendium-7.pdf>

⁷⁴ <https://drive.google.com/file/d/1BI5xFr-eg6fIXKPw4dL2XjWV6-gxMLtU/view?usp=sharing>
and Appendix 2

⁷⁵

<https://docs.google.com/document/d/12mir1zqXMI5TNCQzGK0HEHleSxoCWpe3t7v4jbntn2o/preview>

⁷⁶ <https://drive.google.com/file/d/1q7ulQuW-gbMIViYWa0qjA0AHQCQL2vMB/view?usp=sharing>

- see Appendix 3

⁷⁷ <https://www.reuters.com/article/us-new-fortress-energy-gibbstown-lng-idUSKBN28J2V6>

River Basin Commission (DRBC) had voted to approve a permit for the construction of the Delaware River Partners LLC's controversial marine terminal in Gibbstown, New Jersey, that will be capable of exporting liquefied natural gas (LNG): *"The proposal is to transport LNG via truck or train to the Gibbstown dock from a plant that New Fortress Energy Inc is developing in Wyalusing in Bradford County, Pennsylvania, that would liquefy natural gas from the Marcellus Shale. The LNG would then be exported by ship from the Gibbstown terminal to customers in the Caribbean and elsewhere. Officials at New Fortress Energy were not immediately available for comment on when it may decide to build the Pennsylvania liquefaction plant. The company has said in federal filings that it spent about \$165 million through the end of 2019 to develop the Pennsylvania facility. Those opposed to the project said it would result in production of more natural gas, which emits carbon dioxide when burned, and threaten public safety by transporting LNG about 200 miles (322 kilometers) from Wyalusing to Gibbstown."*

2.5.3 International Human Rights threatened by the adverse Impacts of Fracking - which cannot be mitigated through regulation

The "[International Human Rights Impacts of Fracking Report](#)"⁷⁸ produced by the Postgraduate law students at the NUIG Irish Centre for Human Rights in May 2021 notes that a significant body of scientific evidence now exists to demonstrate that fracking is dangerous to public health, water, air, climate stability, farming, property, and economic vitality in ways that cannot be mitigated through regulation. This is a key conclusion of the 7th edition of the [Compendium](#)⁷⁹ of *Scientific, Medical and Media Findings Demonstrating Risks and Harms of Fracking* produced by the Concerned Health Professionals of New York and Physicians for Social Responsibility. The most recent *Compendium of Scientific, Medical and Media Findings Demonstrating Risks and Harms of Fracking* also finds:

"The evidence clearly demonstrates that the processes of fracking contribute substantially to anthropogenic harm, including climate change and global warming, and involve massive violations of a range of substantive and procedural human rights and the rights of nature."

The 56-page report analyses the existing scientific evidence alongside caselaw and other legal standards emanating from the International Covenant on Civil and Political Rights, the International Covenant on Economic, Social and Cultural Rights, the Convention on the Rights of the Child, the Convention on the Elimination of All Forms of Discrimination against Women, the Convention on the Rights of Persons with Disabilities, the Convention on the Elimination of Racial Discrimination and the European Convention on Human Rights.

⁷⁸ https://drive.google.com/file/d/1znehsWJuEfh_Xu1zqCQV6P0KZiNt7n-R/view - see

Appendix 1

⁷⁹ <https://www.psr.org/blog/resource/fracking-compendium/>

The report concludes that fracking is incompatible with states' legal obligations to protect, respect and fulfil basic human rights including:

- the right to life,
- the right to health,
- the right to water,
- the right to food,
- the right to housing,
- the right to access to information,
- the right to public participation,
- the right to a safe, clean, and healthy environment, and
- the rights of marginalized persons & communities.

In October 2021, the UN's main human rights body also overwhelmingly voted to recognise the [right to a safe, clean, healthy and sustainable environment as a human right](#)⁸⁰, and to appoint an expert to monitor human rights in the context of the climate emergency.

2.6 Environmental Issues

The site of the proposed development is within and adjacent to two Natura 2000 sites namely the River Shannon and River Fergus Estuaries SPA and the Lower River Shannon SAC. The site synopsis for the SPA describes the site as "*an internationally important site that supports an assemblage of over 20,000 wintering waterbirds*". I note from the EIAR section 7B.3.5.6 that an estuarine survey was carried out for two winters and one summer at 6 locations, 3 to the west and 3 to the east (Figure 7b-11). We feel that the duration of the summer survey should be extended to include data from a second summer season. This would be in line with NPWS comments presented in (section 7A.3.6, Table 7A-2) i.e. "*a two-year survey of bird use of the estuary within 2 km of the proposed jetty and FSRU infrastructure is recommended, with a year being the minimum requirement*".

We also note that the NPWS requested information "*on potential impacts on birds offshore and within shipping routes*" (In section 1.6 table 1.1). We feel that the impacts associated with the shipping route were ignored and that the survey was inadequate as it was only carried out in the vicinity of the proposed development site and no data was available for birds along the shipping route. According to 'Site Selection and LNG Operations in Port Areas: Essential Best Practices for the Industry' it will be necessary for safety reasons to have an exclusion zone around gas tankers such as these LNG vessels. These exclusion zones mean that other vessels may not approach within 0.5 miles (approximately 800m) of these tankers. Thus for safety reasons any passing vessels must be pushed out of the main navigation channels into adjacent areas. This will have the effect of changing the whole navigation regime of the estuary. We believe for this reason it is essential to map the navigation route to include the exclusion zone and to assess the indirect

⁸⁰ <https://www.theguardian.com/world/2021/oct/08/clean-environment-is-a-human-right-un-council-agrees>

effect of boating traffic (diverted by the LNG vessel) which may cause disturbance to any adjacent habitats or species (specifically QIs of the Natura 2000 sites) along the shipping route.

The only known population of resident Bottlenosed dolphins in Ireland occur in the Shannon Estuary and are a qualifying interest of the Lower River Shannon cSAC. Although this population is small, studies have shown that it may be genetically distinct from other populations and thus may be of very high conservation import (Mirimin et al. 2011). NPWS have made the following comments as part of scoping for the EIAR. *“NPWS requested that if blasting is required, then impacts on fauna including birds and dolphins be assessed”* (Table 1-1, section 1.6). *“The area proposed for the jetty and FSRU infrastructure is within the area mapped as critical habitat for the bottle-nosed dolphin Map 16, Conservation Objectives). The conservation target for these areas is that they “should be maintained in a natural condition”. The NIS will need to address the compatibility of the Proposed Development with the conservation objective for this species within the cSAC, and provide sufficient data and expert opinion to satisfy reasonable scientific doubt that the proposal will not adversely affect the integrity of the Lower River Shannon cSAC”*(Section 7A-3-6 table 7A-3). The estuary in the vicinity of the proposed LNG development seems to be an important commuter corridor for Bottlenosed Dolphins. The following statement is present in section 7A-4-4 of the EIAR: *“Visual observations from shore at Ardmore Point show that the site is regularly used by the dolphins, which pass by the area but rarely stop and socialize or forage there; it is more likely used as a transition corridor to move between the outer and inner estuary”*. We note that *“Because cetaceans are reliant on sound for critical survival activities such as navigating, orientation, foraging, and communicating with other group members, it makes them extremely vulnerable to noise disturbance”* (O’Brien et al 2016). We are concerned that noise and disturbance caused during the construction and operation phases of this development will have displacement impacts on the population of Bottlenose Dolphins in the estuary by limiting their ability to commute between areas of favourable habitat to the east and west of the proposed development site. As stated by (Sini et al 2005) *“Short-term interruptions of normal activity could have long-term adverse effects on a population of dolphins, through reductions in the time available for foraging or resting, abandonment of favoured habitats, disruption of social bonds ,or through physiological effects of stress”*. The paper goes on to state *“Such long-term effects are most likely to take the form of subtle decreases in reproductive success and survival”*. We feel that any such behavioural impacts have not been assessed and that the low numbers within this important population of Dolphins make them highly vulnerable to impacts such as this one that could be a factor which undermines their reproductive success.

2.7 Legal Planning Issues

2.7.1 Strategic Infrastructure Act only applies to onshore terminals

In its pre-application [ruling](#)⁸¹ on June 2nd, An Bord Pleanála decided that the Shannon LNG terminal, as proposed, qualifies as a strategic infrastructure development and under the Strategic Infrastructure Act of 2006 would qualify for fast-track planning directly with An Bord Pleanála if the company wished to lodge a formal planning application. The [decision](#)⁸² stated:

*“Having regard to the provisions of the Planning and Development Act 2000, as amended, and the nature of the development as set out in the documentation and particulars submitted, which comprises an Liquefied Natural Gas (LNG) Terminal and Combined Cycle Gas Turbine (CCGT) power plant at Ballylongford, Co. Kerry, it is considered that the proposed development comprises a **Seventh Schedule development and falls within the scope of Section 37A (2)(a), (b) and (c)** of the Planning and Development Act 2000 (as amended). Accordingly, the proposed development would be strategic infrastructure within the meaning of the Act and any application for approval must therefore be made directly to the Board under Section 3E and should be accompanied by an Environmental Impact Assessment Report and Natura Impact Statement ”.*

However, under the [Seventh Schedule](#)⁸³ of the Strategic Infrastructure Act 2006, only **onshore** terminals associated with an LNG facility qualify for fast-track planning under the Strategic Infrastructure Act 2006:

“An onshore terminal, building or installation, whether above or below ground, associated with an LNG facility and, for the purpose of this provision, ‘LNG facility’ means a terminal which is used for the liquefaction of natural gas or the importation, offloading and re-gasification of liquefied natural gas, including ancillary services.”

In the case of this planning application the LNG facility itself, the FSRU which imports, which offloads LNG from LNG Container Ships and which re-gasifies the liquefied natural gas is all **offshore**. We question therefore whether the LNG facility itself is entitled to go through fast-track planning? Why would the Act state “onshore” if that was not to distinguish it from the now-proposed offshore FSRU?

If only part of a planning application qualifies for Strategic Infrastructure status (the power station which already has planning [permission](#)⁸⁴ - valid until 9th July 2023 - and the onshore part, but not the offshore LNG facility) does that mean

⁸¹ <https://www.pleanala.ie/en-ie/case/304007>

⁸² <https://www.pleanala.ie/anbordpleanala/media/abp/cases/directions/304/s304007.pdf>

⁸³ <http://www.irishstatutebook.ie/eli/2006/act/27/section/5/enacted/en/html>

⁸⁴ <http://www.abp.ie/casenum/PA0028.htm>

that the whole application qualifies as Strategic Infrastructure, especially as the main LNG facility on its own does not qualify?

We doubt in any case, if the project *“falls within the scope of Section 37A (2)(a), (b) and (c) of the Planning and Development Act 2000 (as amended)”*

We strongly question whether or not An Bord Pleanála is even the competent body in this instance to make a development consent decision for a floating storage regasification unit (FSRU) on the Shannon Estuary waters.

2.7.2 Planning permission for the connecting 26km pipeline has expired

[Permission](#)⁸⁵ for a proposed 26-kilometer pipeline from Tarbert to Foynes expired in 2014 contrary to what is stated by both An Bord Pleanála in its pre consultation meetings with the developer and by the developer itself (see, for example, EIA Volume 1 page 9, Volume 2 page 1-18). The developer makes certain assumptions based on the assumption that the pipeline is permitted which we now bring into question e.g. in Volume 2 page 1-18 *“The necessary cumulative and in combination assessments have been completed, on the basis that the permitted pipeline is built in accordance with its existing approval”*. The “in combination” assessment under the Habitats Directive and, as suggested by the Department of Planning in the pre application observations, a revised assessment of the pipeline would appear to be necessary.

2.7.3 The address of the proposed site is incorrect

The site of this proposed project by Shannon LNG is entirely within the parish of Tarbert, County Kerry. It is not in Ballylongford and the fact that such a basic mistake is being made is cause for concern.

2.7.4 PCI Status of the Shannon LNG project is still under challenge in the Court of Appeal

The legality of Shannon LNG’s 4th [PCI Listed](#)⁸⁶ status is currently being challenged in the Irish courts.. The Irish eNGO - Friends of the Irish Environment - asserted in the High Court that Shannon LNG was illegally added to the PCI list by the Irish Government in 2019 because no climate sustainability impacts were assessed - neither by the European Commission nor by the Irish Member State - despite these assessments being legal obligations under the PCI Regulation. Because the PCI List is part of an EU Regulation, the only legal means of taking Shannon LNG off the 4th

⁸⁵ <https://archive.pleanala.ie/en-ie/case/GA0003>

⁸⁶ <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex%3A32013R0347>

PCI list is via a referral to the European Court of Justice. It was successfully argued in the [High Court](#)⁸⁷ that no such referral should be allowed to be made to the ECJ and this allowed Shannon LNG to stay on the 4th PCI list. However, this decision has now been appealed to the Court of Appeal.

While awaiting the outcome of this court challenge (expected in January 2022), it cannot be assumed by An Bord Pleanála that Shannon LNG is legally a PCI-listed project, with all the advantages that PCI accreditation affords the applicant.

2.7.5 Strategic Environmental Assessment (SEA)

There is no consideration in the planning application of the cumulative impacts of the proposed development on the strategic plans for the Shannon Estuary as outlined by Tánaiste Leo Varadkar in the Dáil on October 12th 2021 when he [stated](#)⁸⁸:

“The Programme for Government - Our Shared Future commits to consider the potential of the Shannon Estuary in terms of regional economic development across transport and logistics, manufacturing, renewable energy and tourism, and develop a strategy to achieve this potential. I am finalising plans to establish the Taskforce to identify areas of potential and I will bring a Memo to Government on this issue shortly. This will allow the Taskforce to begin its work in earnest taking account of the substantial potential the Shannon Estuary possesses. The Taskforce will be supported in its work by relevant Government Departments and State agencies. My ambition is that the Taskforce will be in a position to convene a number of meetings before the end of the year and finalise its work in the first half of 2022.”

The SEA Directive requires a strategic environmental assessment to be undertaken for plans or programmes that set the framework for development consent. The Department for Climate Action has already informed An Bord Pleanála of the policy statement on fracked gas imports that “*pending the outcome of the review of the security of energy supply of Ireland’s electricity and natural gas systems, it would not be appropriate for the development of any LNG terminals in Ireland to be permitted or proceeded with*”. This energy review should be the subject of an SEA and it is now clear that the Board should refuse planning permission because the Energy Review and SEA are yet to be completed. Equally there has been no independent assessment of the acceptability of the increase in emissions downstream from the project given the lock-in characteristic of such a large-scale fossil-fuel project.

The Climate Action Plan referred to by Shannon LNG in its EIA refers to the 2019 Climate Action Plan. The publication of the 2021 Climate Action Plan is imminent. Under the [Climate Act 2021](#)⁸⁹, the Climate Action Plan and the

⁸⁷ https://www.courts.ie/view/judgments/aa6b5abb-40b2-4304-88fc-e6b2fc744339/b75a00e4-1bad-429d-b853-b48eb276ae11/2020_IEHC_383.pdf/pdf

⁸⁸ <https://www.kildarestreet.com/wrans/?id=2021-10-12a.88&s=LNG#g90.q>

⁸⁹ <https://www.irishstatutebook.ie/eli/2021/act/32/enacted/en/print>

National Long Term Climate Action Strategy must be approved by the Government. Article 3 of the [SEA Directive](#)⁹⁰ obliges the preparation of a Strategic Environmental Assessment on all plans and programmes which “set the framework for future development consent” and which “are likely to have significant environmental effects”. In this context it would be premature in the extreme and run counter to the objectives of the interest of the common good and the proper and sustainable development of the area for An Bord Pleanála to grant development consent until the new Climate Action Plan is published, the corresponding SEA completed, the Energy Review completed and the strategy to “*consider the potential of the Shannon Estuary in terms of regional economic development*” as committed to in the [Programme for Government](#)⁹¹, is agreed .

2.7.6 Direct and indirect emissions from the proposed LNG terminal

Shannon LNG admits in its EIA (volume 1, page 29) that "*direct emissions from the operation of the proposed development will equate to approximately 963kt CO₂e in 2030, around **2.1% of Ireland's carbon allowance** if Ireland's carbon reduction targets are met.*" The company has also declared that it intends to apply separately for a [320-Megawatt](#)⁹² data centre on the site of the proposed fracked gas import terminal.

With the Climate Committee hearing [evidence](#)⁹³ on September 28th, 2021 that all the data centres currently being proposed in Ireland could be using up to 70% of grid capacity by 2030, it is unacceptable from a climate perspective that this shortfall in electricity would be powered from US fracked gas. The new [Generation Capacity Statement](#)⁹⁴ (GCS) from Eirgrid, the national power grid operator, is showing that demand levels in other sectors outside of data centres have remained broadly flat in recent years. If the price for Ireland being the “*best little country in the world to do business*” is to have a glut of US-data centres in Ireland being powered by one of the dirtiest of all fossil fuels - fracked gas - then maybe that price is one that is too high for any sane or rational person to support.

⁹⁰ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32001L0042>

⁹¹ <https://assets.gov.ie/94092/50f892b9-a93e-43fc-81d1-778ff9954d9f.pdf>

⁹² <https://www.pleanala.ie/anbordpleanala/media/abp/cases/records/304/p304007d.pdf>

⁹³

https://data.oireachtas.ie/ie/oireachtas/committee/dail/33/joint_committee_on_environment_and_climate_action/submissions/2021/2021-09-28_opening-statement-dr-patrick-bresnihan-maynooth-university_en.pdf

⁹⁴ <https://www.eirgridgroup.com/site-files/library/EirGrid/EirGrid-Group-All-Island-Generation-Capacity-Statement-2019-2028.pdf>

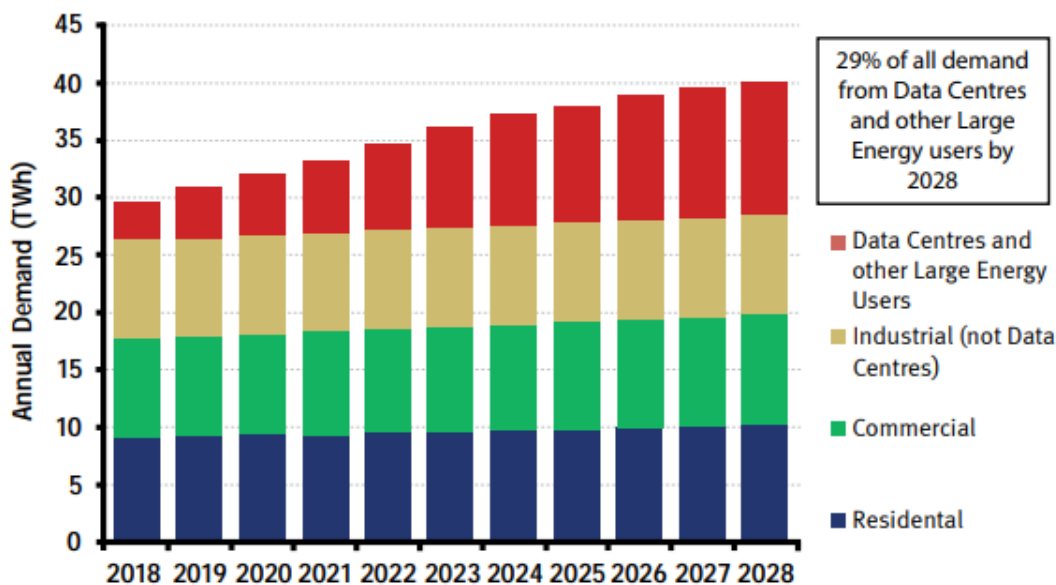


Figure 9 - For the Ireland Median Demand scenario, this illustrates the approximate split into different sectors. Eirgrid estimate that 29% of total demand will come from data centres by 2028

Source: [All-Island Generation Capacity Statement 2019-2028](https://www.eirgridgroup.com/site-files/library/EirGrid/EirGrid-Group-All-Island-Generation-Capacity-Statement-2019-2028.pdf)⁹⁵, Eirgrid (these figures do not include the most recent data centre connection requests received by Eirgrid - explaining the discrepancy between the 29% Eirgrid estimate and the 70% estimate from [Maynooth University](https://data.oireachtas.ie/ie/oireachtas/committee/dail/33/joint_committee_on_environment_and_climate_action/submissions/2021/2021-09-28_opening-statement-dr-patrick-bresnihan-maynooth-university_en.pdf)⁹⁶ which states:

"Data centres currently represent 11 per cent of grid capacity, but Eirgrid estimates this will be 28% by 2030 based on existing connections. If all proposed data centre projects were connected, this figure could be as high as 70% of grid capacity by 2030. This is compared with 2% of electricity consumed by data centres worldwide.")

CEO of New Fortress Energy, Wes Edens, owner of Shannon LNG directly addressed this when he stated in an [Earnings call in August 2019](https://www.fool.com/earnings/call-transcripts/2019/08/13/new-fortress-energy-llc-nfe-q2-2019-earnings-call.aspx)⁹⁷:

"I can't emphasize enough, I think the downstream assets we develop around these terminals are, in many respects, our most important projects. We basically end up creating our own demand. We're, essentially, negotiating with ourselves, so we know the guy who owns the data centers if we're building data centers."

⁹⁵ <https://www.eirgridgroup.com/site-files/library/EirGrid/EirGrid-Group-All-Island-Generation-Capacity-Statement-2019-2028.pdf>

⁹⁶ https://data.oireachtas.ie/ie/oireachtas/committee/dail/33/joint_committee_on_environment_and_climate_action/submissions/2021/2021-09-28_opening-statement-dr-patrick-bresnihan-maynooth-university_en.pdf

⁹⁷ <https://www.fool.com/earnings/call-transcripts/2019/08/13/new-fortress-energy-llc-nfe-q2-2019-earnings-call.aspx>

2.8 Safety Issues

The primary concern is the lack of safety for nearby residents along the Shannon Estuary due to the fact that they live too close to the proposed site – a high-risk Seveso III site - which would become the most sizable hazard in Ireland or too close to the LNG shipping route. Conservative scientific evidence shows that it is unsafe to live within 3 miles of an LNG ship.

LNG expert Dr. Jerry Havens, in his submission to the 2008 Shannon LNG application [noted](#)⁹⁸:

*"If an LNGC were to be attacked in the proximity of the shoreline, either while docked at the terminal or in passage in or out of the estuary, and cascading failures of the ships containments were to occur, it could result in a pool fire on water with magnitude beyond anything that has been experienced to my knowledge, and in my opinion could have the potential to put people in harms way to a distance of approximately **three miles from the ship**. I have testified repeatedly that I believe that the parties that live in areas where this threat could affect them deserve to have a rational, science-based determination made of the potential for such occurrences, no matter how unlikely they may be considered."*

A leak of LNG, which is heavier than air, will move laterally (along ground or water) until well beyond the distance at which it is still ignitable (12.4 kilometres). The original 2007 [QRA](#)⁹⁹ undertaken by Shannon LNG itself on page 32 admits categorically that:

"the development of the largest cloud produced by the ...catastrophic failure of a full tankhas a maximum downwind distance of ..12.4 Kilometers".

The current QRA for this planning application is only assessing the risks from the LNG terminal itself and not the risks from the LNG Container ships as they are travelling up the Shannon Estuary for over 20 kilometres.

In 2010, while examining the rezoning of the current site to Industrial, the European Parliament Petitions committee [accepted](#)¹⁰⁰ that over 10,000 people would be affected by an LNG terminal, therefore not limiting this number to people living near the site of the terminal, but rather to the number living along the entire shipping route the LNG tankers would take.

⁹⁸ <http://safetybeforelng.ie/licensing/lngterminal/jerryhavensterminal.htm>

⁹⁹

https://drive.google.com/file/d/1MWtUHLxpx_MuK1nPOWMxMjqlrJcxwqqu/view?usp=sharing

¹⁰⁰

https://drive.google.com/file/d/1CzRg_TKYHH3HtzSiROgBrNEigTnb10jd/view?usp=sharing

The risk has now increased since 2007 because the LNG terminal itself will now be a permanently-docked floating storage regasification unit (FSRU) in the middle of a busy shipping route.

The remit of the Health and Safety Authority (HSA) stopped at the shoreline and so the HSA did not assess any marine safety aspects of the project or any intentional damage to the terminal or LNG ship. The Commission for Energy Regulation (CER) only assessed safety aspects of the pipeline and not of the terminal itself or any marine safety aspect of the project. In granting Shannon LNG permission to construct the pipeline on December 9th 2009, the CER, stated that it would only assess the safety aspects of the LNG terminal once it was built as follows:

"Shannon LNG will not be entitled to actually operate the proposed LNG terminal until it has applied for and received a license to operate from the Commission. A prior condition to issuing such a license would be that the Commission has approved a Safety Case for the facility."

In fact, no statutory body has undertaken or requested a marine LNG risk assessment. Any safety assessments approved by the CER or HSA to date, therefore, have no value because they are not completely informed of the safety issues involved.

The safety issues surrounding the Shannon LNG project were raised in great detail at the time of the original planning application in 2008. The conclusion of the Board was essentially a case of agreeing that the consequences of an LNG accident were extremely high, the probability of an accident happening was so low that the safety threats could be ignored.

However, as highlighted elsewhere the issues of reasonable alternative locations were not properly addressed in the Environmental Impact Statement, such as the much-publicised Floating LNG Terminal proposed by [Predator Oil and Gas](#)¹⁰¹ 50 kilometres off the coast of Cork as laid out in a [submission](#)¹⁰² to Cork County Council in June 2021 which would use the existing subsea Petronas (Kinsale Energy) 24" export pipeline from the decommissioned Kinsale Head Gas Field that ties directly into the Irish gas transmission network at the onshore Inch Terminal where there is a GNI entry point. This would remove all risk to residents living anywhere along the coast.

¹⁰¹ <https://www.spglobal.com/platts/en/market-insights/latest-news/natural-gas/062521-uk-listed-predator-moves-forward-with-plans-for-floating-irish-lng-terminal>

¹⁰² https://drive.google.com/file/d/16gbRr3iQbZMEVzgcypk3M_1PaD1TZ4hQ/view?usp=sharing - see Appendix 4

2.9 Issues raised in the original planning which are still ‘Live’

We submit the objections raised by the ‘Kilcolgan Residents Association’ to the original planning application by Shannon LNG and ask that the issues therein raised be dealt with by An Bord Pleanála for this current application. The objection can be viewed here: https://drive.google.com/file/d/1GiSxW1_WhwYP9HvtwAkjpcrh6fkR-q7I/view?usp=sharing and in Appendix 5 below.

3 Appendices

Appendix 1 - International Human Rights Impact of Fracking Report - May 2021



INTERNATIONAL HUMAN RIGHTS IMPACTS OF FRACKING REPORT

MAY 2021// AUTHORS: ROWAN HICKIE & BRIDGET GEOGHEGAN
LLM CANDIDATES

Notes

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This report has been prepared in collaboration with Safety Before LNG, Love Leitrim and Letterbreen and Mullaghduin Partnership (LAMP) as part of the work of the Human Rights Law Clinic at the Irish Centre for Human Rights, NUI Galway.

This report is a revised version of a report prepared for LAMP, examining the human rights impacts of fracking and the obligations which the United Kingdom and Northern Ireland hold in regard to fracking. This report has been revised to be more widely applicable to all States Parties to the human rights treaties discussed.

The ICHR at the School of Law, National University of Ireland Galway, is Ireland's principal academic human rights institute. The ICHR undertakes human rights teaching, research, publications, and training, and contributes to human rights policy development nationally and internationally. The Human Rights Law Clinic at the ICHR was launched in 2019 and is directed by Dr Maeve O' Rourke. The Clinic introduces students to 'movement lawyering' and enables students to contribute their skills to community-based movements for social change.

In preparing this report, the authors received assistance and feedback from Dr. Maeve O'Rourke, Pearce Clancy, Johnny McElligott, Eddie Mitchell, and Dianne Little. We are thankful for the expertise and insightful feedback shared with us for the purpose of writing this report.

The authors are solely responsible for the content of this report and all opinions and any errors are their own.

Table of Contents

<i>Executive Summary</i>	3
1. Introduction	5
1.1 What is Fracking?	6
1.2 What are the Risks of Fracking?.....	7
1.3 What are International Human Rights?.....	8
1.4 International Treaties and Instruments	9
2. International Human Rights Obligations	10
2.1 Right to Life	12
2.1.1 The right to life recognised by International treaties and instruments	12
2.1.2 The impact of fracking on the right to life	14
2.2 Right to Health.....	16
2.2.1 The relevance of climate change to the right to health as recognised under international treaties.....	16
2.2.2 The impact of fracking on the right to health.....	17
2.3 Right to Water	20
2.3.1 The right to water recognised by International treaties and instruments.....	20
2.3.2 The impact of fracking on the right to water	22
2.4 Right to Food.....	25
2.4.1 The right to food in international human rights treaties and instruments	25
2.4.2 The impact of fracking on the right to food	26
2.5 Right to Housing.....	28
2.5.1 The right to housing as recognised by international treaties and instruments	28
2.5.2 The impact of fracking on the right to housing	29
2.6 Right of Access to Information.....	31
2.6.1 The right to access of information as recognised by international treaties and instruments	31
2.6.2 The impact of fracking on the right to information	34
2.7 Right to Public Participation.....	36
2.7.1 The right to public participation as recognised by international treaties and instruments.....	36
2.7.2 The impact of fracking on the right of public participation.....	37
2.8 The Right to a Safe, Clean, Healthy and Sustainable Environment	39
2.8.1 The right to a safe, clean, healthy and sustainable environment as seen in international treaties and instruments.....	39
2.8.2 The impact of fracking on the right to a safe, clean, healthy and sustainable environment.....	42
2.9 Disproportionate Impacts on Marginalized Persons and Communities.....	44
2.9.1 Women	44
2.9.2 Children	45
3. European Convention on Human Rights	48
3.1 Article 2: Right to life.....	48
3.2 Article 8: Right to respect for private and family life	49
3.3 Access to Information and Public Participation	52
3.4 ECHR Protocol 1, Article 1: Protection of property	53
4. Conclusion & Recommendations	55

Executive Summary

Climate change poses a major threat to our planet. This reality has been recognized by the United Nations and broader international legal community.¹

Unconventional oil and gas extraction, including processes such as hydraulic fracturing, pose a significant threat to human rights through both their contribution to climate change and their procedures' impacts on surrounding communities. Academics, researchers and medical professionals have stressed that 'the evidence clearly demonstrates that the processes of fracking contribute substantially to anthropogenic harm, including climate change and global warming, and involve massive violations of a range of substantive and procedural human rights and the rights of nature.'² The Concerned Health Professionals of New York and Physicians for Social Responsibility in their 7th Edition of the Compendium of Scientific, Medical and Media Findings Demonstrating Risks and Harms of Fracking (Unconventional Gas and Oil Extraction) (hereinafter the 'Compendium') conclude that 'a significant body of evidence has emerged to demonstrate that these activities are dangerous in ways that cannot be mitigated through regulation.'³

Human rights impacted by fracking and its contribution to climate change include, but are not necessarily limited to, the right to life, the right to health, the right to water, the right to food, the right to housing, the right to access to information, the right to public participation, the right to a safe, clean, healthy and sustainable environment, with violations of these rights having disproportionate impacts on marginalized and vulnerable communities and groups.

These human rights are contained in numerous international and regional human rights instruments and treaties, to which many States are party, including Ireland.⁴ These international human rights instruments include:

- The International Covenant on Civil and Political Rights (ICCPR);⁵
- The International Covenant on Economic, Social and Cultural Rights (ICESCR);⁶
- The United Nations Convention on the Rights of the Child (CRC);⁷
- The United Nations Convention on the Elimination of All Forms of Discrimination against Women (CEDAW);⁸

¹ António Guterres 'Remarks at the Climate Ambition Summit' (12 December 2020), available at: <https://www.un.org/sg/en/content/sg/speeches/2020-12-12/remarks-the-climate-ambition-summit>.

² Concerned Health Professionals of New York and Physicians for Social Responsibility, 'Compendium of Scientific, Medical, and Media Findings Demonstrating Risks and Harms of Fracking (Unconventional Gas and Oil Extraction)' (2020 7th ed.) [Compendium] at 57-58.

³ *Ibid.*, at 7.

⁴ See UN Treaty Depository Status of Multilateral Human Rights Treaties <https://treaties.un.org/Pages/Treaties.aspx?id=4&subid=A&clang=en>

⁵ International Covenant on Civil and Political Rights (adopted 23 March 1976) 999 UNTS 171 [ICCPR].

⁶ International Covenant on Economic, Social and Cultural Rights (adopted 1 March 1976) 993 UNTS 3 [ICESCR].

⁷ Convention on the Rights of the Child (adopted 20 November 1989) 1577 UNTS 3 [CRC].

- The United Nations Convention on the Rights of Persons with Disabilities (CRPD);⁹ and
- The International Convention on the Elimination of All Forms of Racial Discrimination (ICERD).¹⁰

In addition to the treaties mentioned above, the European Convention on Human Rights (ECHR)¹¹ similarly enumerates human rights obligations, binding on a number of all Council of Europe member states.

United Nations treaty bodies, special rapporteurs and civil society organizations have recognized and noted the negative impacts that fracking and climate change pose to the human rights contained within these instruments. Once a State has ratified the above mentioned international and regional human rights instruments, it is bound by its obligations thereunder to respect, protect and ensure these international human rights are met.

As reflected in the content of this report, it is difficult to see how a State can propose and utilize fracking operations without breaching its international and regional human rights obligations.

As a result, it is recommended that States:

- Refrain from implementing fracking practices, and in accordance with the CEDAW Committee's 2019 recommendation to the United Kingdom, introduce a comprehensive and complete ban on fracking;¹²
- Prohibit the expansion of polluting and environmentally destructive types of fossil fuel extraction, including oil and gas produced from fracking, as per the recommendation of the Special Rapporteur on human rights and the environment;¹³ and
- Commit to attaining and upholding the highest standards of the rights to life, health, water and food, and ensure that no State or private initiatives disproportionately impact these rights.

⁸ Convention on the Elimination of All Forms of Discrimination against Women (adopted 3 September 1981) 1249 UNTS 1 [CEDAW].

⁹ Convention on the Rights of Persons with Disabilities (adopted 3 June 2008) 2515 UNTS 3 [CRPD].

¹⁰ International Convention on the Elimination of All Forms of Racial Discrimination (adopted 21 December 1965) 660 UNTS 195 [ICERD].

¹¹ Council of Europe, Convention for the Protection of Human Rights and Fundamental Freedoms (4 November 1950) 213 UNTS 221 [ECHR].

¹² UN Committee on the Elimination of Discrimination against Women, 'Concluding Observations on the eight periodic report of the United Kingdom of Great Britain and Northern Ireland' (14 March 2019) UN Doc CEDAW/C/GBR/CO/8 at 54(b) [CEDAW Concluding Observations].

¹³ United Nations Special Procedures 'Safe Climate: a report of the Special Rapporteur on human rights and the environment' (2019) UN Doc A/74/161 at 78(d) [Safe Climate Report].

1. Introduction

It has been widely acknowledged that our planet is currently faced with a climate crisis.

On December 12, 2020, the United Nations Secretary General, António Guterres, called on leaders across the globe to declare a State of Climate Emergency in their countries until carbon neutrality is reached.¹⁴ Human activities that are some of the largest contributors to the heating of the Earth's climate include the 'burning of fossil fuels and biomass, deforestation and industrial agriculture.'¹⁵ As noted by the Special Rapporteur on human rights and the environment, as of 2019, 70 per cent of greenhouse gas emissions are produced through 'the burning of fossil fuels and biomass for electricity and heat (25 per cent of the global total)' with greenhouse gases including 'carbon dioxide (76 per cent of global greenhouse gas emissions), methane (16 per cent), nitrous oxide (6 per cent) and fluorinated gases such as chlorofluorocarbons and hydrofluorocarbons (2 per cent).'¹⁶

As climate change poses serious risks not only to the health of the planet and its population, but also to the human rights of its people, addressing climate change and the use of fossil fuels is important not only for State Parties to the Paris Agreement¹⁷ to meet their obligations, but for States to meet their international human rights obligations.

This report will examine the impacts that unconventional oil and gas exploration and extraction (also known as hydraulic fracking and hydraulic fracturing), have on international and regional human rights obligations. As will be demonstrated, unconventional oil and gas exploration (hereinafter referred to as 'fracking') impacts a wide array of human rights, including the right to life, health, water, food, housing, access to information, public participation, a safe, clean and healthy environment, with human rights violations often disproportionately impacting marginalized individuals and communities such as women, children and persons living in poverty.

States, in making a determination of whether to implement fracking, should be made aware of the impacts that the exploration for, exploitation of and use of fossil fuels will have not only on their environments, but also on their people and their obligations under international agreements and treaties to which they are party. Further, as the impacts of climate change and fracking and the resulting pollution do not respect State boundaries, States must be aware of the implications their fracking practices may have on not only their citizens, but also on citizens of other States. In particular, contamination of water, air pollution and the emission of greenhouse gases can contribute to and pose a risk to human rights in neighbouring States and on the environment globally.

¹⁴ António Guterres 'Remarks' (n 1).

¹⁵ Safe Climate Report (n 13) at 12.

¹⁶ *Ibid.*

¹⁷ Paris Agreement to the United Nations Framework Convention on Climate Change, (adopted 12 December 2015, entered into force 14 November 2016) 16 TIAS 1104 [Paris Agreement].

The structure of this report is as follows. First, it contains a brief discussion of what fracking is, in order to provide a foundation for the remainder of the discussion regarding its impact on human rights. The risks fracking poses will then be discussed, followed by a brief overview of the relevant international human rights treaties and agreements. An analysis of the international human rights impact of fracking impacts will then follow. This discussion will be broken down to focus on particular rights one-by-one. It should be noted that certain rights are protected by multiple international treaties. The violation of one right may therefore mean that multiple international treaties are being breached. An examination of the human rights impacts of fracking in relation to rights protected by the ECHR will follow. Finally, the paper contains a brief conclusion, summarizing the ways in which fracking appears to impact State obligations under international human rights instruments.

1.1 What is Fracking?

In examining the international human rights impacts of fracking, it is first important to understand what fracking is. Providing a clear understanding of what fracking is will allow for a clear and concise discussion of how fracking may impact States' human rights obligations.

This paper will not provide an extensive overview of the scientific processes of fracking but will outline the general procedure of fracking.

Fracking is the common term used to describe an unconventional process of oil and gas extraction. Fracking is also widely referred to as: hydrofracking, hydraulic fracturing, unconventional hydrocarbon extraction, unconventional natural gas production fracturing, and horizontal drilling. For the purposes of this paper, the process will be referred to as 'fracking' to maintain consistency.¹⁸

When oil and gas is trapped in rock formations, fracking is used to access and extract the deposits of oil and gas. Directional drilling (both vertical and horizontal) is used to bore down into the ground and access these deposits. High volumes of water, chemicals and sand (known as proppants) are pumped at high volume into the drilled holes to fracture the rock formations and then to keep the spaces open to aid the release and flow of the gas back up the drill hole.¹⁹ As the water flows back up the drill hole, the water carries with it not only the proppant chemicals and materials it injected into the rock formations, but also other substances such as 'brine, heavy metals, and radioactive elements.'²⁰

Although the process of fracking is generally the same – save for differences in technique, material used, etc – it is also important to be aware of how the rules and regulations

¹⁸ Compendium (n 2) at 26.

¹⁹ *Ibid.*

²⁰ *Ibid.*

regulating fracking define it within different jurisdictions. Laws or regulatory measures may create certain limitations regarding what qualifies as fracking, including by requiring certain procedures, materials or processes to be used.²¹ It is important to be aware of legislative limitations and boundaries of what would legally qualify as fracking; as even if a process follows and has all of the qualities of fracking, if it fails to meet the quantitative threshold set out in the legislation, it can be deemed not to be fracking in law.

1.2 What are the Risks of Fracking?

Fracking poses severe risks to the environment and to human health and wellbeing through both the physical procedures involved in and associated with the act of fracking, but also in the carbon emissions that result from the fossil fuels that the fracking process creates.

As noted by the Concerned Health Professionals of New York and Physicians for Social Responsibility in their 7th Edition of the Compendium of Scientific, Medical and Media Findings Demonstrating Risks and Harms of Fracking (Unconventional Gas and Oil Extraction)²² (hereinafter the ‘Compendium’), fracking can result in devastating environmental impacts such as water contamination, air pollution, earthquakes and radioactive contamination.²³

The storage of contaminated waste waters and the potential for these waters to leak and contaminate ground water are one of the environmental issues associated with fracking.²⁴ Air pollution surrounding fracking infrastructure in the United States was found to have high levels of toxic pollutants, including ‘carcinogen benzene and the chemical precursors of ground-level ozone (smog)’, which cause severe environmental damage and risks to human health.²⁵

In addition to the environmental damage and risks that fracking poses, there are also severe risks to human health and well-being. The Compendium provides a referenced compilation of evidence demonstrating the risks and harms caused by fracking, including: ‘detrimental impacts on water, air, climate stability, public health, farming, property values, and economic vitality.’²⁶ The Compendium further notes that throughout the United States, certain communities and persons are disproportionately impacted by fracking, including pregnant women, children, communities of color, Indigenous peoples, and communities living in

²¹ See for example the United Kingdom’s Infrastructure Act 2015 c.7 section 504B subsection 4A governing the Onshore Hydraulic Fracturing Safeguards, which sets out that “Associated hydraulic fracturing” means hydraulic fracturing of shale or strata encased in shale which— (b) involves, or is expected to involve, the injection of—(i)more than 1,000 cubic metres of fluid at each stage, or expected stage, of the hydraulic fracturing, or (ii)more than 10,000 cubic metres of fluid in total.

²² Compendium (n 2).

²³ *Ibid.*, at 60-142,149-162, 226-257.

²⁴ *Ibid.*, at 27.

²⁵ *Ibid.*

²⁶ *Ibid.*, at 7.

poverty.²⁷ In addition to the public health impacts of fracking, the Compendium further finds that fracking itself is a ‘dangerous process with innate engineering problems that include uncontrolled and unpredictable fracturing, induced earthquakes, and well casing failures that worsen with age and lead to water contamination and fugitive emissions.’²⁸

In addition to the risks to the environment, human health and the disproportionate impact on vulnerable members of the community, the Compendium highlights that fracking raises ‘fundamental questions of human rights.’²⁹ As will be discussed, the risks to various internationally protected human rights are substantial. From fracking’s contribution to greenhouse gas emissions and climate change, to the immediate impacts fracking has on the surrounding community, fracking poses severe risks to the human rights of persons immediately surrounding fracking operations and around the world.

1.3 What are International Human Rights?

There are several international treaties that are relevant in assessing the international human rights impacts of fracking. International environmental treaties such as the Paris Agreement are also of relevance to the discussion of States’ obligations to combat climate change and secure human rights. As noted by the Special Rapporteur on human rights and the environment, David Boyd: ‘Human rights obligations are reinforced by international environmental law, as States are obliged to ensure that polluting activities within their jurisdiction or control do not cause serious harm to the environment or peoples of other States or to areas beyond the limits of national jurisdiction.’³⁰

Further, international human rights treaty monitoring bodies have commented upon States’ obligations under the Paris Agreement in relation to their human rights obligations, further demonstrating the link between the environmental and human rights obligations of states. This can be seen in the Committee on Economic, Social and Cultural Rights’ (ICESCR) 2018 concluding observations on Argentina, in which the Committee recommended that Argentina reconsider large-scale oil and gas exploitation as it ran ‘counter to the State party’s commitments under the Paris Agreement and would have a negative impact on global warming and on the enjoyment of economic and social rights by the world’s population and future generations’ contrary to Articles 1(1) and 2(1) of the ICESCR.³¹

²⁷ *Ibid.*

²⁸ *Ibid.*

²⁹ *Ibid.*, at 57.

³⁰ Safe Climate Report (n 13) at 66.

³¹ UN Committee on Economic, Social and Cultural Rights, ‘Concluding observations on the fourth periodic report of Argentina’ (1 November 2018) UN Doc E/C.12/ARG/CO/4 at 13; *see also* Safe Climate Report (n 12) at 67.

1.4 International Treaties and Instruments

Once a State Party to an international treaty, that State is bound by obligations to fulfil its obligations under that treaty. The following treaties contained rights which are impacted by fracking:

- The International Covenant on Civil and Political Rights (ICCPR);
- The International Covenant on Economic, Social and Cultural Rights (ICESCR);
- The United Nations Convention on the Rights of the Child (CRC);
- The United Nations Convention on the Elimination of All Forms of Discrimination against Women (CEDAW);
- The United Nations Convention on the Rights of Persons with Disabilities (CRPD); and
- The International Convention on the Elimination of All Forms of Racial Discrimination (ICERD).

In addition to the above-mentioned human rights treaties, other multilateral international treaties, such as the Paris Agreement, are also relevant when examining fracking. The Paris Agreement is a multilateral climate change treaty, binding States to take action against climate change and adapt to the effects of climate change. Recently, the United Kingdom reaffirmed its commitment to the Paris Agreement, committing to reducing its economy-wide greenhouse gas emissions by at least 68% by 2030, compared to 1990 levels.³²

³² Recently, the United Kingdom reaffirmed its commitment to the Paris Agreement, committing to reducing its economy-wide greenhouse gas emissions by at least 68% by 2030, compared to 1990 levels: United Kingdom Government, 'United Kingdom of Great Britain and Northern Ireland's Nationally Determined Contribution' (12 December 2020) at 1. *See also*, Government of Ireland 'Climate Action Plan 2019: To Tackle Climate Breakdown' (17 June 2019) at 22, where Ireland's targets for 2021-2030 call for a 30% reduction in its non-Emissions Trading System sector greenhouse gas emissions.

2. International Human Rights Obligations

The risks that climate change poses to human rights have been widely acknowledged by the international legal community. As the Special Rapporteur on human rights and the environment noted in the 2019 Report on Safe Climate,³³ climate change poses a risk to the ‘rights to life, health, food, water and sanitation, a healthy environment, an adequate standard of living, housing, property, self-determination, development and culture.’³⁴ Further, the Special Rapporteur emphasized that the risks to human rights posed by climate change are likely to disproportionately impact more vulnerable communities, including women, children and those living in poverty.³⁵

The adverse impact of climate change on human rights has also been noted by the previous Special Rapporteur on human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment, where, ‘[e]nvironmental degradation can and does adversely affect the enjoyment of a broad range of human rights.’³⁶ The Human Rights Council in its 2008 Resolution 7/23 on Human Rights and Climate Change noted that climate change ‘poses an immediate and far-reaching threat to people and communities around the world and has implications for the full enjoyment of human rights.’³⁷

States, under the relevant international human rights instruments, are obligated to take action and allocate resources to realize economic, social and cultural rights, civil and political rights and the right to development. States’ failure to ‘adopt reasonable measures to mobilize resources to prevent foreseeable human rights harm caused by climate change breaches this obligation.’³⁸ It is crucial that States take action against the human rights risks posed by climate change.

Fracking poses a threat to human rights through both its contribution to climate change and its own direct impacts on surrounding communities. As the Compendium notes, ‘the evidence clearly demonstrates that the processes of fracking contribute substantially to anthropogenic harm, including climate change and global warming, and involve massive violations of a range of substantive and procedural human rights and the rights of nature.’³⁹

³³ Safe Climate Report (n 13).

³⁴ *Ibid.*, at 26.

³⁵ *Ibid.*

³⁶ UN Human Rights Council, ‘Report of the Independent Expert on the issue of human rights obligations relation to the enjoyment of a safe, clean, healthy and sustainable environment, John H. Knox’ (24 December 2012) UN Doc A/HRC/22/43 at 34.

³⁷ UN Human Rights Council ‘Resolution 7/23 Human Rights and Climate Change’ (28 March 2008) UN Doc A/HRC/RES/7/23, preamble.

³⁸ UN Human Rights Council, ‘Analytical study on the relationship between climate change and the human right of everyone to the enjoyment of the highest attainable standard of physical and mental health’ (6 May 2016) UN Doc A/HRC/32/23 at 34 [HRC Analytical Study].

³⁹ Compendium (n 2) at 57-58.

A discussion of each right and how fracking and its contribution to climate change may impact and infringe upon international legal human rights standards follows below.

2.1 Right to Life

The right to life is one of the most widely recognized rights in international human rights law.⁴⁰

The right to life protects against State action or inaction which poses risk to the life of persons. As the Human Rights Committee notes, State obligations in relation to the right to life include protecting against ‘reasonably foreseeable threats and life-threatening situations that can result in loss of life.’⁴¹ States may violate the right to life by exposing individuals to a real risk of the deprivation of life, even if the risk does not result in an actual loss of life.⁴² States have an obligation to take appropriate measures to ‘address the general conditions in society that may give rise to direct threats to life or prevent individuals from enjoying their right to life with dignity.’⁴³ Thus, States may violate the right to life through not only deprivation of life, but also the deprivation of the right to life with dignity.

2.1.1 The right to life recognised by International treaties and instruments

International instruments which contain specific Articles governing the right to life include the Universal Declaration of Human Rights, the ICCPR and the CRC.⁴⁴ Regional human rights treaties also protect the right to life.⁴⁵

In its General Comment No. 36, the Human Rights Committee addressed the general conditions which States are under an obligation to address, including the ‘degradation of the environment.’⁴⁶ In recognizing the link between the environment and the right to life, the Committee emphasized that climate change presents one of the most ‘pressing and serious threats to the ability of present and future generations to enjoy the right to life.’⁴⁷

States, in meeting their obligations to ensure the right to life, have both negative and positive duties, in that ensuring the right to life and the right to life with dignity depends on ‘measures taken by States parties to preserve the environment and protect it against harm, pollution and climate change caused by public and private actors. States parties should therefore ... pay due regard to the precautionary approach.’⁴⁸

⁴⁰ Safe Climate Report (n 13) at 28.

⁴¹ UN Human Rights Committee, ‘General Comment No. 36 (2018) on Article 6 of the International Covenant on Civil and Political Rights, on the right to life’ (30 October 2018) UN Doc CCPR/C/GC/36 at 7 [UN Human Rights Committee ‘General Comment No. 36].

⁴² *Ibid.*

⁴³ *Ibid.*, at 26.

⁴⁴ Universal Declaration of Human Rights (adopted 10 December 1948) UNGA Res 217 A(III) [UDHR], Art 3; ICCPR (n 4) Art 6(1); CRC (n 6) Art 6(1).

⁴⁵ See ECHR (n 9); Organization of American States, ‘American Convention on Human Rights’ (22 November 1969) 1144 UNTS 123; Organization of African Unity, ‘African Charter on Human and Peoples’ Rights’ (27 June 1981) 1520 UNTS 217.

⁴⁶ UN Human Rights Committee, ‘General Comment No. 36’ (n 41) para 26.

⁴⁷ *Ibid.*, para 62.

⁴⁸ *Ibid.*

The precautionary approach, or principle, is enshrined in Article 3(3) of the United Nations Framework Convention on Climate Change⁴⁹ (UNFCCC) (which is the umbrella treaty under which the Paris Agreement was created), wherein it is outlined that States ‘should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures.’⁵⁰

The Human Rights Committee’s discussion of the right to life and its connection to the degradation of the environment can be seen in *Portillo Cáceres v Paraguay*.⁵¹ The Committee considered a complaint brought against Paraguay by two families who had been poisoned by pesticides and insecticides utilized by neighbouring industrial farms. Although there were legal regulations in place which prohibited the use of the pesticides and insecticides, the State failed to take meaningful steps to enforce the regulations. The pesticides and insecticides resulted in the death of one family member and the hospitalization of other family members. Further, the chemicals resulted in the loss of the families’ fruit trees, the death of several farm animals and damage to their crops.

The Committee concluded, regarding the State’s obligation to take positive action to protect the rights found under the ICCPR, that States must take all appropriate measures to protect their people from any threat that is ‘reasonably foreseeable’,⁵² referencing decisions of regional human rights bodies which had recognized ‘an undeniable link between the protection of the environment and the realization of human rights and that have established that environmental degradation can adversely affect the effective enjoyment of the right to life.’⁵³

In particular, the Inter-American Court of Human Rights in its advisory opinion on the environment and human rights, emphasized that the relationship between the protection of the environment and human rights, where ‘environmental degradation and the adverse effects of climate change affect the real enjoyment of human rights.’⁵⁴ The African Commission on Human Rights has also recognized the ties between the protection of the environment and human rights. In the *Social and Economic Rights Action Center & the Center for Economic and Social Rights v. Nigeria* communication, the Commission acknowledged the State’s responsibilities in relation to the ‘right to a general satisfactory environment’ enshrined in

⁴⁹ United Nations Framework Convention on Climate Change (21 March 1994) 1771 UNTS 107 [UNFCCC].

⁵⁰ See *ibid.*, Art 3(3).

⁵¹ UN Human Rights Committee ‘Views adopted by the Committee under Article 5 (4) of the Optional Protocol, concerning communication No. 2751/2016’ (20 September 2019) UN Doc CCPR/C/126/D/2751/201 [*Portillo Cáceres v Paraguay*].

⁵² *Ibid.*, at 7.3-7.5.

⁵³ *Ibid.*, at 7.4.

⁵⁴ Inter-American Court of Human Rights, Advisory Opinion OC-23/17 of 15 November 2017 on the environment and human rights, series A, No. 23, at 47, referring to Inter-American Court of Human Rights *Kawas-Fernández v. Honduras*, merits, reparations and costs, judgment of 3 April 2009, series C, No. 196, at 148.

Article 24 of the African Charter. The Commission's decision illustrates the ways in which this right to a satisfactory environment is linked to the right to life, finding that the pollution and environmental degradation of the land violated the right to life.⁵⁵

The Human Rights Committee highlighted that the findings of the regional bodies suggests that severe environmental degradation gives rise to a violation of the right to life.⁵⁶ Ultimately, the Committee found that the State's inadequate controls over the illegal use of the pollutant chemicals constituted a violation of the right to life of the deceased and the surviving complainants.⁵⁷

Other human rights and international bodies have also recognized the threat climate change and damage to the environment poses to the right to life. The UN Office of the High Commissioner for Human Rights (OHCHR) has emphasized that 'At its most extreme, climate change kills',⁵⁸ further noting that not only does climate change result in premature deaths, which on its own warrants action by States, but climate change also 'endangers the underlying determinants of health at every level, acting as a threat multiplier.'⁵⁹ The Special Rapporteur on human rights and the environment has stressed the disastrous effects of climate change and the risk it poses to human rights such as with extreme weather events, heat waves, floods, draughts, wild-fires, diseases and pollution leading to deaths.⁶⁰ The World Health Organization has estimated that climate change will contribute to approximately 250,000 additional deaths from malnutrition, malaria, diarrhoea and heat stress alone.⁶¹

2.1.2 The impact of fracking on the right to life

As will be discussed in greater detail below, fracking poses significant public health risks to the communities and individuals surrounding the fracking operations, but also a significant risk through its contribution to the larger issue of climate change. The end product of fracking, natural gas, is not a climate-friendly fuel.⁶² In addition to the end product of natural gas, the process of fracking results in large amounts of methane emissions escaping during the fracking process. Methane is 'a powerful greenhouse gas that traps 86 times more heat than carbon dioxide over a 20-year time frame.'⁶³ Methane released during the fracking

⁵⁵ *African Commission on Human and Peoples' Rights, Social and Economic Rights Action Center & the Center for Economic and Social Rights v. Nigeria*, Communication No. 155/96, 27 October 2001 at 67.

⁵⁶ *Portillo Cáceres v Paraguay* (n 51) at 7.4.

⁵⁷ *Ibid.*, at 7.5.

⁵⁸ HRC Analytical Study (n 38) at 8.

⁵⁹ *Ibid.*, at 8, referring to DARA, 'Climate Vulnerability Monitor: A Guide to the Cold Calculus of a Hot Planet' (2nd ed., 2012).; and World Health Organization 'Quantitative risk assessment of the effects of climate change on selected causes of death, 2030s and 2050s' (2014).

⁶⁰ Safe Climate Report (n 13) at 29.

⁶¹ World Health Organization 'Quantitative risk assessment of the effects of climate change on selected causes of death, 2030s and 2050s' (2014).

⁶² Compendium (n 3) at 298.

⁶³ *Ibid.*

process is largely referred to as fugitive emissions, and can occur during the drilling, storage and ancillary processes.⁶⁴

Climate change, as noted by various human rights and international bodies, poses a grave risk to the planet, and States, pursuant to their obligations to ensure the right to life, must take action to combat the degradation of the environment in order to protect the right to life and the right to life with dignity.

⁶⁴ *Ibid.*

2.2 Right to Health

The right to health has been described as a fundamental human right, ‘indispensable for the exercise of other human rights.’⁶⁵ Pursuant to the right to health, everyone is ‘entitled to the enjoyment of the highest attainable standard of health conducive to living a life in dignity.’⁶⁶

2.2.1 The relevance of climate change to the right to health as recognised under international treaties

Multiple international human rights treaties and instruments recognise the right to health, including the ICESCR⁶⁷, CRC⁶⁸, CRPD,⁶⁹ UDHR,⁷⁰ ICERD⁷¹ and CEDAW.⁷² The widespread inclusion of the right to health in human rights instruments indicates its fundamental importance.

The Committee on Economic Social and Cultural Rights has described the right to health as an inclusive right, in that it includes not only the right to access to health care, but also the right ‘to the underlying determinants of health, such as access to safe and potable water and adequate sanitation, an adequate supply of safe food, nutrition and housing, healthy occupational and environmental conditions, and access to health-related education and information, including on sexual and reproductive health.’⁷³

The right to health, in relation to the environmental conditions of human beings, and in particular the threat climate change poses to health, has been discussed extensively by international expert bodies (and in the text of the UNFCCC, as explained below). In the 2019 Report of the Special Rapporteur on human rights and the environment, it was noted that ‘The World Health Organization concluded that climate change already has negative effects on health and is undermining the right to health.’⁷⁴ Further, the Lancet Commission on Health and Climate Change has warned that climate change is the biggest global health threat of the twenty-first century and could reverse five decades of progress in global health.⁷⁵

In 2019, five UN human rights treaty bodies issued a joint statement on climate change and its impacts on human rights. In this joint statement, the treaty bodies emphasized the negative

⁶⁵ UN Committee on Economic Social and Cultural Rights, ‘General Comment No. 14 (2000), The Right to the Highest Attainable Standard of Health’ (11 August 2000) UN Doc E/C.12/2000/4 at 1 [ICESCR General Comment 14].

⁶⁶ *Ibid.*

⁶⁷ ICESCR (n 6) Art 12.

⁶⁸ CRC (n 7) Art 24.

⁶⁹ CRPD (n 9) Art 25.

⁷⁰ UDHR (n 44) Art 25.

⁷¹ ICERD (n 10) Art 5(e)(iv).

⁷² CEDAW (n 8) arts 11.1(f), 12.

⁷³ ICESCR General Comment 14 (n 65) at 11.

⁷⁴ Safe Climate Report (n 13) at 32.

⁷⁵ N. Watts *et al.*, ‘Health and climate change: policy responses to protect public health’ (2015) 386(10006) *Lancet* 1861.

impacts climate change pose to all but stated that the risks are ‘particularly high for those segments of the population already marginalised or in vulnerable situations or that, due to discrimination and pre-existing inequalities, have limited access to decision-making or resources, such as women, children, persons with disabilities, indigenous peoples and persons living in rural areas.’⁷⁶

The Committee on the Rights of the Child has also underlined the risk that climate change poses to the right to health of children. In its General Comment No. 15, the Committee calls upon States ‘to take measures that address the dangers and risks that local environmental pollution poses to children’s health in all settings’⁷⁷ and to implement environmental interventions that address climate change, as it is ‘one of the biggest threats to children’s health and exacerbates health disparities’.⁷⁸

OHCHR has acknowledged that ‘The protection of all human rights from the impact of climate change is fundamental for the protection of the right to health. Internationally, however, there is growing recognition of the specific interlinkages between climate change and the human right to health.’⁷⁹ In particular, OHCHR noted the recognition of the connection between the human right to health and climate change in the text of the UNFCCC, wherein the Convention discusses the impact climate change has on health and the connections between the two.⁸⁰

States that have ratified international legal instruments containing the right to health are obligated to ‘implement them and translate their obligations into national law.’⁸¹ Thus, States in meeting their obligations must take measures to ‘prevent and remedy the negative impacts of climate change on the right to health, including with regard to the environmental and social determinants of health.’⁸²

2.2.2 The impact of fracking on the right to health

Fracking poses a risk to the right to health on two fronts. First, in its contribution to climate change, and second in regard to the impacts fracking has on the immediate and surrounding community.

⁷⁶ UN Office of the High Commissioner on Human Rights ‘Joint Statement on “Human Rights and Climate Change’ (16 September 2019) at 3.

⁷⁷ UN Committee on the Rights of the Child ‘General Comment No. 15 on the right of the child to the enjoyment of the highest standards of health (art 24)’ (17 April 2013) UN Doc CRC/C/GC/15 at 49 [CRC General Comment 15].

⁷⁸ *Ibid.*, at 50.

⁷⁹ HRC Analytical Study (n 38) at 42.

⁸⁰ *Ibid.*

⁸¹ *Ibid.*, at 44

⁸² *Ibid.*, at 45

Climate change acts as a ‘threat multiplier’⁸³ amplifying underlying health factors and exacerbating them. The impacts of climate change are widespread and various, with floods, extreme weather, natural disasters, wildfires, pandemics and illness and changing ecosystems being just some of the dire and direct impacts of climate change. These in turn have consequences for the health, lives and wellbeing of persons across the globe.

As noted by the OHCHR, climate change has been linked to ‘displacement, forced migration, insecurity and violent conflict, all of which pose substantial health risks. Declining biodiversity as a result of climate change also has an impact on the development of new medicines and access to medicines. Ecosystem damage has far-ranging implications for health, infrastructure, ecosystem services and traditional livelihoods.’⁸⁴ The Special Rapporteur on human rights and the environment has also emphasized that the impacts of climate change on health go beyond premature death, and include ‘increased incidences of respiratory disease, cardiovascular disease, malnutrition, stunting, wasting, allergies, heat stroke, injuries, water-borne and vector-borne diseases and mental illness.’⁸⁵ Further, climate change erodes determinants of health, including ‘access to adequate food and water, clean air, culture and livelihoods.’⁸⁶

In addition to its contributions to climate change and its attendant health impacts and risks to the right to health, fracking also poses a severe risk to the public health of the communities in the vicinity of the fracking operations. The Compendium noted several public health impacts linked to fracking, including risks to reproductive health, pre-term births, low birth weights and birth defects, cancers, hospitalizations due to pneumonia, asthma, high levels of Benzene and various other health risks.⁸⁷

In 2019, the Permanent People’s Tribunal (PPT), a tribunal which examines serious and systemic violations of human rights committed by States or private groups or organizations, issued an advisory opinion on ‘Human Rights, Fracking and Climate Change’. After hearing from various civil society organizations on the impact of fracking on human rights, the PPT issued an advisory opinion, ultimately calling for a global ban on fracking.⁸⁸ The Tribunal found that the evidence provided made clear that the fracking industry has violated both substantive and procedural human rights law, where the techniques utilized in fracking breaching international human rights obligations ‘especially the right to health, by attacking all the components of natural ecosystems that can reach their destruction and therefore result in an ecocide; and threaten the enjoyment of all human rights of the present and future

⁸³ HRC Analytical Study (n 38) at 8 referring to DARA, ‘Climate Vulnerability Monitor: A Guide to the Cold Calculus of a Hot Planet’ (2nd ed., 2012); WHO, ‘Quantitative Risk Assessment of the Effects of Climate Change on Selected Causes of Death, 2030s and 2050s’ (2014).

⁸⁴ HRC Analytical Study (n 38) at 22.

⁸⁵ Safe Climate Report (n 13) at 31 referring to IPCC, ‘Climate Change 2014: Impacts, Adaptation, and Vulnerability’ (IPCC, 2014).

⁸⁶ Safe Climate Report (n 13) at 31 referring to HRC Analytical Study (n 46).

⁸⁷ Compendium (n 3) at 187-215.

⁸⁸ Permanent Peoples’ Tribunal, ‘Advisory Opinion, Session on Human Rights, Fracking and Climate Change’ (12 April 2019) at 59A(2) [PPT Advisory Opinion].

generations through its direct contribution to climate change.’⁸⁹ As the impacts are felt by the ‘populations closest to the places of exploitation, they also often violate procedural human rights protected by international law, especially the rights of access to information and participation in decision-making; and also, frequently, they violate the environmental impact assessment obligations, and rights of human rights defenders.’⁹⁰

Accordingly, the Special Rapporteur on human rights and the environment recommended that developed States may demonstrate leadership in the area of human rights and the environment through ‘Prohibiting the expansion of the most polluting and environmentally destructive types of fossil fuel extraction, including oil and gas produced from hydraulic fracturing (fracking), oil sands, the Arctic or ultra-deepwater.’⁹¹

Climate change also poses a severe risk to not only the physical health of the world’s population, but also to mental health. As noted by OHCHR, ‘Climate change and the impacts of traumatic stress connected to climate change, such as war/insecurity, sexual and physical violence and witnessing deaths and injury related to extreme weather disasters, negatively affect children’s mental health. Children who lose a family member or experience life-threatening situations as a result of the impacts of climate change have a higher chance of experiencing post-traumatic stress, anxiety disorders, suicidal ideation and depression.’⁹²

⁸⁹ *Ibid.*, at 43.

⁹⁰ *Ibid.*

⁹¹ Safe Climate Report (n 13) at 78(d).

⁹² UN Human rights Council, ‘Analytical study on the relationship between climate change and the full and effective enjoyment of the rights of the child’ (4 May 2017) UN Doc A/HRC/35/13 at 18 [Climate Change and Rights of the Child Study].

2.3 Right to Water

Water is essential for communities and ecosystems. It supports not only life systems, but also cultural and economic activities and is accordingly essential for the enjoyment of other human rights. The right to water is recognized in CEDAW,⁹³ CRC,⁹⁴ and CRPD.⁹⁵ In 2010 the UN General Assembly affirmed in resolution 64/292 that ‘safe and clean drinking water and sanitation is a human right, essential for the full enjoyment of life and all other human rights’.⁹⁶ The right to water has been further affirmed as constituting a human right by the Committee on Economic, Social and Cultural Rights in General Comment No. 15, in which the right to water was described as ‘fundamental for life and health’⁹⁷ and ‘a prerequisite for the realization of other human rights’.⁹⁸ Further, the Committee emphasized that the right to water entitles everyone to ‘sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses.’⁹⁹

2.3.1 The right to water recognised by international treaties and instruments

Access to safe and clean water directly impacts various human rights, as recognized by treaty bodies such as CESCR, in which the Committee recognizing the importance of access to water for the purposes of agriculture and the right to adequate food.¹⁰⁰ The Committee has further linked the importance of water in relation to human dignity, life and health and in ensuring the sustainability of water supplies to ensure the right to water for future generations.¹⁰¹

The right to water does not merely require access to water, but also access to clean water. States must ensure that ‘natural water resources are protected from contamination by harmful substances’¹⁰² and that water must be ‘free from micro-organisms, chemical substances, and radiological hazards that constitute a threat to a person’s health.’¹⁰³ Contaminated water poses severe risks to the lives and health of those dependent on it and has been noted to exacerbate existing poverty in communities.¹⁰⁴

⁹³ CEDAW (n 8) Art 14(2).

⁹⁴ CRC (n 7) Art 24 (1), 24(2)(c).

⁹⁵ CRPD (n 9) Art 28(2)(a).

⁹⁶ UN General Assembly, ‘Res. 64/292 The human right to water and sanitation’ (3 August 2010) UN Doc A/RES/64/292, Art 1.

⁹⁷ UN Committee on Economic, Social and Cultural Rights, ‘General Comment No. 15: The Right to Water (Arts. 11 and 12 of the Covenant’ (20 January 2003) UN Doc E/C.12/2002/11, at 1 [ICESCR General Comment 15].

⁹⁸ *Ibid.*

⁹⁹ *Ibid.*, at 2.

¹⁰⁰ *Ibid.*, at 7.

¹⁰¹ *Ibid.*, at 11.

¹⁰² *Ibid.*, at 8.

¹⁰³ *Ibid.*, at 12 (b).

¹⁰⁴ *Ibid.*, at 1.

States, in meeting their obligation to ensure the right to water, are required to take deliberate, concrete and targeted steps. Such steps may include (but are not limited to) the following:

- Prohibiting interference with the right to water through ‘unlawfully diminishing or polluting water’;¹⁰⁵
- Preventing third parties (such as corporations) from ‘interfering in any way with the enjoyment of the right to water’;¹⁰⁶
- Adopting strategies to ‘reduce depletion of water resources, through unsustainable extraction’;¹⁰⁷
- Reducing and eliminating pollution of watersheds by harmful chemicals;¹⁰⁸ and
- Ensuring that proposed developments ‘do not interfere with access to adequate water’.¹⁰⁹

States must take all necessary measures to ‘safeguard persons within their jurisdiction from infringements of the right to water by third parties’. This includes enacting and enforcing legislation to ‘prevent the contamination and inequitable extraction of water.’ Failure to do so amounts to a violation of the State’s obligations.¹¹⁰

Further, in order for States to comply with their international obligations regarding the right to water, States must refrain from interfering with the right of water in other countries.¹¹¹ States must refrain from engaging in actions that interfere ‘directly or indirectly, with the enjoyment of the right to water in other countries.’¹¹² States must ensure that activities undertaken within their own jurisdiction do not impact of the ability of another State to realize the right to water for persons within its jurisdiction.¹¹³

The UN Special Rapporteur on the human right to safe drinking water and sanitation, has also remarked upon States’ obligations to protect and promote the right to water. The Special Rapporteur emphasized that States, in entering into agreements regarding trade and investment, must ensure such agreements do not ‘limit or hinder a country’s capacity to ensure the full realisation of the human rights to water and sanitation.’¹¹⁴ In order to meet their obligations, States must ensure close monitoring and regulation of the use and any contamination of water from industry.¹¹⁵

¹⁰⁵ *Ibid.*, at 21

¹⁰⁶ *Ibid.*, at 23.

¹⁰⁷ *Ibid.*, at 28.

¹⁰⁸ *Ibid.*

¹⁰⁹ *Ibid.*

¹¹⁰ *Ibid.*, at 44 (b)(i).

¹¹¹ *Ibid.*, at 31.

¹¹² *Ibid.*

¹¹³ *Ibid.*

¹¹⁴ UN Special Rapporteur Catarina de Albuquerque, ‘Realising the human rights to water and sanitation: a handbook by the UN special rapporteur Catarina de Albuquerque’ Introduction (2014) at 27.

¹¹⁵ *Ibid.*, at 14.

The Special Rapporteur has remarked that when pollution or over-extraction results from State action, including the licensing of projects ‘predicted to result in human rights violations’ States may be in violation of their obligation to respect the rights to water.¹¹⁶

Accordingly, in 2019 the Special Rapporteur proposed a framework for managing and monitoring the impacts of large-scale projects on local populations’ access to potable water and sanitation. The thematic report entitled ‘Impact of mega-projects on the human rights to water and sanitation’¹¹⁷ (hereinafter referred to as the ‘Impact of mega-projects report’) includes an examination of extractive industries and energy production projects. The Impact of mega-projects report reinforces the importance of considering the human right to water in national planning, not only in relation to the water sector but in other sectors, demonstrating the far-reaching implications of the right to water.¹¹⁸

The Impact of mega-projects report sets out that States should undertake a balancing exercise based on the principal of necessity, which requires States to decide whether the proposed mega-project is the most suitable option for economic growth and the least intrusive measure, ensuring that it will not undermine human rights, such as access to water.¹¹⁹ Further, States have an obligation to assess the potential impacts a project may have on the right to water prior to granting a license or authorizing a project¹²⁰ and that States and companies engaged in such projects have a responsibility to implement human rights and environmental assessments to assess the potential impacts of such mega-projects.¹²¹ The Impact of mega-projects report concludes that due to the wide range of potential negative impacts mega-projects may have on the right to water and other interrelated rights, ‘it is necessary to assess the feasibility and necessity of those projects vis-à-vis the human rights framework’.¹²²

2.3.2 The impact of fracking on the right to water

Fracking is a water-intensive activity that poses a risk to water resources by compromising the quantity (accessibility and affordability) as well as the quality of water available to affected communities. In fracking, as with other extractive activities, water is a key area of concern given the detrimental impacts fracking can have on this essential resource.¹²³

Water depletion is an issue where the availability of a sufficient and continuous water supply is undermined. Fracking is a water intensive activity that poses a risk to many already over-

¹¹⁶ UN Human Rights Council, ‘Report of the Special Rapporteur on the human right to safe drinking water and sanitation, Catarina de Albuquerque’ (30 June 2014) UN Doc A/HRC/27/55, at 20.

¹¹⁷ UN General Assembly, ‘Report of the Special Rapporteur on the human rights to safe drinking water and sanitation’ (19 July 2019) UN Doc A/74/197 [Special Rapporteur Report on safe drinking water].

¹¹⁸ *Ibid.*, at 48.

¹¹⁹ *Ibid.*, at 53.

¹²⁰ *Ibid.*, at 56.

¹²¹ *Ibid.*, at 62.

¹²² *Ibid.*, at 86.

¹²³ Compendium (n 2) at 7.

utilized water resources. The International Energy Agency estimates that each fracking well may need anywhere between a few thousand to 20,000 cubic meters of water (between 1 million and 5 million gallons).¹²⁴ For example, in 2010, the U.S. Environmental Protection Agency estimated that an annual 70 to 140 billion gallons of water were used to fracture just 35,000 wells in the United States.¹²⁵ The Compendium notes that ‘In Arkansas, researchers found that water withdrawals for fracking operations deplete streams used for drinking water and recreation’¹²⁶ and ‘the volume of water used for fracking U.S. oil wells has more than doubled since 2016’.¹²⁷

The right to water is also impacted by contamination, with the fracking process presenting several ways in which water may be contaminated. The fracking fluid injected underground contains chemicals, many of which are toxic. The potential for fracking and other extractive processes to contaminate water sources and supplies has been heavily reported on by various UN Special Rapporteurs.

The Special Rapporteur on the human right to safe drinking water and sanitation, noted that ‘Both wells and pits are very likely to have ecological impacts, including the pollution of groundwater aquifers and contamination of drinking water.’¹²⁸ In his 2012 report,¹²⁹ the Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes examined the adverse effects of unsound management of hazardous substances in extractive industries. In examining fracking, the Special Rapporteur noted that the excess water from oil or gas production and drilling fluids ‘constitute hazardous wastes’¹³⁰ and that sometimes this excess water is disposed of by either reinjecting it back into the oil and gas reservoir, disposed of in waste ponds or ‘dumped directly into streams or oceans.’¹³¹

The water used in fracking procedures often contains toxic substances, which can end up being released into the surface water during the extraction, transport, storage and waste disposal stages of fracking.¹³² The storage of wastewater and other waste materials may also result in the contamination of water systems through spills, leaks or floods.¹³³ The Special Rapporteur cautioned that such unintended releases of contaminated wastewater can be

¹²⁴ International Energy Agency, ‘World Energy Outlook: Special Report on Unconventional Gas’ (November 2012).

¹²⁵ United States Environmental Protection Agency, ‘Draft Plan to Study the Potential Impacts of Hydraulic Fracturing on Drinking Water Resources’ (7 February 2011).

¹²⁶ Compendium (n 2) at 34.

¹²⁷ Compendium (n 2) at 34.

¹²⁸ UN General Assembly, ‘Report of the Special Rapporteur on the human right to safe drinking water and sanitation’ (5 August 2013) UN Doc A/68/264, at 41.

¹²⁹ UN Human Rights Council, ‘Report of the Special Rapporteur on the human rights obligations related to environmentally sound management and disposal of hazardous substances and waste, Calin Georgescu’ (2 July 2012) UN Doc. A/HRC/21/48 [Special Rapporteur Calin Georgescu].

¹³⁰ *Ibid.*, at 8.

¹³¹ *Ibid.*

¹³² *Ibid.*, at 14.

¹³³ *Ibid.*

expected to increase due to an ‘anticipated increase in the frequency and intensity of storms in the future, due to climate change.’¹³⁴

According to the Compendium ‘more than 1,000 chemicals that are confirmed ingredients in fracking fluid, an estimated 100 are known endocrine disruptors, acting as reproductive and developmental toxicants, and at least 48 are potentially carcinogenic.’¹³⁵

Statistical analysis by Physicians, Scientists, and Engineers for Healthy Energy (PSE) of the scientific literature available from 2009 to 2015 demonstrates that 69 per cent of original research studies on water quality found potential for, or actual evidence of, fracking-associated water contamination.¹³⁶ These chemicals can migrate into underground water supplies and active or abandoned wells, which may serve as conduits carrying fracking fluids from deep underground into aquifers near the surface.¹³⁷ Leaks and spills of drilling fluids, whether of chemicals used in fracking, wastewater or other substances, provide a further route for contamination. The Compendium notes a ‘2020 survey of groundwater wells in Kern County, California found widespread contamination with wastewater chemicals, including salts, that had leached from both surface pits and underground injection wells.’¹³⁸ It is also highted in the Compendium that ‘A 2017 study found that spills of fracking fluids and fracking wastewater are common, documenting 6,678 significant spills occurring over a period of nine years in four states alone.’¹³⁹

¹³⁴ *Ibid.*

¹³⁵ Compendium (n 2) at 86.

¹³⁶ Jake Hays, Seth B.C Shonkoff, ‘Toward an Understanding of the Environmental and Public Health Impacts of Unconventional Natural Gas Development: A Categorical Assessment of the Peer-Reviewed Scientific Literature, 2009-2015’, (2016).

¹³⁷ See Ian Urbina, ‘A Tainted Water Well, and Concern There May be More’ (New York Times, 3 August 2011): “The industry has also acknowledged that fracking liquids can end up in aquifers because of failures in the casing of wells, spills that occur above ground or through other factors.”

¹³⁸ Compendium (n 2) at 86.

¹³⁹ *Ibid.*; see also Compendium (n 2) at 86 – 141 for more on water contamination.

2.4 Right to Food

The availability of food is fundamental to the right to life, health and human dignity. CESCR has emphasized that ensuring the right to adequate food means that food must not only be available and of sufficient quality but must also be ‘free from adverse substances.’¹⁴⁰ This refers to food safety and especially the prevention of contamination.¹⁴¹

2.4.1 The right to food in international human rights treaties and instruments

The right to food is recognized in the ICESCR, CRC, CRPD and the non-binding UDHR (recognised as forming part of customary international law) as an essential part of the right to an adequate standard of living.¹⁴² CEDAW acknowledges that that in ‘situations of poverty women have the least access to food’.¹⁴³ ICESCR refers to the ‘fundamental right of everyone to be free from hunger’.¹⁴⁴ CRC also notes that environmental pollution poses ‘dangers and risks’ to nutritious foods and clean drinking water.¹⁴⁵

The CESCR Committee in its General Comment No 12 addresses key issues regarding the right to adequate food, such as availability and accessibility.¹⁴⁶ With regards to availability, the Committee set out that food must be available and it must be of sufficient quality and ‘free from adverse substances’.¹⁴⁷ This refers to food safety, especially the prevention of contamination¹⁴⁸ and bad environmental hygiene.¹⁴⁹ Availability also includes the possibility to obtain food from ‘productive land or other natural resources’.¹⁵⁰ In relation to accessibility, food must be accessible ‘in ways that are sustainable and that do not interfere with the enjoyment of other human rights.’¹⁵¹ Importantly, ‘accessibility encompasses both economic and physical accessibility’.¹⁵²

States must ensure that their own actions or inactions do not amount to a denial of individual or collective access to food, as this would constitute a violation of the right.¹⁵³ States, in meeting their obligations in relation to the right to food, must not only ensure their actions or inactions do not impact the right to food, but also that other entities, such as private

¹⁴⁰ UN Committee on Economic Social and Cultural Rights, ‘General Comment No. 12: The Right to Adequate Food (Art. 11 of the Covenant)’ (12 May 1999) UN Doc E/C.12/1999/5 at 8 [ICESCR General Comment 12].

¹⁴¹ *Ibid.*, at 10.

¹⁴² See ICESCR (n 6) Art 11 (1); CRC (n 7) Art 24 (2)(c); CRPD (n 9) Art 28(1); UDHR (n 44) Art 25(1).

¹⁴³ CEDAW (n 8) at Preamble.

¹⁴⁴ ICESCR (n 6) Art 11 (2).

¹⁴⁵ CRC (n 7) Art 24 (2)(c).

¹⁴⁶ ICESCR General Comment 12 (n 140) at 1.

¹⁴⁷ *Ibid.*, at 8.

¹⁴⁸ *Ibid.*, at 10.

¹⁴⁹ *Ibid.*

¹⁵⁰ *Ibid.*, at 12.

¹⁵¹ *Ibid.*, at 8.

¹⁵² *Ibid.*, at 13.

¹⁵³ *Ibid.*, at 19.

businesses, do not violate the right.¹⁵⁴ As a violation of this right can occur through direct action of the state of ‘or other entities insufficiently regulated by States’.¹⁵⁵ Thus, as part of their obligations, States must take ‘appropriate steps to ensure that activities of the private business sector ... are in conformity with the right to food’.¹⁵⁶ States must also prevent third parties from destroying sources of food, through pollution of the ‘land, water and air with hazardous industrial or agricultural products’.¹⁵⁷

2.4.2 The impact of fracking on the right to food

Toxic substances released from oil and natural gas operations can have negative effects on soil, crops and livestock. The Compendium states that ‘Food is a troubling possible exposure route to fracking chemicals, in part because so little is known about these chemicals.’¹⁵⁸ Examples of these negative effects have been seen in the United States. For example, in 2001, U.S. Forest Service researchers reported dramatic negative effects on vegetation caused by the drilling and fracking of natural gas in an experimental forest in north-eastern West Virginia.¹⁵⁹ The Compendium observes that ‘Studies and case reports from across the country have highlighted instances of deaths, neurological disorders, aborted pregnancies, and stillbirths in farm animals that have come into contact with wastewater.’¹⁶⁰

In a 2012 publication, Michelle Bamberger, a veterinarian, and Robert Oswald, a Professor of molecular medicine at Cornell University, compiled the results of 24 case studies from the United States related to the health of humans and animals surrounding oil and gas drill sites.¹⁶¹ The publication found that more than one-third of the cases involved conventional (vertical) wells with the remainder comprising unconventional (horizontal) wells subjected to high volume hydraulic fracturing. The authors concluded that exposure to gas drilling operations strongly affect the health of humans, companion animals, livestock, horses, and wildlife. This finding was of particular significance to the right to food, as the exposure of livestock to chemical contamination can in turn lead to these contaminants appearing in milk and meat products from these animals, being consumed by humans.¹⁶²

In addition to the negative effects caused by the release of toxins from oil and gas operations, the fracking industry contributes substantially to global warming and as noted by UN Special Rapporteur on human rights and the environment, ‘Climate change also erodes many of the

¹⁵⁴ *Ibid.*, at 20.

¹⁵⁵ *Ibid.*, at 19.

¹⁵⁶ *Ibid.*, at 27.

¹⁵⁷ UN Office of the High Commissioner of Human Rights, ‘Factsheet 34 The right to adequate food’ (April 2010) at 18.

¹⁵⁸ Compendium (n 2) at 48.

¹⁵⁹ Mary Beth Adams *et al.*, ‘Effects of development of a natural gas well and associated pipeline on the natural and scientific resources of the Fernow experimental forest’ (U.S. Forest Service January 2011).

¹⁶⁰ See Compendium (n 2) at 284 – 297 for detail on threats to agriculture, soil quality, and forests.

¹⁶¹ Michelle Bamberger, Robert E. Oswald, ‘Impacts of Gas Drilling on Human and Animal Health’ (2012)

22(1) *New Solutions* 51-77.

¹⁶² *Ibid.*, at 67.

key social and environmental determinants of health, including access to adequate food and water, clean air, culture and livelihoods.’¹⁶³

The Special Rapporteur on the right to food has emphasized that in order to address the adverse impact of climate change on the right to food, ‘a policy shift is necessary to respond to the challenges posed by climate change.’¹⁶⁴

The Food and Agriculture Organization of the United Nations, further stresses that climate variability and extremes ‘are among the key drivers behind the recent uptick in global hunger and one of the leading causes of severe food crises.’¹⁶⁵ Climate change and the cumulative effect of climate change undermines ‘all dimensions of food security – food availability, access, utilization and stability.’¹⁶⁶

¹⁶³ Safe Climate Report (n 13) at 19.

¹⁶⁴ UN General Assembly, ‘Interim report of the Special Rapporteur on the right to food’ (5 August 2015) UN Doc A/70/287 at 3 [Right to Food Report].

¹⁶⁵ FAO, IFAD, UNICEF, WFP and WHO, ‘The State of Food Security and Nutrition in the World 2018. Building climate resilience for food security and nutrition’ (2018) at xii.

¹⁶⁶ *Ibid.*, at xii.

2.5 Right to Housing

2.5.1 The right to housing as recognised by international treaties and instruments

The right to adequate living conditions and housing is recognized in ICESCR, CEDAW and CRPD as an essential part of the right to an adequate standard of living.¹⁶⁷

The CESCR Committee has elaborated on the right to housing in General Comment No. 4, explaining the right to housing to imply:

- The right to legal security of tenure, which guarantees legal protection from ‘forced eviction, harassment and other threats’;¹⁶⁸
- The right to access ‘natural and common resources [and] safe drinking water’;¹⁶⁹
- The right to be protected from ‘arbitrary or unlawful interference’ in the privacy of one’s home,¹⁷⁰ and to choose one’s residence;¹⁷¹
- The right to housing that provides protection from threats to health;¹⁷²
- The principle that ‘housing should not be built on polluted sites nor in immediate proximity to pollution sources that threaten the right to health of the inhabitants’;¹⁷³ and
- That environmental and energy policies, among others, should take into account the right to housing.¹⁷⁴

The Committee further examined the right to housing in relation to forced eviction, finding that forced evictions made ‘in the name of development’ of large-scale projects (such as energy projects) can impact the right to housing.¹⁷⁵ Forced evictions carried out by private persons or bodies without ‘appropriate safeguards’ must be punished by the State.¹⁷⁶

The Special Rapporteur on adequate housing as a component of the right to an adequate standard of living, has emphasized that the right to housing is strongly connected with the

¹⁶⁷ ICESCR (n 6) Art 11(1); CEDAW (n 8) Art 14(2); CRPD (n 9) Art 28.

¹⁶⁸ UN Committee on Economic, Social and Cultural Rights, ‘General Comment No. 4, The right to adequate housing (Art.11(1))’ (13 December 1991) UN Doc E/1992/23 at 8(a) [ICESCR General Comment 4].

¹⁶⁹ *Ibid.*, at 8(b).

¹⁷⁰ *Ibid.*, at 9.

¹⁷¹ ICCPR (n 5) Art 12.

¹⁷² CESCR General Comment 4 (n 168) at 8(d).

¹⁷³ *Ibid.*, at 8(f).

¹⁷⁴ *Ibid.*, at 12.

¹⁷⁵ UN Committee on Economic, Social and Cultural Rights, ‘General comment No. 7: The right to adequate housing (art. 11 (1) of the Covenant): Forced evictions’ (20 May 1997) UN Doc E/1998/22, at 7 [ICESCR General Comment 7].

¹⁷⁶ *Ibid.*, at 9.

right to life, as ‘the right to a secure place to live only has meaning in the context of a right to live in dignity and security, free of violence.’¹⁷⁷

A 2019 report by Special Rapporteur on adequate housing as a component of the right to an adequate standard of living, and on the right to non-discrimination in this context, notes that ‘forced evictions are widespread and devastating in their consequences’ and lists ‘natural resource extraction’ as a key motive for forced eviction.¹⁷⁸ The impact of climate crisis and natural disasters on the right to housing is noted within the report with ‘exponential increases in these effects anticipated in decades to come’.¹⁷⁹ Importantly, the Special Rapporteur recommended that States must assess the impact that trade and investment agreements may have on the right to housing, prior to entering into such agreements.¹⁸⁰ States must ensure that any such agreements include a ‘provision explicitly referring to their human rights obligations in respect of housing.’¹⁸¹ Further, States should interpret existing agreements in a way so as not to impair the State’s ability to realize the right to housing.¹⁸²

2.5.2 The impact of fracking on the right to housing

The extractive industry has been recognized as having the potential to negatively impact the right to adequate housing due to the environmental degradation the industry can cause.¹⁸³ It is submitted that the right to adequate living conditions and housing can be detrimentally affected by fracking in several ways, including:

- Availability of housing is affected as influxes of temporary workers push up rents and reduce available properties;
- Quality of housing is affected as a result of property damage and devaluation from contaminated land and water wells, damage caused by earthquakes, and wastewater disposal and pollution;
- Forced displacement results from people vacating their properties as a result of the above damage or through coercion from private companies; and
- Quality of community life is disrupted.¹⁸⁴

¹⁷⁷ UN General Assembly, ‘Adequate housing as a component of the right to an adequate standard of living: Report of the Special Rapporteur on adequate housing as a component of the right to an adequate standard of living, and on the right to non-discrimination in this context’ (8 August 2016) UN Doc A/71/310 at 2.

¹⁷⁸ UN General Assembly, ‘Guidelines for the Implementation of the Right to Adequate Housing: Report of the Special Rapporteur on adequate housing as a component of the right to an adequate standard of living, and on the right to non-discrimination in this context’ (26 December 2019) UN Doc A/HRC/43/43 at 36 [Adequate Housing Guidelines].

¹⁷⁹ *Ibid.*, at 70.

¹⁸⁰ *Ibid.*, at 76(d).

¹⁸¹ *Ibid.*

¹⁸² *Ibid.*

¹⁸³ UNOHCHR, ‘Fact Sheet No. 21(Rev.1), The Human Right to Adequate Housing’ (November 2009) at 36.

¹⁸⁴ Sisters of Mercy (NGO), Mercy International Association: Global Action, ‘A guide to rights-based advocacy: International Human Rights Law and Fracking’ (2015) at 33.

An example of the impact of fracking on the right to housing is demonstrated in a 2014 report by the Multi-State Shale Research Collaborative which found that higher rents and a shortage of affordable housing accompanied a shale drilling boom in three of four rural communities in Ohio, Pennsylvania and West Virginia.¹⁸⁵ The impact of fracking on housing is also recognised in the Compendium which identified that ‘Drilling and fracking pose an inherent conflict with mortgages and property insurance due to the hazardous materials used and the associated risks.’¹⁸⁶ Similarly, a report by the New York Department of Health notes that there are numerous examples of where increases in extractive resource development has interfered with the quality-of-life of the community, with negative impacts including noise, odours and disproportionate increases in social problems.¹⁸⁷

¹⁸⁵ Multi-State Shale Research Collaborative, ‘Assessing the impacts of shale drilling county case studies’ (10 April 2014).

¹⁸⁶ See Compendium (n 2) at 412- 439 for more information on inaccurate jobs claims, increased crime rates, threats to property values and mortgages, and local government burden.

¹⁸⁷ New York State Department of Health, ‘A Public Health Review of High-volume Hydraulic Fracturing for Shale Gas Development’ (December 2014) at 6.

2.6 Right of Access to Information

At an international human rights level, the right of access to information is recognized in the ICCPR, CRC, and CRPD.¹⁸⁸ In addition to being a right by itself, it is mentioned and used for the protection of virtually all other human rights. Accordingly, the Special Rapporteur on the adverse effects of the illicit movement and dumping of toxic and dangerous products and wastes on the enjoyment of human rights has commented on the importance of the rights to information and participation for matters involving human rights and the environment.¹⁸⁹

2.6.1 The right to access of information as recognised by international treaties and instruments

The Human Rights Committee has stressed that States should be proactive in putting government information of public interest into the public domain¹⁹⁰ with a view to ensuring that there is effective and prompt access to such information.¹⁹¹ It is also important to note that requests for information should be low-cost so as not to constitute an unreasonable impediment,¹⁹² with clear rules and procedures in place for gaining access to information.¹⁹³ Additionally, States are to avoid excessive restrictions on access to information and provide reasons for refusal to provide access to information.¹⁹⁴

In Communication No. 1457/2006 (*Poma v. Peru*), which involved the withdrawal of water from indigenous land, the Human Rights Committee posited that if a State Party's decision-making may substantively compromise the way of life and culture of a minority group, a process of information-sharing and consultation with affected communities should be undertaken. Notably, in the views expressed by the Committee this 'requires not mere consultation but the free, prior and informed consent of the members of the community'¹⁹⁵ achieved through effective participation in the decision-making process. The Committee reiterated the need to respect the principle of proportionality so as not to endanger the survival of the community.

The CESCR Committee has observed that access to information 'includes the right to seek, receive and impart information and ideas concerning health issues.'¹⁹⁶ Access to information

¹⁸⁸ See ICCPR (n 5) Art 19(2); CRC (n 7) Arts 13(1), 17; CRPD (n 9) Arts 9(2)(f), 21.

¹⁸⁹ UN General Assembly, 'Report of the Special Rapporteur on the adverse effects of the illicit movement and dumping of toxic and dangerous products and wastes on the enjoyment of human rights, Okechukwu Ibeanu' (18 February 2008) UN Doc A/HRC/7/21, at 41 [Report on Illicit Movement of Toxic Wastes].

¹⁹⁰ UN Human Rights Committee, 'General Comment No. 34, Article 19: Freedoms of Opinion and Expression' (12 September 2011) UN Doc CCPR/C/GC/34, at 19.

¹⁹¹ *Ibid.*

¹⁹² *Ibid.*

¹⁹³ *Ibid.*

¹⁹⁴ *Ibid.*

¹⁹⁵ UN Human Rights Committee, Communication No. 1457/2006 (24 April 2009) UN Doc CCPR/C/95/D/1457 at 7.6.

¹⁹⁶ ICESCR General Comment 14 (n 65) at 12(b)(iv).

is an obligation ‘concerning the main health problems in the community, including methods of preventing and controlling them.’¹⁹⁷ The Committee highlighted that public authorities and third parties should give ‘full and equal access to information concerning water, water services and the environment’ to individuals and groups.¹⁹⁸ The Committee further averred that ‘timely and full disclosure of information on the proposed measures’ and ‘reasonable notice of proposed actions’ that can affect the right to water should be provided.¹⁹⁹

United Nations Special Rapporteurs and Independent Experts across multiple mandates have spoken on the importance of the right to information in relation to the protection and pursuit of various human rights. For example, the Special Rapporteur on the adverse effects of the illicit movement and dumping of toxic and dangerous products and wastes on the enjoyment of human rights has noted that the rights to information and participation are ‘both rights in themselves and essential tools for the exercise of other rights, such as the right to life, the right to the highest attainable standard of health, the right to adequate housing and others’²⁰⁰

Similarly, the Special Rapporteur on the promotion and protection of the right to freedom of opinion and expression has recognised the ‘vitally important’ roles served by the right to information and that the denial of this right would not be in the public interest.²⁰¹ Indeed, the Special Rapporteur later emphasized in a 1998 report that ‘the right to access to information held by the Government must be the rule rather than the exception.’²⁰²

The Independent Expert on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment noted that to comply with their international obligations, States should ‘provide access to environmental information and provide for the assessment of environmental impacts that may interfere with the enjoyment of human rights.’²⁰³

Both the Special Rapporteur on the situation of human rights defenders and the Special Rapporteur on the human rights obligations related to environmentally sound management and disposal of hazardous substances and wastes have stressed that large-scale development projects, such as projects in extractive industries, should make information relating to the

¹⁹⁷ *Ibid.*, at 44 (d).

¹⁹⁸ UN Committee on Economic, Social and Cultural Rights, ‘General Comment No. 15, The right to water’ (20 January 2003) UN Doc E/C.12/2002/11 at 48.

¹⁹⁹ *Ibid.*, at 56.

²⁰⁰ Report on Illicit Movement of Toxic Wastes (n 189) at 2.

²⁰¹ UN Economic and Social Council and Commission on Human Rights, ‘Report of the Special Rapporteur, Mr. Abid Hussain, pursuant to Commission on Human Rights resolution 1993/45’ (14 December 1994) UN Doc E/CN.4/1995/32 at 135.

²⁰² UN Commission on Human Rights, ‘Report of the Special Rapporteur, Mr. Abid Hussain, submitted pursuant to Commission on Human Rights resolution 1997/26’ (28 January 1998) UN Doc E/CN.4/1998/40 at 12.

²⁰³ UN General Assembly, ‘Report of the Independent Expert on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment, John H. Knox’ (30 December 2013) UN Doc A/HRC/25/53 at 31 [Report of the Independent Expert], *see also* 31-35 for general duties to assess environmental impacts and make information public.

projects publicly available²⁰⁴ and that companies and other private actors should refrain from using the privilege of confidential business information to shield health and safety information used in and caused by their practices.²⁰⁵

The Special Rapporteur on the adverse effects of the illicit movement and dumping of toxic and dangerous products and wastes on the enjoyment of human rights has reported on worrying trends in which States, corporations and private entities often fail to share vital information about the ‘potential effects of pollution and irreversible damage to the environment until an incident has occurred’.²⁰⁶ Access to information is of central importance, with the Special Rapporteur stressing that ‘Individuals, communities and neighbouring countries must have information regarding the full extent of environmental impact of proposed development projects in their regions in order to participate meaningfully in decisions that could expose them to increased pollution, environmental degradation and other such effects.’²⁰⁷

The Special Rapporteur considers it a clear duty of the State to disclose such information’.²⁰⁸ Accordingly, States must not only adopt information policies and disclosures, but must ensure such policies are ‘rigorous and principled, drawing on the broad global acceptance that the right of access to information held by public authorities is rooted in international law’.²⁰⁹

The ICCPR and other human rights instruments guarantee all persons the right to free, active, meaningful and informed participation in public affairs. In ensuring this right is met, particular care must be taken to comply with obligations relating to participation of persons, groups and peoples in vulnerable situations in decision-making processes.

The Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (hereinafter ‘Aarhus Convention’)²¹⁰ takes a comprehensive approach to the recognition of the importance of the right to information and public participation.

In the preamble, the Aarhus Convention provides that every person has the right to live in an environment adequate for the preservation of one’s health and well-being, and thus everyone has a duty ‘to protect and improve the environment for the benefit of present and future

²⁰⁴ UN General Assembly, ‘Situation of human rights defenders: Report of the Special Rapporteur on the situation of human rights defenders’ (5 August 2013) UN Doc A/68/262 at 62 [Report on Human rights Defenders].

²⁰⁵ Special Rapporteur Calin Georgescu at (n 129) at 70(c).

²⁰⁶ Report on Illicit Movement of Toxic Wastes (n 189) at 31.

²⁰⁷ *Ibid.*, at 37.

²⁰⁸ *Ibid.*

²⁰⁹ UN General Assembly, ‘Report of the Special Rapporteur on the promotion and protection of the right to freedom of opinion and expression’ (18 August 2017) UN Doc A/72/350 at 58.

²¹⁰ United Nations Economic Commission for Europe, Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (adopted 25 June 1998) 2161 UNTS 447 [Aarhus Convention].

generations’.²¹¹ In order to assert this right and fulfil the obligations under the Aarhus Convention, citizens must have ‘access to information, be entitled to participate in decision-making and have access to justice in environmental matters.’²¹² Under the Aarhus Convention, States are obliged to guarantee access of information and public participation in decision-making related to environmental justice,²¹³ ensure access to environmental information,²¹⁴ collect and publicly disseminate information, and to make such information available to the public in response to requests.²¹⁵ The Aarhus Convention has been regarded as providing ‘a potential model for promoting good environmental governance and addressing the interlinked rights of access to information, public participation and access to justice’.²¹⁶

2.6.2 The impact of fracking on the right to information

The human right of access to information is violated by fracking due to secrecy in the fracking process and policies of nondisclosure, with the Compendium noting that

Industry secrecy continues to thwart scientific inquiry into the health and environmental impacts of fracking’s many component parts and operations, leaving many potential problems— especially cumulative, long-term risks—unidentified, unmonitored, and largely unexplored.²¹⁷

This secrecy is further compounded by non-disclosure agreements, sealed court records, legal settlements,²¹⁸ and an atmosphere of intimidation.²¹⁹ Both States and corporations have demonstrated a refusal or failure to provide vital information related to fracking projects.

An example of the lack of transparency may be observed on the part of the United Kingdom in events surrounding the secret 2016 UK Cabinet Office report on ‘State of UK shale industry by 2020 and 2025’.²²⁰ Whitehall initially refused to reveal the 2016 report when it came to light in January 2018, prompting a 22-month freedom of information battle with the civil society organization, Greenpeace. Following a hearing, Whitehall was ordered to disclose the report.²²¹ However, the report that was disclosed was heavily censored, with 37

²¹¹ *Ibid.*, at preamble para 7.

²¹² *Ibid.*, at preamble para 8.

²¹³ *Ibid.*, Art 1.

²¹⁴ *Ibid.*, Art 4.

²¹⁵ *Ibid.*, Art 5.

²¹⁶ HRC Analytical Study (n 38) at 41.

²¹⁷ Compendium (n 2) at 26.

²¹⁸ *Ibid.*

²¹⁹ See *ibid* at 454- 475 for Medical and scientific calls for more study, reviews confirming evidence for harm, and calls for increased transparency and science-based policy.

²²⁰ Cabinet Office Implementation Unit, ‘State of the UK Shale Industry by 2020 and 2025: Implementation Unit Deep Dive’ (April 2016).

²²¹ *Cabinet Office v The Information Commissioner and Greenpeace UK*, Appeal No. EA/2018/0270.

pages out of the 48-page report being entirely redacted, and only one page—the front cover—left uncensored.

In addition to States withholding information, corporations have also been found to withhold vital information. In one instance, a 2011 investigation by three members of the United States' House of Representatives on fracking fluids used by the 14 leading hydraulic fracturing companies highlighted the secrecy surrounding the fracking process and chemicals used under the pre-tense of trade-secret or proprietary information, finding that

Between 2005 and 2009, the companies used 94 million gallons of 279 products that contained at least one chemical or component that the manufacturers deemed proprietary or a trade secret [...] in most cases the companies stated that they did not have access to proprietary information about products they purchased “off the shelf” from chemical suppliers. In these cases, the companies are injecting fluids containing chemicals that they themselves cannot identify.²²²

The lack of freedom of information from both States and corporations compromises the ability of individuals and communities to uphold their human rights, stripping them of their agency and violating their right to access of information.

²²² Henry A Waxman, *et al*, ‘Chemicals Used in Hydraulic Fracturing’ (18 April 2011) at 2.

2.7 Right to Public Participation

Like access to information, public participation through public debate and dialogue is a right used to defend other rights that might be impacted by fracking. It cannot be realized unless freedom of speech, assembly and association are also implemented.²²³ In a report by the OHCHR, it is observed that ‘participation enables the advancement of all human rights.’²²⁴

2.7.1 The right to public participation as recognised by international treaties and instruments

The human right to public participation is specified in ICCPR,²²⁵ CEDAW,²²⁶ CRC,²²⁷ and CRPD.²²⁸

Public participation is particularly important in the development of national strategies. In multiple General Comments, ICESCR has stressed that in developing public policies on matters related to water, housing and food, consideration must be given to the rights of individuals to participate in decision-making processes that may impact their rights,²²⁹ including through consultations with and participation by persons who the policies will impact,²³⁰ and that transparency and public participation are necessary in the creation and implementation of public policy.²³¹

Public participation must give groups and individuals the opportunity to contribute to decision-making processes that affect them.²³² Under international law, every citizen has the right to participate in the ‘conduct of public affairs,’²³³ which includes the development and implementation of policies at national and local levels.²³⁴ Decision-making processes need to establish at the local and national levels permanent spaces for consultation and dialogue where ‘peoples and communities concerned, companies and local authorities’ are

²²³ UN Human Rights Council, ‘General Comment Adopted by The Human Rights Committee Under Article 40, Paragraph 4, Of The International Covenant On Civil And Political Rights’ (12 July 1996) UN Doc CCPR/C/21/Rev.1/Add.7 at 8.

²²⁴ UN General Assembly, ‘Draft guidelines for States on the effective implementation of the right to participate in public affairs’ (20 July 2018) UN Doc A/HRC/39/28, at 1.

²²⁵ ICCPR (n 5) Art 25.

²²⁶ CEDAW (n 8) Art 7.

²²⁷ CRC (n 7) Art 12(1).

²²⁸ CRPD (n 9) Arts 4(3), 29(b).

²²⁹ ICESCR General Comment 15 (n 97) at 48.

²³⁰ ICESCR General Comment 4 (n 168) at 12.

²³¹ ICESCR General Comment 12 (n 140) at 23.

²³² ICESCR General Comment 15 (n 97) at 48.

²³³ UN Human Rights Committee, ‘CCPR General Comment No. 25: Article 25 (Participation in Public Affairs and the Right to Vote), The Right to Participate in Public Affairs, Voting Rights and the Right of Equal Access to Public Service’ (12 July 1996) UN Doc CCPR/C/21/Rev.1/Add.7 at 1.

²³⁴ *Ibid.*, at 5.

represented.²³⁵ A genuine opportunity must be provided for those affected by measures that impact, for example, the right to water to be consulted in a timely and reasonable manner with full disclosure on the proposed measures and legal remedies.²³⁶

Public participation further provides a means to monitor implementation and prevent violations of international law, with ICESCR noting that public participation must be ensured as a measure to prevent third parties from violating the right to water.²³⁷ ICESCR similarly recognised that the work of human rights defenders who advocate for the access to water should be protected, respected, facilitated and promoted by States.²³⁸ Accordingly, there must be public participation in political decisions that can affect the right to health ‘at both the community and national levels.’²³⁹

The Special Rapporteur on hazardous substances and wastes and the Special Rapporteur on the situation of human rights defenders have stated that governments must facilitate the right to participation in environmental decision-making.²⁴⁰ Further, the Special Rapporteur on the adverse effects of the illicit movement and dumping of toxic and dangerous products and wastes on the enjoyment of human rights has stressed that the right to participation in public life is closely connected with the right to information, as without the ‘exercise of the right to participation would be meaningless if there was no access to relevant information on issues of concern’.²⁴¹

Public participation is guaranteed under the Aarhus Convention.²⁴² The public must be informed in detail about the proposed activity early in the decision-making process and be given time to prepare and participate in the decision-making.²⁴³ In addition to providing for public participation in decisions on specific projects, the Convention calls for public participation in the preparation of environmental plans, programmes, policies, laws and regulations.²⁴⁴

2.7.2 The impact of fracking on the right of public participation

As noted above, the right of public participation is connected to the right of access to information.²⁴⁵ Fracking can impact this right where there is not full, free, and informed public participation in the decision-making process and effective community consultation.

²³⁵ Special Rapporteur Calin Georgescu (n 129) at 69(g).

²³⁶ ICESCR General Comment 15 (n 97) at 56.

²³⁷ *Ibid.*, at 24.

²³⁸ *Ibid.*, at 59.

²³⁹ ICESCR General Comment 14 (n 65) at 17.

²⁴⁰ Report on Illicit Movement of Toxic Wastes (n 189); Report on Human Rights Defenders (n 203).

²⁴¹ Report on Illicit Movement of Toxic Wastes (n 189) at 66.

²⁴² See Aarhus Convention (n 210) Arts 6, 8.

²⁴³ *Ibid.*, arts 6(2)-6(3).

²⁴⁴ *Ibid.*, arts. 7, 8.

²⁴⁵ Report on Illicit Movement of Toxic Wastes (n 189) at 66.

The PPT has considered ‘the most fundamental threat of fracking to ecosystems ... is the fracking system’s violation of the right to informed participation’.²⁴⁶ The Tribunal notes the routine use of gag orders, non-disclosure agreements and strategic lawsuits against public participation in relation to fracking.²⁴⁷ In addition to these methods of inhibiting public participation, the Tribunal has also noted the use of less formal means of biasing or preventing public discussion of information in relation to fracking, including:

physical intimidation, informal censorship of information presented by fracking critics, false advertising, deliberate failure to investigate complaints, and the subversion, manipulation and marginalization of those procedures for public participation in decision-making that are still required by law.²⁴⁸

In order to ensure the human right to public participation is not violated, States must ensure that informed decision-making and meaningful, informed public participation takes place.²⁴⁹ When engaged in megaprojects, such as fracking or other extractive projects, States must ensure there is ‘Sufficient time and resources, transparency of access to information and interactions between the planners of megaprojects and the stakeholders’ in order to ensure the right to public participation is not hindered.²⁵⁰

²⁴⁶ PPT Advisory Opinion (n 88) at 13.

²⁴⁷ See *ibid* 20- 21 regarding systematic use of the law to suppress information about potential or actual ecosystem effects.

²⁴⁸ *Ibid.*, at 22.

²⁴⁹ OHCHR, ‘End-of-visit statement by the United Nations Special Rapporteur on human rights and hazardous substances and wastes, Baskut Tuncak on his visit to the United Kingdom 17 – 31 January 2017’ (31 January 2017).

²⁵⁰ UNGA, ‘Human rights to safe drinking water and sanitation’ (19 July 2019) UN Doc A/74/197, para 65.

2.8 The Right to a Safe, Clean, Healthy and Sustainable Environment

A safe, clean, healthy and sustainable environment is vital for the full enjoyment of human rights. The environment in which we live can have a huge impact not only on the physical health and well-being of persons, but also their quality of life. Ensuring that the environment in which persons live and work in is safe and clean, allows for States to be better prepared to meet their other human rights obligations.

2.8.1 The right to a safe, clean, healthy and sustainable environment as seen in international treaties and instruments

There is growing international and regional recognition of the importance a clean and healthy environment plays in the exercise and enjoyment of human rights, largely due to the impact the environment can have on these rights. The Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment notes that ‘Human rights and environmental protection are interdependent’ where a safe, clean and healthy environment is vital for the exercise and enjoyment of human rights, and where the exercise of human rights such as the rights to information and participation are vital for the protection of the environment.²⁵¹

While there is not yet an explicit human right to a safe, clean, healthy and sustainable environment within an international human rights treaty, the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment has noted that the right has been widely recognized at the international, regional and domestic levels.²⁵² At the international level, there is a widespread recognition of the importance of a safe and healthy environment among UN Member States, where as of 2019, more than 80 per cent have legally recognized the right to a safe, clean, healthy and sustainable environment.²⁵³

UN bodies have also recognized the importance of a safe and healthy environment in for the realisation of human rights, including in early 2021, the UN Environment Programme (hereinafter ‘UNEP’) delivered a joint statement on behalf of 15 UN entities at the 46th session of the Human Rights Council. In their statement, UNEP declared that ‘the time for global recognition, implementation, and protection of the human right to a safe, clean, healthy and sustainable environment is now’ signalling the international recognition of the

²⁵¹ UN General Assembly, ‘Report of the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment’ (24 January 2018) UN Doc A/HRC/37/59 at framework principal 2, para 4 [Report on Safe Environment].

²⁵² *Ibid.*, at 11.

²⁵³ UN General Assembly, ‘Right to a healthy environment: good practices, Report of the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment’ (30 December 2019) UN Doc A/HRC/43/53 at 13.

importance of the global recognition of the right to a healthy environment, as such recognition will assist in the realization of human rights for all'.²⁵⁴

Furthermore, within the UN the Independent Expert on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment has noted that the focus has been 'not on proclaiming a new right to a healthy environment, but rather on what might be called 'greening' human rights to a point where their relationship to the environment is further considered and emphasized.'²⁵⁵ In 2018 the PPT noted that 'Even without formal recognition, the term "the human right to a healthy environment" is already being used to refer to the environmental aspects of the entire range of human rights that depend on a safe, clean, healthy and sustainable environment'.²⁵⁶

The substantive elements of the right to a safe and healthy environment include a safe climate, clean air, clean water and adequate sanitation, healthy and sustainably produced food, non-toxic environments in which to live, work, study and play, and healthy biodiversity and ecosystems.²⁵⁷ These elements are informed by commitments made under international environmental treaties, such as the UNFCCC, wherein States pledged to 'prevent dangerous anthropogenic interference with the climate system', or in other words to maintain a safe climate.²⁵⁸

As noted above, various elements contribute to a safe and healthy environment, including clean air. The Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment has underlined the connection between clean air and the enjoyment of a safe and clean environment and various other human rights, such as the rights to life, health, water, food, housing and an adequate standard of living.²⁵⁹ Although the right to clean air is not explicitly enumerated in any international human rights instrument, the Special Rapporteur argues that obligations relating to clean air are implicit in numerous human rights instruments and the rights contained therein.²⁶⁰ As with unsafe and polluted water, poor air quality and pollution similarly impacts other human rights, such as the right to food and water where air pollution or contaminants can result in crop damage or contamination of aquatic ecosystems.²⁶¹

In meeting their obligations under the right to a clean and healthy environment, States have an obligation not only to ensure their own actions do not violate this and associated human

²⁵⁴ UN Environmental Programme, 'Joint statement of United Nations entities on the right to healthy environment' (8 March 2021).

²⁵⁵ UN General Assembly, 'Report of the Independent Expert on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment, John H. Knox', (24 December 2012) UN Doc A/HRC/22/43, at 16.

²⁵⁶ Report on Safe Environment (n 251) at 16.

²⁵⁷ *Ibid.*, at 11.

²⁵⁸ Safe Climate Report (n 13) at 43.

²⁵⁹ *Ibid.*, at 44.

²⁶⁰ *Ibid.*, at 45.

²⁶¹ *Ibid.*, at 45.

rights, but must also protect against environmental harm from private actors.²⁶² States have an obligation to protect persons against non-State abuses, and play a key role in regulating and adjudicating abuses by business enterprises.²⁶³ Non-State actors, such as businesses and corporations, can infringe upon human rights through various means, including in particular through causing environmental harm.²⁶⁴

Various human rights bodies have connected the State duty to protect against human rights abuses by non-State actors to abuses caused by pollution or other forms of environmental harm.²⁶⁵ ICESCR has stated that ‘corporate activities can adversely affect the enjoyment of Covenant rights, through harmful activities negatively impacting the environment.’²⁶⁶ The Committee reiterated that the ‘obligation of States Parties to ensure that all economic, social and cultural rights laid down in the Covenant are fully respected and rights holders adequately protected in the context of corporate activities’.²⁶⁷ Regional human rights bodies have also recognized the importance of a healthy environment to the exercise and enjoyment of human rights, and the State obligation to ensure its own actions and non-State actors’ actions do not infringe upon these rights.²⁶⁸

In meeting their obligations, the Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes, recommends that States should carry out comprehensive human rights, environmental and social assessments, examining natural resources in the area and the potential cumulative impacts of projects. These assessments must be reliable and carried out by competent, independent third parties and monitor the evolving impacts of extractive operations.²⁶⁹

The UN Special Rapporteur on Human Rights and the Environment released the ‘Framework Principals on Human Rights and the Environment’ in 2018, wherein the basic obligations of States under human rights law as they relate to the enjoyment of a safe, clean, healthy and sustainable environment are set out in principals reflecting existing human rights obligations in the environmental context.²⁷⁰ The principles include that:

²⁶² Report of the Independent Expert (n 203) at 58-61.

²⁶³ UN General Assembly, ‘Report of the Special Representative of the Secretary-General on the issue of human rights and transnational corporations and other business enterprises, John Ruggie’ (19 February 2007) UN Doc A/HRC/4/35 at 18.

²⁶⁴ Report of the Independent Expert (n 203) at 58-61.

²⁶⁵ *Ibid.*

²⁶⁶ UN Committee on Economic, Social and Cultural Rights, ‘Statement on the obligations of States parties regarding the corporate sector and economic, social and cultural rights’ (12 July 2011) UN Doc E/C.12/2011/1 at 1.

²⁶⁷ *Ibid.*

²⁶⁸ See Inter-American Court of Human Rights, *Advisory Opinion OC-23/17 of November 15, 2017 Requested by the Republic of Colombia: The Environment and Human Rights* (15 November 2017) at 39.

²⁶⁹ Special Rapporteur Calin Georgescu (n 129) at 69 (f).

²⁷⁰ Report on Safe Environment (n 251) at 8.

- ‘States should ensure a safe, clean, healthy and sustainable environment in order to respect, protect and fulfil human rights’;²⁷¹
- States should require prior assessment of possible environmental impacts and potential effects on human rights of proposed projects and policies to avoid authorising actions with environmental implications that interfere with the enjoyment of human rights;²⁷² and
- ‘States should provide for and facilitate public participation in decision making related to the environment and take the views of the public into account in the decision-making process’.²⁷³

The failure on the part of States to meet their obligations in relation to the right to a clean and healthy environment has been addressed by international courts. This can be seen in the International Court of Justice decision of *Pulp Mills on the River Uruguay (Argentina v. Uruguay)*.²⁷⁴ In this case, an environmental dispute between Argentina and Uruguay concerning Uruguay’s authorization for pulp mills on the banks of the Uruguay River highlighted the importance of the need to ensure environmental protection of shared natural resources while allowing for sustainable economic development. In its decision, the Court found that a State is obligated to ‘use all the means at its disposal in order to avoid activities which take place in its territory, or in any area under its jurisdiction, causing significant damage to the environment of another State.’²⁷⁵ The Court further found that the obligation to protect and preserve the environment requires the implementation and use of ‘environmental impact assessment[s] where there is a risk that the proposed industrial activity may have a significant adverse impact in a transboundary context, in particular, on a shared resource.’²⁷⁶

2.8.2 The impact of fracking on the right to a safe, clean, healthy and sustainable environment

The Compendium notes that ‘the vast body of scientific studies now published on hydraulic fracturing in the peer reviewed scientific literature confirms that the climate and public health risks from fracking are real and the range of environmental harms wide’.²⁷⁷ Such environmental harms include air pollution, water contamination, the degradation of soil and vegetation, and climate instability.

²⁷¹ *Ibid.*, Principle 1.

²⁷² *Ibid.*, Principle 8.

²⁷³ *Ibid.*, Principle 9.

²⁷⁴ *Pulp Mills on the River Uruguay (Arg. v. Uru.)*, 2010 I.C.J.

²⁷⁵ *Ibid.*, at 101.

²⁷⁶ *Ibid.*, at 204.

²⁷⁷ Compendium (n 2) at 7.

Additionally, ‘Earthquakes are a proven consequence of both fracking and the underground injection of fracking waste’²⁷⁸ with studies from Canada, Oklahoma, Ohio, Texas, England, and China highlighted that fracking has triggered earthquakes. As noted in the Compendium, ‘In spite of emerging knowledge about the mechanics of how fracking and the underground disposal of fracking waste trigger earthquakes via activation of faults, no model can predict where or when earthquakes will occur or how powerful they will be.’²⁷⁹ A moratorium on fracking was declared in the United Kingdom ‘after an Oil and Gas Authority analysis found that preventing earthquakes associated with fracking is not possible with existing technology’.²⁸⁰

Similarly, ‘Air pollution associated with fracking and flaring is a grave concern with a range of impacts. Researchers have documented more than 200 different air pollutants near drilling and fracking operations. Of these, 61 are classified as hazardous air pollutants with known health risks, and 26 are classified as endocrine disruptors.’²⁸¹ Fracking also increases environmental noise pollution, with sources of such disturbances including ‘blasting, drilling, flaring, generators, compressor stations, and truck traffic.’²⁸²

A written statement submitted by UNANIMA International, a non-governmental organization with special ECOSOC consultative status, told the Human Rights Council that ‘Other states should heed the environmental destruction that fracking has caused in the U.S. and ban the practice before it begins’²⁸³ and argued that the environmental damage caused by hydraulic fracturing for natural gas poses ‘a new threat to human rights’²⁸⁴.

²⁷⁸ *Ibid.*, at 40, *see also* 226-257.

²⁷⁹ *Ibid.*, at 29.

²⁸⁰ *Ibid.*, at 24.

²⁸¹ *See ibid.*, at 60-85 for details on air pollution due to fracking.

²⁸² *Ibid.*, at 216-225.

²⁸³ UN Human Rights Council, ‘Written statement submitted by UNANIMA International, a non-governmental organization in special consultative status’ (19 September 2011) UN Doc A/HRC/18/NGO/91 at 4.

²⁸⁴ *Ibid.*, at 2.

2.9 Disproportionate Impacts on Marginalized Persons and Communities

Various international bodies have acknowledged that climate change and fracking have a disproportionate impact on certain populations. As recognized by the OHCHR, ‘Negative impacts of climate change are disproportionately felt by the poor, women, children, migrants, persons with disabilities, minorities, indigenous peoples and others in vulnerable situations, particularly those living in geographically vulnerable developing countries.’²⁸⁵ This is echoed by the Intergovernmental Panel on Climate Change, wherein the Panel observed that ‘people who are socially, economically, culturally, politically, institutionally, or otherwise marginalized are especially vulnerable to climate change.’²⁸⁶ Further, persons or communities whose ‘vulnerabilities are caused by poverty, gender, age, disability, geography and cultural or ethnic background’ are more likely to feel the impacts of climate change and the human rights violations associated with it.²⁸⁷

In ensuring that all persons benefit from the human rights encompassed in international human rights treaties, States must, in accordance with the principles of equality and non-discrimination, take action to remedy the ‘disproportionate impacts of climate change on the most marginalized; to ensure that climate actions benefit persons, groups and peoples in vulnerable situations; and to reduce inequalities.’²⁸⁸

Persons with disabilities may be disproportionately impacted by climate change. As noted by the Committee on the Rights of Persons with Disabilities, States must ensure that the requirements of all persons with disabilities are taken into consideration when designing and implementing adaptation and disaster risk reduction measures.²⁸⁹

As observed in the Compendium, research conducted on the health impacts of fracking indicate that poor communities, communities of colour, and minority communities are often disproportionately affected by fracking practices. Studies cited in the Compendium indicted that fracking sites and infrastructure are typically located in low-income and minority communities.²⁹⁰

2.9.1 Women

The disproportionate impact of climate change and fracking has also been noted with regards to the impact on women. As the OHCHR notes, ‘Gender differences in health risks are likely to be exacerbated by climate change.’²⁹¹ Further, ‘differences are also present in vulnerability

²⁸⁵ HRC Analytical Study (n 38) at 23.

²⁸⁶ Intergovernmental Panel on Climate Change, ‘Summary for policymakers’ Climate Change 2014: Impacts, Adaptation, and Vulnerability (2014).

²⁸⁷ Safe Climate Report (n 13) at 45.

²⁸⁸ HRC Analytical Study (n 38) at 37.

²⁸⁹ Committee on the Rights of Persons with Disabilities ‘Concluding Observations on the initial report of Seychelles’ (16 April 2018) UN Doc CRPD/C/SY/CO/1 at 23.

²⁹⁰ Compendium (n 2) at 54.

²⁹¹ HRC Analytical Study (n 38) at 25.

to indirect and long-term effects of climate change ... The poorest households in the world typically rely on the most polluting energy sources for household activities such as cooking, which are often performed by women and girls. Use of such energy sources is associated with more than 4.3 million deaths each year.²⁹²

The CEDAW Committee has further expressed concerns over the impact climate change has on women. In its General Recommendation 37, the Committee acknowledged that climate change and the resulting impacts of climate change have a disproportionate impact on women, where situations of crisis exacerbate gender inequalities and ‘compound intersecting forms of discrimination’.²⁹³ The Committee recommended that States, in meeting their obligations to mitigate and adapt to climate change, limit their fossil fuel use and greenhouse gas emissions and the ‘harmful environmental effects of extractive industries such as mining and fracking, as well as the allocation of climate financing, are regarded as crucial steps in mitigating the negative human rights impact of climate change and disasters.’²⁹⁴ In meeting their obligations under the various human rights instruments, States owe obligations not only to those within their territories, but also to those outside their territories. Through taking measures such as ‘limiting fossil fuel use, reducing transboundary pollution and greenhouse gas emissions and promoting the transition to renewable energies’ States take crucial steps in mitigating the ‘negative human rights impact of climate change and disasters globally.’²⁹⁵

CEDAW has already recommended that the United Kingdom be aware of the impacts that fracking may have on women. In its 2019 Concluding Observations on the United Kingdom, the Committee expressed its concern that women, and particularly women living in rural areas are ‘disproportionately affected by the harmful effects of fracking, including exposure to hazardous and toxic chemicals, environmental pollution and the effects of climate change.’²⁹⁶ In recalling General Recommendation 34, the Committee recommended that the United Kingdom ‘Review its policy on fracking and its impact on the rights of women and girls and consider introducing a comprehensive and complete ban on fracking’.²⁹⁷

2.9.2 Children

Children are also disproportionately impact by fracking and the impacts of climate change. The CRC Committee has identified climate change as one of the biggest threats to children’s health and has urged States Parties to put children’s health concerns at the centre of their climate change adaptation and mitigation strategies.²⁹⁸ Environmental harm poses a risk to children’s rights, including (but not limited to) the right to life, health, development, an

²⁹² *Ibid.*

²⁹³ UN Committee on the Elimination of Discrimination against Women, ‘General Recommendation 37 on gender related dimensions of disaster risk reduction in the context of climate change’ (7 February 2018) UN Doc CEDAW/C/GC/37 at 2.

²⁹⁴ *Ibid.*, at 14.

²⁹⁵ *Ibid.*, at 43.

²⁹⁶ CEDAW Concluding Observations (n 12) at 53.

²⁹⁷ *Ibid.*, at 54(b).

²⁹⁸ CRC General Comment 15 (n 77) at 50.

adequate standard of living and the right to play and recreation.²⁹⁹ The importance of protecting children from the negative impacts of climate change are widely recognized, with the Paris Agreement itself calling upon States to ‘promote and consider their respective obligations on, among other things, the rights of the child and intergenerational equity when taking action to address climate change’³⁰⁰ and various Human Rights Council resolutions recognizing the impact climate change has on children and calling upon States to act against climate change.³⁰¹

UNICEF has emphasized that the right of the child to health is particularly impacted by climate change as children are particularly vulnerable to ‘changes in air and water quality, temperature, humidity, and vector-, water-, and food-borne infections due to their less developed physiology and immune systems.’³⁰² The Special Rapporteur on human rights and the environment has noted that the Convention explicitly requires States to act in the best interests of the child and consider ‘the dangers and risks of environmental pollution’.³⁰³ In particular, risks associated with air pollution, water pollution, chemicals, toxic substances and waste, the loss of biodiversity and climate change have been flagged as posing substantial threats to children and their rights under the Convention.³⁰⁴

Several cases launched by or on behalf of children against States have come about recently. Currently, there is a communication before the CRC, submitted by 15 children against Argentina, Brazil, France, Germany, and Turkey.³⁰⁵ The complainants launched the complaint on the basis that the respondent States have failed in their obligations under the Convention due to their actions in contributing to climate change, thereby violating the human rights of the authors, specifically, their rights to life (art 6) health (art 24) and culture (art 30).³⁰⁶

As the applicants highlight, ‘Reducing emissions at the highest possible ambition is the only way the respondents and other states can pursue efforts to prevent the domestic and transboundary human rights harms caused by climate change.’³⁰⁷ However, as noted by the applicants, the respondent States have failed to meet their obligations under the Convention, as ‘rather than prevent further harm, each respondent is actively promoting fossil fuel production and consumption, and/or encouraging or tolerating destructive land use such as deforestation.’³⁰⁸ Thus, each respondent State has caused and continues to perpetuate climate change, ‘knowing that it endangers children’s inalienable rights. Despite that knowledge,

²⁹⁹ Report on Safe Environment (n 251) at 31.

³⁰⁰ Climate Change and Rights of the Child Study (n 91) at 30.

³⁰¹ See Human Rights Council Resolutions, A/HRC/RES/32/33, A/HRC/RES/35/20 and A/HRC/RES/32/33.

³⁰² HRC Analytical Study (n 368) at 26.

³⁰³ Safe Climate Report (n 13) at 40.

³⁰⁴ Report on Safe Environment (n 251).

³⁰⁵ Communication to the Committee on the Rights of the Child *Sacchi et al v Argentina et al* (23 September 2019).

³⁰⁶ *Ibid.*, at 24.

³⁰⁷ *Ibid.*, at 181.

³⁰⁸ *Ibid.*, at 182.

each is undermining the global collective effort to solve the crisis.’³⁰⁹ Although this communication is yet to be decided by the Committee, it marks a growing trend in human rights complaints brought by children against governments for their failures to respect their human rights and combat climate change.

Similarly, six Portuguese children are currently in the process of bringing a complaint against 33 Council of Europe Member States to the European Court of Human Rights. The Portuguese youth brought the claim on the basis of the respondent States’ contribution to climate change and the resulting impacts climate change has on the youth, namely their rights to life and private and family life.³¹⁰ In November 2020, the Court announced the case would be fast-tracked, and communicate the case to the 33 defendant countries, requiring each to respond to the complaint by the end of February 2021.³¹¹

³⁰⁹ *Ibid.*, at 196.

³¹⁰ Paul Clark *et al.* ‘Climate change and the European Court of Human Rights: The Portuguese Yotuh Case’ (6 October 2020) *EJIL:Talk!*.

³¹¹ Global Legal Action Network ‘Portuguese Youth Climate Case v 33 Countries – Portuguese Young People versus 33 Countries’.

3. European Convention on Human Rights

Under the ECHR, State Parties have obligations to uphold the rights and freedoms contained within the Articles of the convention, many of which may be infringed by fracking.

Although the ECHR does not contain an explicit right to a healthy environment, the European Court of Human Rights has developed its case-law in environmental matters ‘on account of the fact that the exercise of certain Convention rights may be undermined by the existence of harm to the environment and exposure to environmental risks.’³¹² The Court has emphasised that effective enjoyment of Convention rights depends on a healthy environment and as environmental concerns have moved up the agenda both internationally and domestically, the Court has increasingly embraced the idea that human rights law and environmental law are mutually reinforcing.³¹³ Furthermore, it is also highly significant that the Court has shown increasing willingness to draw upon international environmental principles, standards and norms to draw out the human rights implications of environmentally risky actions.³¹⁴

Although many rights under the ECHR have the potential to be negatively impacted by fracking, the rights which have been most widely considered in relation to environmental impacts include the right to life, the right to respect for private and family life, access to information and public participation and protection of property under the ECHR Protocol 1. An examination and discussion of these rights in relation to fracking and the risks fracking poses, shall continue below.

3.1 Article 2: Right to life

The right to life has powerful and direct implications for the use of fracking technologies and contaminants. The right establishes that no one may be intentionally deprived of his or her life and has been interpreted more broadly as the right to security of person and to bodily integrity.³¹⁵ With regard to the environment, when activities harmful to the environment also endanger human life, Article 2 is applicable.

Article 2 has been interpreted by the Court to include positive obligations of protection in addition to the negative State obligation to prevent death arising from State action. Thus, States are under an obligation to take action to protect the right to life from threats by persons

³¹² European Court of Human Rights ‘Factsheet: Environment and the European Convention on Human Rights’ (February 2021).

³¹³ Council of Europe, ‘Manual on Human Rights and the Environment’ (Council of Europe Publishing, 2nd edn, 2012) at 30 [Council of Europe Manual].

³¹⁴ *Öneryıldız v. Turkey App no 48939/99* (ECtHR 30 November 2004) at 59; *Taşkın and Others v. Turkey App no 46117/99* (ECtHR 10 November 2004) at 99 – 100.

³¹⁵ Anna Grear, Evadne Grant, Tom Kerns, Karen Morrow, Damien Short, ‘A Human Rights Assessment of Hydraulic Fracturing and Other Unconventional Gas Development in the United Kingdom’ (30 October 2014) at 15.

or activities not directly connected with the State.³¹⁶ This is seen in the decision of *Öneryildiz v Turkey*, where the Court held that the right to life can be infringed by the failure of the State to inform residents living near potentially dangerous sites of any environmental safety risks, failure to take practical measures to avoid safety risks and the use of a defective regulatory framework or planning policy.³¹⁷ Academics have commented that this has clear relevance in relation to the potential lawfulness of fracking operations in certain situations.³¹⁸

It is clear from case-law that the State has a positive obligation to take measures to prevent infringements of the right to life as a result of dangerous activities.³¹⁹ This implies that there is a duty put in place a legislative and administrative framework that should in particular ensure that measures are in place to protect people whose lives might be endangered by dangerous activities, including activities that cause environmental destruction which endangers lives.³²⁰ Additionally, the public must be provided with information concerning activities which potentially pose a danger to life. The State is responsible for providing for the necessary procedures for identifying shortcomings in the technical processes concerned and errors committed by those responsible.³²¹

3.2 Article 8: Right to respect for private and family life

Article 8 provides that ‘everyone has the right to respect for his private and family life, his home and his correspondence’.³²² This right may not be interfered with ‘except such as is in accordance with the law and is necessary in a democratic society in the interests of national security, public safety or the economic well-being of the country, for the prevention of disorder or crime, for the protection of health or morals, or for the protection of the rights and freedoms of others.’³²³ The Court has interpreted the right broadly to include both respect for the quality of family life as well as the enjoyment of the home as living space.³²⁴ Breaches of the right to the home as living space are not confined to interferences such as unauthorised entry, but may also result from intangible sources such as noise, emissions, smells or other similar forms of interference.³²⁵ Furthermore, the Court has tended to interpret the notions of

³¹⁶ Council of Europe Manual (n 313) at 35.

³¹⁷ *Öneryildiz v. Turkey* App no 48939/99 (ECtHR, 30 November 2004).

³¹⁸ *Grear et al* (n 315) at 15.

³¹⁹ *Öneryildiz v. Turkey* (n 316) at 89; *Budayeva and Others v Russia* App no’s 15339/02, 21166/02, 20058/02, 11673/02, 15343/02 (ECtHR, 29 September 2008) at 129.

³²⁰ Council of Europe Manual (n 313) at 38.

³²¹ *Ibid.*

³²² ECHR (n 11) Art 8 (1).

³²³ ECHR (n 11) Art 8 (2).

³²⁴ *Powell & Rayner v. the United Kingdom* App no 9310/81 (A/172) (ECHR, 21 Feb 1990), at 40.

³²⁵ *Moreno Gómez v. Spain* App no 4143/02 (ECtHR, 16 November 2004) at 53; *Borysiewicz v. Poland* App no 71146/01 (ECtHR, 1 July 2008) at 48; *Giacomelli v. Italy* App no 59909/00 (ECtHR, 2 November 2006) at 76; *Hatton and Others v. the United Kingdom* App no. 36022/97 (ECtHR, 8 July 2003) at 96; *Deés v. Hungary* App no. 2345/06 (ECtHR, 9 November 2010) at 21.

private and family life and home as being closely interconnected, and, for example, in one case it referred to the notion of ‘private sphere’³²⁶ or in another case ‘living space’.³²⁷

Environmental damage comes into play if such damage affects private and family life or the home. As is the case for Article 2 on the right to life, State obligations are not limited to protection against interference by public authorities but include obligations to take positive steps to secure the right. Moreover, the obligation does not only apply to State activities causing environmental harm, but to activities of private parties as well.³²⁸

Environmental human rights cases in the ECtHR strongly imply that in the context of fracking, Article 8 may be infringed if the State does not reasonably act to balance economic interests of a polluting activity (which would include fracking) with the effects on individual wellbeing³²⁹ or if adequate information on pollution risks is not provided to those living near fracking industry sites.³³⁰ It is noted, that the case-law concerning Article 8 and other directly relevant articles of the Court suggests that the Court is expanding its concern with the potential impacts and environmental risks as human rights matters.³³¹ Additionally, it has been particularly adept at using environmental standards to interpret environmental harm as a breach of the right to private life and the home.

In *Lopez Ostra v Spain*, the Court was clear that environmental pollution can be severe enough to constitute a violation of Article 8 due to its effect on individual wellbeing without having to seriously endanger the health of the individual.³³² The Court’s finding emphasizes the importance of individual well-being, and such well-being is not limited to the physical well-being, it can include enjoyment of private and family life.

This position was elaborated upon in *Fadayeveva v Russia*,³³³ in which the applicant alleged that the operation of a steel plant in close proximity to the applicant’s home endangered the health and well-being of her and her family. In this case the Court held that there had been a violation of Article 8 as the environmental impact of the steel plant amounted to interference in the life of the applicant and that Russia had ‘failed to strike a fair balance between the interests of the community and the applicant’s effective enjoyment of her right to respect for her home and her private life’.³³⁴ The applicant’s claim succeeded because ‘Even assuming that the pollution did not cause any quantifiable harm to her health, it inevitably made the applicant more vulnerable to various illnesses’.³³⁵ The applicant’s increased vulnerability to

³²⁶ *Fadayeveva v. Russia* App no 55723/00 (ECtHR, 9 June 2005) at 70, 82 and 86.

³²⁷ *Brândușe v. Romania* App no 6586/03 (ECtHR, 7 April 2009) at 64.

³²⁸ Council of Europe Manual (n 312) at 51 – 52; *Hatton and Others v. the United Kingdom* App no. 36022/97 (ECtHR, 8 July 2003).

³²⁹ *Lopez Ostra v Spain* App no 16798/90 (ECtHR, 09 December 1994).

³³⁰ *Guerra and Others v Italy* App no 14967/89 (ECtHR, 19 February 1998); *Grear et al* (n 315) at 16.

³³¹ *Grear et al* (n 315) at 18.

³³² *Lopez Ostra v Spain* (n 329) at 51.

³³³ *Fadayeveva v. Russia* (n 326).

³³⁴ *Ibid.*, at 134.

³³⁵ *Ibid.*, at 88.

disease was held sufficient adversely to affect the applicant's quality of life in her home, engaging Article 8 protection. Accordingly, 'deleterious consequences or serious impacts, including the posing of serious risk, and increased vulnerability to disease, will attract a protective interpretation of Article 8.'³³⁶

Another aspect of the interpretation of Article 8 which is relevant to fracking is the recognition of an obligation on the part of the State to inform the public about environmental risks, as seen in *Guerra and Others v Italy*.³³⁷ In this case, residents of Manfredonia brought an action against the Italian government for failing to provide them with information about the health risks posed by a nearby chemical factory. The factory in question produced fertilisers and caprolactam and was classified as 'high risk'. The local authorities were obligated to inform the local population of the risks and draw up emergency plans, however there was still no emergency plan in 1995, nor were there procedures to inform the public in case of an accident. The Court held that the State did not fulfil its obligation to secure the applicants' right to respect for their private and family life, in breach of Article 8 on the basis that the applicants had not been provided with the necessary information for them to be able to assess the risks of living in the vicinity of the factory.³³⁸

In *Bacila v Romania*,³³⁹ the applicant lived close to a large industrial plant which was a major long-term source of pollution. The Court found that the State had violated the applicant's Article 8 rights due to the State's inaction in addressing the plant's emissions which were negatively impacting the applicant's health. Further, the Court stated that economic arguments should not have been allowed to prevail over the locals' 'right to enjoy a healthy environment'.³⁴⁰

The case of *Tătar v Romania*,³⁴¹ involved the operation of a gold mine where part of the activity was located in the vicinity of the applicants' home. An accident occurred, in which contaminated water was released into the environment. The applicants complained that the technological process in the process put their lives in danger, and that the authorities had failed to take any action in spite of the numerous complaints.

The Court held that there had been a violation of Article 8 of the Convention, and that the State had a duty to ensure the protection of its citizens by regulating the authorising, setting up, operating, safety and monitoring of industrial activities, especially activities that were dangerous for the environment and human health. The Court concluded there was a failure of the duty to assess, to a satisfactory degree, the risks that the activity of the company operating

³³⁶ Grear *et al* (n 315) at 17.

³³⁷ *Guerra and Others v Italy* (n 330)

³³⁸ *Ibid.*, at 60.

³³⁹ *Bacila v Romania* (App no 19234/04) (ECtHR, 30 March 2010).

³⁴⁰ Karen Morrow, 'After the Honeymoon: The Uneasy Marriage of Human Rights and the Environment Under the European Convention on Human Rights and in UK Law Under the Human Rights Act 1998' (2013) *Revue générale de droit* 43, 328.

³⁴¹ *Tătar v Romania* App no 67021/01 (ECtHR, 27 January 2009).

the mine might entail, and to take suitable measures in order to protect the rights of those concerned to respect for their private lives and homes, and more generally their right to enjoy a healthy and protected environment.³⁴² Furthermore, the Court pointed out that authorities had to ensure public access to the conclusions of investigations and studies, reiterating that the State had a duty to guarantee the right of members of the public to participate in the decision-making process concerning environmental issues.³⁴³

In light of the environmental and health impacts posed by fracking, academics have emphasized that fracking operations, whether exploratory or extractive, should 'be subject to detailed environmental impact assessment and health impact assessment procedures sensitive to the human rights implications of the proposed operation.'³⁴⁴

3.3 Access to Information and Public Participation

Articles 2 and 8 of the Convention may impose a specific positive obligation on public authorities to ensure a right of access to information in relation to environmental issues in certain circumstances.³⁴⁵ This obligation to ensure access to information is generally complemented by the positive obligations of the public authorities to provide information to those persons whose right to life under Article 2 or whose right to respect for private and family life and the home under Article 8 are threatened. The Court has found that in the context of dangerous activities falling within the responsibility of the State, special emphasis should be placed on the public's right to information.³⁴⁶ Additionally, in *Budayeva and others v Russia*, where the applicants complained that the authorities had failed to comply with their positive obligations to take appropriate measures to mitigate the risks to their lives against the natural hazards, the Court held that States are duty-bound based on Article 2 to 'take regulatory measures and to adequately inform the public about any life-threatening emergency'.³⁴⁷

It has been noted that the Court has also broadened the interpretation of the right to private and family life by recognising that it includes a right to public participation in the decision-making process in environmental matters.³⁴⁸ This was first elaborated in *Hatton and Others v UK*³⁴⁹ and subsequently 'consistently applied throughout the Court's caselaw'³⁵⁰ including *Giacomelli v Italy*³⁵¹ and *Taşkın and Others v Turkey*.³⁵²

³⁴² Registrar of the ECHR, 'Press release issued by the Registrar, Chamber Judgement, *Tătar v. Romania* (21 January 2009).

³⁴³ *Ibid.*

³⁴⁴ Grear *et al* (n 315) at 19.

³⁴⁵ *Öneryildiz v. Turkey* (n 317) at 90; *Guerra and Others v Italy* (n 330).

³⁴⁶ *Öneryildiz v. Turkey* (n 317) at 90.

³⁴⁷ *Budayeva and others v Russia App no's 15339/02, 21166/02, 20058/02, 11673/02 and 15343/02* (ECtHR, 20 March 2008) at 131.

³⁴⁸ Council of Europe Manual (n 313) at 88-92.

³⁴⁹ *Hatton and Others v. the United Kingdom App no 36022/97* (ECtHR, 8 July 2003).

³⁵⁰ Council of Europe Manual (n 313) at 89.

³⁵¹ *Giacomelli v. Italy App no 59909/00* (ECtHR, 2 November 2006), at 82-84 and 94.

In *Hatton and Others v UK*, the complaint related to noise generated by aircrafts taking off and landing at an international airport and the regulatory regime governing it. Although the Court found no violation of Article 8, the Court's discussion of public participation and access to information is particularly important. Notably, the Court stated, 'in the particularly sensitive field of environmental protection, mere reference to the economic well-being of the country was not sufficient to outweigh the rights of others'.³⁵³ Further, the Court noted the series of investigations and studies that had been carried out which were made public by way of consultation paper and that the applicants were 'well-placed to make representations'.³⁵⁴ It was however stated that 'Had any representations not been taken into account, they [the applicants] could have challenged subsequent decisions, or the scheme itself, in the courts'.³⁵⁵

In *McGinley and Egan v UK*, the Court found that where a State engages in hazardous activities which might have hidden adverse consequences on the health of those involved, respect for private and family life requires an effective and accessible procedure be established which enables persons to seek all relevant and appropriate information.³⁵⁶

In *Taşkın and Others v Turkey*, the Court found that when a State determines a complex issue regarding environmental and economic policy, appropriate investigations and studies must be conducted to evaluate the potential effects of 'activities which might damage the environment and infringe individuals' rights and to enable them to strike a fair balance between the various conflicting interests at stake'.³⁵⁷ The Court further stressed the importance of public access to the conclusions of such studies and information, as such access would allow for 'members of the public to assess the danger to which they are exposed is beyond question'.³⁵⁸ Finally, individuals must be able to appeal any 'decision, act or omission where they consider that their interests or their comments have not been given sufficient weight in the decision-making'.³⁵⁹

3.4 ECHR Protocol 1, Article 1: Protection of property

Article 1 of Protocol 1 relates to the protection of property and provides every natural and legal person with the right to peacefully enjoy his/her possessions. This is balanced by the right of the State to interfere with this enjoyment if such interference is justified by considerations of public interest, subject to conditions provided for by law—including the payment of reasonable compensation. The State may enforce laws as 'necessary to control the

³⁵² *Taşkın and Others v. Turkey App no 46117/99* (ECtHR, 10 November 2004) at 118-119.

³⁵³ *Hatton and Others v. the United Kingdom* (n 349) at 86.

³⁵⁴ *Ibid.*, at 128.

³⁵⁵ *Ibid.*

³⁵⁶ *McGinley and Egan v UK App no's 10/1997/794/995-996* (ECtHR, 9 June 1998) at 101.

³⁵⁷ *Taşkın and Others v. Turkey* (n 352) at 119.

³⁵⁸ *Ibid.*

³⁵⁹ *Ibid.*

use of property' for the general interest or 'to secure the payment of taxes or other contributions or penalties.³⁶⁰

The Court has held that protection of the right to property requires public authorities not only to refrain from direct interference but may also require the State to take positive measures to secure the right. The case of *Öneriyildiz v Turkey*³⁶¹ involved arguments relating to both the right to private and family life and the right to property. It was found that regulation of waste treatment was the responsibility of the State and the failure to take measures to protect private property from environmental risks in this context amounted to a breach of the State's obligations under Article 1 of Protocol 1.³⁶²

³⁶⁰ Council of Europe, Protocol 1 to the European Convention for the Protection of Human Rights and Fundamental Freedoms (20 March 1952) ETS 9, Art 1.

³⁶¹ *Öneriyildiz v. Turkey* (n 317).

³⁶² *Ibid.*, at 130.

4. Conclusion & Recommendations

Fracking, through its emission of greenhouse gases and contribution to climate change and the immediate environmental, social and public health impacts it causes for surrounding communities, poses numerous threats to the enjoyment and exercise of human rights. As underlined in this report, the human rights impacted include the right to life, the right to health, the right to water, the right to food, the right to housing, the right to access to information, the right to public participation, the right to a safe, clean, healthy and sustainable environment, with violations of these rights having disproportionate impacts on marginalized and vulnerable communities and groups.

In light of the abundant evidence demonstrating how international and regional human rights are and will be infringed by fracking, it is difficult to see how a State can propose and utilize fracking operations without breaching its international and regional human rights obligations. As a result, we recommend that States:

- Refrain from implementing fracking practices, and in accordance with the CEDAW Committee's 2019 recommendation to the United Kingdom, introduce a comprehensive and complete ban on fracking;³⁶³
- Prohibit the expansion of polluting and environmentally destructive types of fossil fuel extraction, including oil and gas produced from fracking, as per the recommendation of the Special Rapporteur on human rights and the environment;³⁶⁴ and
- Commit to attaining and upholding the highest standards of the rights to life, health, water and food, and ensure that no State or private initiatives disproportionately impact these or other collective and individual rights.

³⁶³ CEDAW Concluding Observations (n 12) at 54(b).

³⁶⁴ Safe Climate Report (n 13) at 78(d).

Appendix 2 - Submission to Joint Committee on Climate Action for pre-legislative scrutiny of the Climate Action and Low Carbon Development (Amendment) Bill 2020: A Legislative Ban on Importing Fracked Gas - November 2020

Ms Gina Long
Clerk to the Joint Committee on Climate Action
Leinster House
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By email to climateaction@oireachtas.ie

11 November 2020

**Submission to Joint Committee on Climate Action for pre-legislative scrutiny of the
Climate Action and Low Carbon Development (Amendment) Bill 2020:
A Legislative Ban on Importing Fracked Gas**

Dear members of the Committee,

We write to propose the inclusion of a section in the Climate Action and Low Carbon Development (Amendment) Bill 2020 ('Climate Bill') which **amends the Petroleum and Other Minerals Development Act 1960 in order to make it unlawful for a person to import or sell fracked gas into Ireland**. We request that the Committee recommends such an addition to the Climate Bill.

The 2020 Programme for Government states:

“As Ireland moves towards carbon neutrality, we do not believe that it makes sense to develop LNG gas import terminals importing fracked gas, accordingly we shall withdraw the Shannon LNG terminal from the EU Projects of Common Interest list in 2021. We do not support the importation of fracked gas and shall develop a policy statement to establish that approach.”

The Programme for Government further establishes “a goal of ensuring that Irish and EU action to reduce emissions supports emission reductions globally, as well as on our own territories”. This amounts to Government acceptance of the need to consider and reduce full life cycle and non-territorial emissions to which Ireland contributes.

Now is the time for a legislative prohibition on the importation or sale of fracked gas into Ireland.

On 9 November 2020, the High Court quashed development consent and consequently all related acquired rights for Shannon LNG to construct a fracked gas import terminal on the Shannon Estuary. This is, therefore, a timely opportunity for the enactment of a legislative prohibition on the importation of fracked gas into Ireland. Such a prohibition is necessary before any other prospective LNG terminal applications are considered by public authorities, so that the 2020 Programme for Government commitments both to avoid importing fracked gas into Ireland and to contribute to non-territorial emissions reductions are not irreversibly frustrated.

The primary goal of the Climate Bill must be to ensure that Ireland contributes to the maximum extent possible to the objective set out in Article 2 of the 1992 United Nations Framework Convention on Climate Change (UNFCCC), which states:

“The ultimate objective of this Convention and any related legal instruments that the Conference of the Parties may adopt is to achieve, in accordance with the relevant provisions of the Convention, stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.”

In other words, and as the Programme for Government acknowledges, the Irish Government should account not only for greenhouse gas emissions that occur within the jurisdiction but also for its contributions to extra-territorial greenhouse gas emissions through the policies it chooses to adopt.

Our legislative proposal and legal opinion

We enclose a legal opinion which explores and clarifies the compatibility with EU, EFTA and WTO trade rules of our legislative proposal.

At Annex 1 of the legal opinion, you will find the wording of our proposed amendments to the Petroleum and Other Minerals Development Act 1960 (drafted by Gerry Liston, Legal Officer at the Global Legal Action Network).

The legal opinion has been authored by Cassie Roddy-Mullineaux, Sophie Fitzpatrick and Colin Carney, LL.M researchers at the Irish Centre for Human Rights, NUI Galway, under the supervision of Dr Maeve O'Rourke and with the assistance of several other legal practitioners and scholars.

The legal opinion concludes that a legislative prohibition on the importation and sale of fracked gas, while a 'quantitative restriction' under Article 34 TFEU, can be justified—according to the text of Article 36 TFEU and the jurisprudence of the Court of Justice of the European Union (CJEU)—on the basis that it is necessary and proportionate to protect human health, the environment and fundamental rights. The increasing emergence of scientific evidence about the harm caused throughout the fracked gas supply chain allows Ireland, furthermore, to rely on the precautionary principle pursuant to which preventive decision-making may be taken in an arena of scientific uncertainty. The legal opinion further draws attention to CJEU case-law demonstrating that Ireland may consider extra-territorial impacts in choosing to prohibit the importation of fracked gas, while the legal opinion contends that such a prohibition can also be considered self-interested on Ireland's part.

The same legal analysis and arguments apply in the EFTA context.

Regarding WTO trade rules, the legal opinion finds that the legislative proposal does not violate the GATT non-discrimination principles on the bases that (1) fracked gas and conventional gas are not 'like' products; (2) even if the products were found to be 'like products', there is no discrimination due to the domestic ban on fracking and the universal application of the legislative proposal; and (3) even if discrimination were found to occur, the prohibition would nonetheless be justifiable under Article XX GATT exceptions for environmental and human health protection and the protection of public morals.

The problems with fracked gas

In **Annex 2** to the legal opinion, you will find references to just some of the extensive scientific evidence that exists about the adverse public health, environmental and climate impacts of fracking and the non-existence anywhere in the world of adequate mitigation strategies. Annex 2 refers, for example, to the most recent *Compendium of Scientific, Medical and Media Findings Demonstrating Risks and Harms of Fracking* which is compiled by Concerned Health Professionals of New York and Physicians for Social Responsibility.ⁱ Annex 2A contains a summary of this Compendium by Dr Carroll O'Dolan, MRCGP. Annex 2 further refers to a 2019 study by Gorski and Schwartz, published in the Oxford Research Encyclopedia of Global Public Health, which gathered several hundred scientific articles about the community and health impacts of fracking.ⁱⁱ

Annex 2 to the legal opinion also notes the latest peer-reviewed scientific research which has found that one third of the total increased methane emissions from all sources globally, over the past decade, is coming from US fracked gas (shale gas)ⁱⁱⁱ and that methane emissions are accelerating global warming because methane has a Global Warming Potential (GWP) 87 times greater than carbon dioxide over a 20-year period.^{iv} The Oireachtas Joint Committee on Climate Action was informed in October 2019 that importing US fracked gas into Ireland has a carbon-equivalent footprint at least 44% greater than importing coal over the full life-cycle.^v Scientific evidence further demonstrates that, unlike with carbon dioxide, the climate responds quickly to a reduction in methane emissions and that this, along with CO2 reduction measures, could provide the opportunity to immediately slow the rate of global warming by approximately half a degree celsius.^{vi}

Notably, as Annex 2 highlights, methane is emitted not only at the well site but at all stages of the fracked gas supply chain including during processing, storage and transportation.^{vii}

Annex 3 to the legal opinion cites evidence of the growing national consensus in Ireland against fracked gas imports. Added to the Programme for Government commitment are, for example, numerous local authority motions, statements and votes by Irish MEPs, a pledge by 74 Dáil TDs that they are "*opposed to the importation of US fracked Gas into Ireland via LNG import terminals*", the recommendations of Ireland's Youth Assembly on Climate Change in 2019, and countless petitions and statements of support by members of civil society, academia and the general public.

Crucially, a legislative prohibition on importing fracked gas will strengthen the efforts of affected communities in Northern Ireland, and worldwide, to prevent fracking for the same reasons that

Ireland has already prohibited the practice. Annex 3 to the legal opinion notes the unanimous cross-party motion of the Northern Ireland Assembly on 13 October 2020 calling on the Executive 'to instigate an immediate moratorium' on fracking 'until legislation is brought forward that bans all exploration for, drilling for and extraction of hydrocarbons in Northern Ireland'.

The legislative proposal that we commend to you would enable Ireland to be a world-leader in the move towards a global ban on fracking: something which has been advocated for, by way of example, in a September 2019 open letter to UN Secretary-General António Guterres by more than 400 organisations and prominent individuals globally.^{viii}

Yours sincerely,

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Attachment: Legal Opinion on the compatibility with EU, EFTA, WTO trade rules of proposed amendments to the Petroleum and Other Minerals Development Act 1960 to prohibit the importation or sale of fracked gas

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- ⁱ Compendium of Scientific, Media, and Media Findings Demonstrating Risks and Harms of Fracking (Unconventional Gas and Oil Extraction) Sixth Edition, June 19, 2019 http://concernedhealthny.org/wp-content/uploads/2019/06/Fracking-Science-Compendium_6.pdf
- ⁱⁱ Gorski, I. and Schwartz, B.S., 2019. Environmental Health Concerns from Unconventional Natural Gas Development. In Oxford Research Encyclopedia of Global Public Health. Available at: <https://oxfordre.com/publichealth/view/10.1093/acrefore/9780190632366.001.0001/acrefore-9780190632366-e-44>
- ⁱⁱⁱ Howarth, R. W.: Ideas and perspectives: is shale gas a major driver of recent increase in global atmospheric methane?, *Biogeosciences*, 16, 3033–3046, <https://doi.org/10.5194/bg-16-3033-2019>, 2019. <https://bg.copernicus.org/articles/16/3033/2019/>
- ^{iv} Myhre, G., D. Shindell, F.-M. Bréon, W. Collins, J. Fuglestedt, J. Huang, D. Koch, J.-F. Lamarque, D. Lee, B. Mendoza, T. Nakajima, A. Robock, G. Stephens, T. Takemura and H. Zhang, 2013: Anthropogenic and Natural Radiative Forcing. In: *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Stocker, T.F., D. Qin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA chapter 8 page 714 Table 8.7 https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_Chapter08_FINAL.pdf
- ^v Joint Committee on Climate Action Debate, Wed October 9th, 2019: https://www.oireachtas.ie/en/debates/debate/joint_committee_on_climate_action/2019-10-09/2/
- ^{vi} Shindell et al., “Simultaneously Mitigating Near-Term Climate Change and Improving Human Health and Food Security”, *Science*, 13 Jan 2012, Vol. 335, Issue 6065, pp. 183-189, Figure 1. DOI: 10.1126/science.1210026 <https://science.sciencemag.org/content/335/6065/183/tab-figures-data>
- ^{vii} Howarth, R.W., 2019. Ideas and perspectives: Is shale gas a major driver of recent increase in global atmospheric methane. *Biogeosciences*, 16(15), pp.3033-3046.
- ^{viii} Open Letter to António Guterres, Secretary-General of the United Nations, 13th September 2019. Request to the United Nations to call for a global ban on Fracking” <https://www.foodandwaterwatch.org/news/mark-ruffalo-emma-thompson-among-400-call-un-demand-ban-fracking>

Legal Opinion on the compatibility with EU, EFTA, WTO trade rules of proposed amendments to the Petroleum and Other Minerals Development Act 1960 to prohibit the importation or sale of fracked gas

Executive Summary

Background

- A domestic legislative ban on fracked gas was enacted in Ireland in 2017.
- The reasons for the ban were the scientific evidence on the impacts of fracking for the environment and health, and the widespread public concern on the issue.
- There is growing civil society and political will to enact a similar legislative ban on the importation and sale of foreign fracked gas.
- A legislative Proposal in the form of amendments to the Petroleum and Other Minerals Development Act 1960 has been drafted to achieve this ('the Proposal') (see **Annex 1**).¹
- The Government has queried whether a legislative ban on fracked gas imports would breach European Union and International trade law. It has stated that it needs a clear understanding of Ireland's powers in this area and to what extent they are limited by European law and International treaties.

About this project

- We are a group of LLM researchers based at the Irish Centre of Human Rights (ICHR).
- As part of the ICHR's Human Rights Law Clinic, we have co-written a legal opinion on the compatibility of the Proposal with European Union (EU), European Free Trade Association (EFTA), and World Trade Organization (WTO) trade rules.
- Our research and drafting of this legal opinion was supervised by Dr Maeve O'Rourke and assisted by a number of other legal practitioners, scholars, and grassroots campaigners.
- Our main conclusions and an outline of our legal opinion appear in this Executive Summary.
- Our full legal opinion, attaching the Proposal (as **Annex 1**) and two further Annexes containing indicative evidence of the impacts of fracking on the environment and health both at source and globally (**Annex 2**) and public support for a prohibition on the importation or sale of foreign fracked gas (**Annex 3**), follows. The evidence in Annex 2 and Annex 3 has been gathered in cooperation with the voluntary organisations, Safety Before LNG and Love Leitrim.

¹ Drafted by Gerry Liston, Legal Officer at Global Legal Action Network.

Main Conclusions

- In the EU context, we find that the Proposal is a ‘quantitative restriction’ under Article 34 of the Treaty on the Functioning of the European Union (TFEU). However, we find that it can be justified based on an Article 36 TFEU derogation for health protection. We also find it can be justified based on environmental protection and based on the protection of fundamental rights as ‘mandatory requirements’ (additional exceptions developed by the Court of Justice of the European Union in its case-law). The same findings apply in the EFTA context.
- In the WTO context, we find that the Proposal does not violate the non-discrimination principles in General Agreement on Tariffs and Trade (GATT) which covers international trade in goods. However, we also find that, even if it did, it would be justified under the Article XX GATT exceptions for environmental and human health protection, as well as under the exception of being necessary to protect public morals.
- **We conclude that no provision of the Proposal is incompatible with EU, EFTA or WTO law.**

Summary of our Legal Opinion

- Our Opinion relates to the compatibility with European Union (EU), European Free Trade Association (EFTA), and World Trade Organization (WTO) rules on trade of the proposed amendments to the Petroleum and Other Minerals Development Act 1960 to prohibit the importation or sale of fracked gas.

EU trade rules

- In the EU context, we find that the proposed legislative ban on imports is a ‘quantitative restriction’ under Article 34 TFEU. Article 34 TFEU provides that “quantitative restrictions on imports and all measures having equivalent effect shall be prohibited between Member States”.
- Article 36 TFEU allows Member States to take measures having an effect equivalent to quantitative restrictions when these are justified by general, non-economic considerations, including protection of human health.
- The Court of Justice of the European Union has also recognised 'mandatory exceptions' to Article 34 TFEU in its case-law, including protection of the environment and protection of fundamental rights.
- We find that the Proposal is justified based on Article 36 TFEU with respect to health protection, as well as based on environmental protection as a mandatory requirement, and based on the protection of fundamental rights as a mandatory requirement.
- To be justified under Article 36 TFEU and the mandatory requirements, the Proposal must pass a proportionality test. This means that the Proposal has to be necessary to achieve the declared objective and that the objective could not be achieved by less

extensive prohibitions or restrictions, or by prohibitions or restrictions having less effect on intra-EU trade.

- In order to show that the Proposal satisfies this test, we rely on the body of scientific evidence about the serious risks that fracked gas poses to the environment and human health locally and regionally, and also globally due to climate impacts.
- We also show how new and emerging scientific evidence, including about the fracked gas supply chain, triggers the application of the precautionary principle (a principle which allows for preventative decision-taking in the case of scientific uncertainty). This principle tempers the proportionality test, providing a degree of leeway to Ireland to act as it sees fit based on the risks it perceives.
- We also rely on case-law of the Court of Justice relating to so-called ‘processes and production-based measures’ (PPMs), measures which seek to regulate how a good is produced, as the Proposal does in relation to fracked gas. The case-law on PPMs shows that extraterritorial concerns (such as health impacts and environmental impacts in another jurisdiction) can be taken into account in justifying measures like the Proposal.
- We note that, sometimes, the Court of Justice has required a nexus with the domestic jurisdiction to bring extraterritorial concerns within scope, and we also show how the Proposal satisfies this, including on the grounds of public concern and the fact the Proposal may also be considered self-interested.
- We show that the Proposal is not arbitrary and does not represent a disguised restriction on trade in light of the domestic ban on fracking in place since 2017.
- Finally, we show that the absence of harmonisation in the EU energy sector means that Ireland is capable of introducing the Proposal.

EFTA trade rules

- These same findings also apply in the context of Ireland’s participation in the European Free Trade Association (EFTA).

WTO trade rules

- As well as complying with EU trade rules, Ireland is a member of the World Trade Organisation (WTO) and must comply with the General Agreement on Tariffs and Trade (GATT) which regulates the international trade in goods such as fracked gas.
- In the WTO context, we find that the Proposal does not violate the GATT non-discrimination principles, which stipulate that a member shall not discriminate:
 - between “like” products from different trading partners (giving them equally “most favoured-nation” or MFN status, GATT Article I); and
 - between its own and like foreign products (giving them “national treatment”, GATT Article III).
- This is because fracked gas and conventional gas are not “like” products:
 - To establish differentiation, we rely on scientific evidence to show these products are not physically “like”; and
 - We rely on evidence of public concern on this issue to show these products are not considered “like” by Irish consumers.

- However, in our view, even if the products were found to be “like products”, there is still no discrimination in light of the domestic ban on fracking in Ireland in place since 2017 (which precludes a domestic market in fracked gas), and because the Proposal applies to fracked gas from all trading partners without discrimination.
- We also present a further alternative argument that, even if these products were found to be “like products”, and even if discrimination was found to occur, the Proposal would still be justifiable under the Article XX GATT exceptions for environmental and human health protection, and under the exception of being necessary to protect public morals:
 - Although we note that the Article XX exceptions do not expressly provide for jurisdictional limitations; we nonetheless demonstrate a territorial link in each case, to show that extraterritorial concerns can be taken into account in justifying the Proposal.
 - We find that the Proposal satisfies the other requirements of Article XX because it is not applied in a manner which would constitute “a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail”, and is not “a disguised restriction on international trade” in light of the 2017 domestic ban.
 - We place reliance on the urgency of the current climate situation, as well as evidence of public concern on this issue, to show that any discrimination is not ‘unjustifiable’.

We ultimately conclude that no provision of the Proposal is incompatible with EU, EFTA, or WTO law.

Cassie Roddy-Mullineaux

Sophie Fitzpatrick

Colin Carney

10 November 2020

In the matter of proposed amendments to the Petroleum and Other Minerals Development Act 1960 to prohibit the importation or sale of fracked gas

1. Our Opinion relates to the compatibility with European Union (EU), European Free Trade Association (EFTA), and World Trade Organization (WTO) rules on trade of a legislative proposal to amend the Petroleum and Other Minerals Development Act 1960 in order to prohibit the importation or sale of foreign fracked gas ('the Proposal') (see **Annex 1**).²
2. We will first provide an overview of the Proposal. We will then offer our assessment.

The legislative Proposal

3. The Proposal is set out at **Annex 1**. It comprises amendments to the Petroleum and Other Minerals Development Act 1960 to make it unlawful to import fracked gas into Ireland or to sell fracked gas within Ireland.
4. Scientific evidence about the severe health, environmental and safety risks posed by fracking, and public concern on this issue, forms the rationale for the Proposal.
5. The scientific evidence is presented at **Annex 2**. Briefly, the issues with fracking, known as hydraulic fracking, arise from its production method, which is a process of extracting oil and gas from the Earth by drilling deep wells and injecting a mixture of liquids and chemicals at high pressure. This has been associated with social and environmental impacts on a local (e.g. the fracking host communities which are directly affected), regional, and global level (due to the evidence of the industry's impact on climate change). Scientific evidence is also emerging about the risks of fracking at all stages of the supply chain.
6. Public concern on this issue is documented at **Annex 3**. Briefly, the concern relates to the risks posed by fracking. This includes extraterritorial concerns, for example concerns about the environmental and health impacts of fracking in other jurisdictions, and the effects of fracking for the global commons.
7. Note that the Petroleum and Other Minerals Development Act 1960 was previously amended in 2017 to ban domestic fracking.³ Scientific evidence on the risks that fracking poses to public health and the environment (including the climate impacts), and public concern on this issue, was also the rationale for the 2017 amendment.
8. The 2017 amendment made it an offence "*for a person to search for, get, raise, take, carry away or work petroleum by means of hydraulic fracturing*". Section 5(C) of the

² Drafted by Gerry Liston, Legal Officer at Global Legal Action Network.

³ Petroleum and Other Minerals Development (Prohibition of Onshore Hydraulic Fracturing) Act 2017

Act provides that a person guilty of an offence *'shall be liable, on summary conviction, to a class A fine or imprisonment for a term not exceeding 6 months or both.'*

9. Under the present Proposal, a new Section 5(D)1 in the 1960 Act will provide that *"Notwithstanding anything in this Act or any other enactment or rule of law, it shall not be lawful for a person to import or sell fracked gas"*.
10. Under the Proposal, the same 5(C) offence will now apply to anyone who engages in importing fracked gas into Ireland or selling fracked gas within Ireland.
11. The Proposal is therefore very similar to the 2017 amendment. However, because it is a legislative ban on imports (and the sale of imports), it raises trade concerns that the 2017 domestic ban did not.
12. Ireland participates in the free trade arrangements of the EU, EFTA, and the WTO, so an assessment of the Proposal's compatibility with all of these trade rules is necessary.

Assessment of the Proposal's compatibility with EU trade rules

13. Trade in goods⁴ between Member States is governed by Title II of Part Three of the TFEU (Articles 28 to 37).
14. Article 34 states that quantitative restrictions on imports and all measures having equivalent effect must be prohibited between Member States. The prohibition of Article 34 applies to all products which are in free circulation within the EU whether or not they originate from an EU Member State.
15. The Proposal's prohibition on imports, contained in the new section 5D(1), is a quantitative restriction within the meaning of Article 34 TFEU, since it prohibits the importation of any quantity of such goods. The prohibition on sales in section 5D(1) is also a prohibition on imports (since it would make little economic sense to import fracked gas if it cannot be the subject of a lawful market transaction).
16. Article 36 TFEU provides for a derogation from the principle laid down in Article 34. It states that the prohibition of quantitative restrictions and measures having equivalent effect shall not preclude prohibitions or restrictions on imports, exports or goods in transit justified, inter alia, on the grounds of protection of health and life of humans, animals and plants. However, such measures must have a direct effect on the public interest to be protected, and must not go beyond the necessary level (this is called the principle of proportionality).

⁴ The Court of Justice has clarified that gas is designated a good, not a service - Case C-159/94 Commission v France [1997] ECR I-5815.

17. In addition to the Article 36 derogations, several mandatory requirements have also been developed by the Court case-law, including protection of the environment⁵ and protection of fundamental rights,⁶ on which a Member State can rely to justify such measures.
18. In our view, the Proposal can be justified based on Article 36 TFEU with respect to health protection, as well as based on environmental protection as a ‘mandatory requirement’, and based on the protection of fundamental rights as a ‘mandatory requirement’.
19. We note that, historically, mandatory requirements could be invoked only to justify indistinctly applicable measures, i.e. measure applying to both domestic and imported goods equally and without distinction. In our opinion, the Proposal is indistinctly applicable when it is viewed within the broader Irish legal framework because it is an amendment to an Act which already bans domestic fracking. However, even if the Proposal *was* found to be distinctly applicable (applying only to imports), we believe that both Article 36 and the mandatory exceptions would still be available to it. This is because the Court of Justice is moving towards treating mandatory requirements in the same way as Article 36 TFEU justifications.⁷
20. The scientific evidence (**Annex 2**) shows that many of the risks posed by fracked gas are extra-territorial, although there are domestic impacts too. As such, the existing case-law of the Court of Justice on processes and production-based measures (PPMs), measures which seek to regulate how a good, like gas, is produced, is relevant because it shows that extraterritorial concerns (such as health impacts and environmental impacts in another jurisdiction) can be taken into account in justifying measures based on Article 36 and the mandatory requirements. While some of these restrictions have been overruled on proportionality or evidential issues, it was not because the threatened harm was in another state.
21. For example, in the *EU Wood Trading Case*,⁸ the Court of Justice accepted localised pollution risks in another state as a legitimate reason to restrict trade. In several other waste export cases,⁹ the Court of Justice has also considered restrictions on waste exports without referring to any domestic interest, as long as the exporting Member State could prove harm based on relevant scientific evidence.

⁵ Case 302/86 Commission v Denmark [1988] ECR 4607.

⁶ Case C-112/00 Schmidberger [2003] ECR I-5659

⁷ P. Oliver, Free movement of goods in the European Community, 2003, 8.3–8.10.

⁸ Case C-277/02, EU-Wood-Trading GmbH v. Sonderabfall-Management-Gesellschaft Rheinland-Pfalz mbH, 2004 E.C.R. I-11987

⁹ See, e.g., Case 118/86, Openbaar Ministerie v. Nertsvoederfabriek Nederland B.V., 1987 E.C.R. 3883; Case 172/82, Syndicat national des fabricants raffineurs d’huile de graissage v. Groupement d’intérêt économique "Inter-Huiles", 1983 E.C.R. 555; Case C-203/96 Chemische Afvalstoffen Dusseldorp BV v. Minister Van Volkshuisvesting, Ruimtelijke Ordening en Milieubeheer, 1998 E.C.R. I-04075; Case 153/78, Comm’n of the European Communities v. Fed. Rep. of Ger., 1979 E.C.R. 2555, 41.

22. In *Gourmetterie van den Burg* (relating to a Dutch law prohibiting the buying and selling of certain species of bird, which the Dutch sought to justify on the grounds of protecting the life and health of animals),¹⁰ while the Court of Justice ultimately found against the law, it was not because it sought to protect a species *outside of its jurisdiction*, but because the directive provided for complete harmonisation with regards to non-migratory species.
23. While not strictly PPM measures, the Court of Justice also accepted restrictions on exports based on events occurring outside of the regulating Member State's territory in three cases dealing with export restrictions of certain goods for reasons relating to public security.¹¹
24. In *PreussenElektra*,¹² a German law which unilaterally restricted intra-EU trade was justified because the measure was "useful for protecting the environment" and the use of renewable energy sources which it was intended to promote "contributes to the reduction in emissions of greenhouse gases which are amongst the main causes of climate change which the European Community and its Member States have pledged to combat."
25. On occasion, the Court of Justice has required a link between PPM measures and the territory of the regulating Member State.¹³ In our view, there are clear links between the Proposal and the extraterritorial concerns it seeks to address. For example, because of fracking's impact on the global commons, including climate change risks (which will lead to further health and environmental implications for everyone), the Proposal also protects Ireland's own interest, and the interests of its citizens. New evidence is also emerging about supply chain risks that would impact Ireland if imports were permitted (**Annex 2**). Domestic consumers' concerns about fracking's social and environmental impacts, including impacts in other jurisdictions, are another link.

Assessment of the exceptions

26. In our view, the Proposal can be justified based on Article 36 TFEU with respect to health protection, as well as based on environmental protection as a mandatory requirement, and based on the protection of fundamental rights as a mandatory requirement.

¹⁰ Van den Burg, 1990 E.C.R. at I-2146-47

¹¹ *Chemische Afvalstoffen Dusseldorp*, 1998 E.C.R. I-04075; *Nertsvoederfabriek*, 1987 E.C.R. 3883; *Inter-Huiles*, 1983 E.C.R. 555

¹² Case C-379/98 – *PreussenElektra AG v Schleswag AG* [2001] ECHR 1-2099.

¹³ *Van der Feesten*, 1996 E.C.R.

27. Nothing precludes a measure being justified on different grounds, and environment and health are complimentary justifications in several cases.¹⁴ In some cases, the Court has treated environmental protection as part of public health and Article 36.¹⁵
28. Neither Article 36 TFEU nor the mandatory exceptions can be relied upon to justify deviations from harmonised EU legislation. However, the EU's energy sector is not fully harmonised. Article 194(2) TFEU also stipulates a Member State's right to determine the conditions for exploiting its energy resources, its choice between different energy sources, and the general structure of its energy supply. Further, Article 193 TFEU stipulates that the Member States may maintain protective measures, or introduce more stringent measures, in the field of environmental policy.¹⁶

Protection of Health and life of humans, animals and plants

29. Article 36 TFEU provides for several derogations including the protection of health and life of humans, animals or plants.
30. The Court of Justice has ruled that 'the health and life of humans rank first among the property or interests protected by Article [36] and it is for Member States, within the limits imposed by the Treaty, to decide what degree of protection they intend to assure, and in particular how strict the checks to be carried out are to be'.¹⁷ However, the measures adopted have to be proportionate, i.e. restricted to what is necessary to attain the legitimate aim of protecting human health.
31. In our view, the Proposal can be justified under Article 36 TFEU because it is protecting the health and life of humans (and animals). There is a body of scientific evidence on the serious risks, both extraterritorial and domestic, that fracking poses to health (**Annex 2**). In our view, the seriousness of these risks means that the Proposal conforms with the principle of proportionality. **While this will be a matter for Ireland to evidence based on scientific evidence and other relevant information,**¹⁸ in our view, it is arguable that nothing short of a ban could address these serious risks, nor satisfy public concern on this issue.
32. Furthermore, new evidence (**Annex 2**), for example evidence emerging about the fracking supply chain, means that the precautionary principle must also be a factor in the proportionality assessment. This principle means that '*where there is uncertainty as to the existence or extent of risks to human health, the institution [or Member State] may take protective measures without having to wait until the reality and seriousness*

¹⁴ *Michelsson & Roos* (Case C-142/05) [2009] – the “Swedish Watercraft” case.

¹⁵ See, for example, Case C-67/97 *Bluhme* [1998] ECR I-8033.

¹⁶ Note that these articles are still curtailed by trade rules.

¹⁷ Case 104/75 *De Peijper* [1976] ECR 613

¹⁸ Case C-270/02 *Commission v Italy* [2004] ECR 1559; Case C-319/05 *Commission v Germany* [2007] ECR I-9811.

of those risks become fully apparent'.¹⁹ As such, once Ireland can demonstrate that real risks can be demonstrated in the light of the most recent results of international scientific research, it should be allowed considerable leeway to act as it sees fit based on the risks it perceives.²⁰

33. The second sentence of Article 36 TFEU does not allow a health ban to be an arbitrary discrimination or a disguised discrimination. For instance, in *Commission v UK (UHT Milk)*²¹ and the *Commission v UK (Turkey Imports)*²², the fact that domestic products were not similarly banned meant that the UK was not justified in prohibiting imports. However, the fact that domestic fracking is banned means that Ireland is justified in preventing imports, and so there is no discrimination. As such, the Proposal is not a disguised restriction on trade nor an arbitrary discrimination.
34. As discussed, this is not an area which has been harmonised, so Ireland is not precluded from acting in this area.

Protection of the Environment

35. Although protection of the environment is not expressly mentioned in Article 36 TFEU, it has been recognised by the Court of Justice as constituting an overriding mandatory requirement.
36. The Court takes the view that “... *the protection of the environment is "one of the Community's essential objectives"*, which may as such justify certain limitations of the principle of free movement of goods’.²³
37. A variety of national measures have been justified on the grounds of protection of the environment, including prohibiting the importation of waste from other Member States.²⁴ The Court of Justice has even shown a willingness to allow discriminatory treatment (distinctly applicable measures applying only to imports) in the field of environmental protection in several cases, for instance in the cases of *Aher-Waggon*²⁵ and *PreussenElektra*.
38. In *Preussen Elektra*, as discussed, a measure which unilaterally restricted intra-EU trade was justified because the measure was "useful for protecting the environment" and the use of renewable energy sources which it was intended to promote "contributes to the reduction in emissions of greenhouse gases which are amongst the main causes

¹⁹ Case C-157/96 National Farmers' Union and Others [1998] ECR I-2211.

²⁰ Cf. Case C-132/03 Codacons and Federconsumatori [2005] ECR I-4167, paragraph 61, and Case C-236/01 Monsanto Agricoltura Italia and Others [2003] ECR I-8105, paragraph 111.

²¹ *Commission v UK (UHT Milk)* (124/81)

²² *Commission v UK (Turkey Imports)* (40/82).

²³ Case 302/86 *Commission v Denmark* [1988] ECR 4607, paragraph 8.

²⁴ Case C-2/90 *Commission v Belgium* [1992] ECR I-4431.

²⁵ Case C-389/96 *Aher-Waggon* [1998] ECR I-4473

of climate change which the European Community and its Member States have pledged to combat."

39. As such, the Proposal, which also pursues important environmental objectives (and which is also not discriminatory, but rather indistinctly applicable, due to the presence of an identical domestic ban in Ireland), is justifiable on the grounds of environmental protection in our view.
40. There is scientific evidence on the severe risks that fracking poses to the environment (**Annex 2**). In our view, the seriousness of these risks means that the legislative ban proposed by the Proposal conforms with the principle of proportionality. **While this will ultimately be a matter for Ireland to evidence**, in our view it is arguable that nothing short of a ban could address these serious environmental risks, nor satisfy public concern on this issue.
41. Furthermore, new evidence (**Annex 2**), including evidence emerging about the fracking supply chain, means that the precautionary principle must be a factor in the proportionality assessment.

Protection of Fundamental Rights

42. Fundamental rights are recognised as grounds for an exception to Article 34 TFEU in the Court of Justice case law.
43. In *Schmidberger*, the Court found that:

*“since both the Community and its Member States are required to respect fundamental rights, the protection of those rights is a legitimate interest which, in principle, justifies a restriction of the obligations imposed by Community law, even under a fundamental freedom guaranteed by the Treaty such as the free movement of goods.”*²⁶
44. Article 6(3) states that fundamental rights result from constitutional traditions common to member states. It is notable that seventeen out of twenty-seven EU Member States explicitly recognise the right to a healthy environment. The rights to life, bodily integrity, and respect for privacy and the family are constitutionally protected in Ireland (and, as noted below, the European Court of Human Rights (ECtHR) has used these concepts to elucidate states’ obligations in relation to the environment).
45. The European Charter of Fundamental Rights (EUCFR) is endowed, since December 2009 and under Article 6(1) TEU, with the status of Treaty law. It codifies a high level of environmental protection and improvement of the quality of the environment in Article 37 on environmental protection.

²⁶ C-112/00, para. 74.

46. Also, for two decades, the ECtHR has carved out environmental duties from several rights enshrined in the European Convention of Human Rights (ECHR) which, by virtue of Article 6(3) TFEU, constitute general principles of the Union's law. For instance, its case law considers that environmental harms can infringe upon, among other things, the right to life (Article 2) and the right to respect for private and family life (Article 8).²⁷ The ECtHR has interpreted these rights as requiring States to implement a certain degree of environmental protection.
47. In our view, the right to environmental protection contained in treaty law, in the ECHR, and the EUCFR, creates a new exemption in the EU system and means that the Proposal can also be justified on this basis.
48. In *Schmidberger*,²⁸ the Court recognised that Member States are afforded a "wide margin of discretion" in balancing fundamental rights against other interests. **While the impact on these rights will ultimately be a matter for Ireland to evidence based on relevant scientific and other information** (see **Annex 2**), in our view, it is arguable that any less restrictive measure than a prohibition would have a detrimental effect on the fundamental rights identified in this section.

49. In conclusion, we, for the reasons outlined above, submit that although the Proposal is a 'quantitative restriction' under Article 34 TFEU, it is justifiable based on Article 36 TFEU concerning health protection, as well as based on environmental protection as a mandatory requirement, and based on the protection of fundamental rights as a mandatory requirement.

50. In our view, the body of scientific evidence about the severe risks that fracked gas poses to the environment and human health is sufficient to justify the Proposal on these grounds, particularly as Court of Justice case-law shows that extraterritorial concerns (such as health impacts and environmental impacts in another jurisdiction) can be taken into account in justifying measures.

51. We believe that this evidence, and public concern on this issue, is sufficient to demonstrate the proportionality of the Proposal (**although we acknowledge this will be a matter for Ireland to evidence**). We believe this is particularly the case in light of the new evidence emerging about the risks of fracked gas which must trigger the precautionary principle, providing a degree of leeway to Ireland to act as it sees fit based on the dangers it perceives.

²⁷ Alfonso de Salas, *Manual on Human Rights and the Environment* (Council of Europe Publishing 2012) 8.

²⁸ Eugen Schmidberger, *Internationale Transporte und Planzüge v Republik Österreich* (n 3) Para. 74. In *Schmidberger*, the national authorities relied on the need to respect fundamental rights guaranteed by both the ECHR and the Constitution of the Member State concerned in deciding to allow a restriction to be imposed on one of the fundamental freedoms enshrined in the Treaty.

52. We submit that the Proposal is not arbitrary and does not represent a disguised restriction on trade in light of the domestic ban on fracking which has been in place since 2017.

53. Finally, we find that the absence of harmonisation in the EU energy sector means that Ireland is capable of introducing the Proposal.

EFTA Trade Rules

54. The principle of mutual recognition is not absolute in the EFTA, as Member States may still restrict imports if higher principles, such as public health, protection of the environment, or protection of fundamental rights, are at stake.

55. In conclusion, for this reason, the findings of the EU section also apply in the context of Ireland's participation in the EFTA.

WTO Trade Rules

56. Ireland has been a WTO member since 1 January 1995 and a member of GATT²⁹ since 22 December 1967. Like the EU system, discrimination between countries is prohibited, and foreign products shall not be treated less favourably than domestic products.

57. Nonetheless, there are exceptions to such rules, as contained in Article XX, which allow any WTO-member state to deviate from their commitments. However, Article XX, being an exception clause, only comes into play once a measure is found to be inconsistent with GATT rules on non-discrimination.

The principle of non-discrimination

58. The principle of non-discrimination is elaborated in three key provisions within the GATT:

- a. Article I: General Most Favoured National Treatment (members shall not discriminate between: "like" products from different trading partners);
- b. Article III: National Treatment on Internal Taxation and regulation (members shall not discriminate between its own and like foreign products (giving them "national treatment", GATT Article III);
- c. Article XI: General Elimination of Quantitative Restrictions (prohibits the use of quantitative restrictions, i.e. limits or quotas, on the import and export of goods).

59. It follows that if trade-related process and production (PPM) measures are to be consistent with WTO rules; they cannot result in discrimination between 'like' products.

²⁹ Gas is considered a good, not a service, for GATT purposes.

60. It also follows that quantitative PPM-based measures would, regardless of any specific findings on product likeness, be subject to the prohibition against quantitative restrictions under Article XI. It is accordingly necessary to show, firstly, that the prohibition in the Proposal is not an import ban within the meaning of Article XI.
61. We submit the Proposal does not fall within Article XI because, when considered in the broader Irish legislative framework, its effect is not to target imports alone (onshore hydraulic fracking has been banned domestically since 2017, and the same offences apply to domestic fracking as would apply to imports under the Proposal). In *EC-Asbestos*,³⁰ which concerned Canada's challenge to France's import, sale and use ban on asbestos and asbestos-containing products, the Panel noted that the fact France no longer produces these products domestically did not suffice to bring the measure within Article XI because the cessation of French production was a consequence of the measure and not the reverse. Thus, it was a measure which 'applies to an imported product and to the like domestic product' within the meaning of Article III.
62. The principle of non-discrimination under Articles I and III raises two key questions: Are products at issue 'like' products? If so, is the foreign product treated less favourably than the domestic product or than another foreign product?
63. In our view, fracked gas and conventional gas are not 'like' products and therefore a measure banning fracked gas imports would not be discriminatory, and would not violate the GATT rules.

Determining 'Likeness'

64. While 'likeness' is not defined within GATT, The Report on Border Tax Adjustment³¹ lists three criteria³² of a product for consideration in determining product likeness—a product's properties, end uses and consumer taste and habit, while also noting that the list is non-exhaustive, and outlining the importance of a case-by-case approach in determining both the meaning and application of product likeness under any given circumstance. These criteria, although never formally integrated within the actual treaty language, have been applied in virtually every GATT/WTO dispute-resolution decision undertaking a like product analysis since its adoption by the parties.

³⁰ European Communities – Measures Affecting Asbestos and Asbestos-Containing Products (Complaint by Canada) (2000) WTO Doc. WT/DS135/R at para. 8.126 (Panel report).

³¹ GATT, Report of the Working Party on Border Tax Adjustment, GATT Doc. 18d Supp. B.I.S.D. (1970) 102 [Report on Border Tax Adjustment].

³² These criteria overlap.

Product's properties

65. In the *EC-Asbestos* case (relating to an import ban to address the dangers posed to human health and safety from exposure to asbestos and products containing asbestos), Canada — the complainant — had to prove that products (containing asbestos) imported from Canada to France were like French domestic substitutes (PVA, cellulose and glass fibres) and that the French regulation accorded imported products "less favourable treatment" than like domestic products. In fact, in this case, the Panel found that domestic and imported products were "like", despite displaying physical differences due to their virtually identical end uses and substitutability.³³
66. However, the Appellate Board (AB) overruled this and explained that several criteria should have been taken into account by the Panel in the determination of likeness, including the competitive relationship between products, but also the "risk" to health posed by the two products, due to their different physical characteristics.
67. According to the AB, 'physical characteristics' necessitates a consideration of the physical properties of products (including those physical properties that are likely to influence the competitive relationship between products in the marketplace). For this purpose, physical properties such as those that make a product toxic or otherwise dangerous to health are also included, and health or environmental risks associated with a product could influence the preference of consumers. The AB concluded that the carcinogenicity, or toxicity, constituted a defining aspect of the physical properties of chrysotile asbestos fibres as opposed to polyvinyl alcohol, cellulose, and glass (PCG) fibres, which did not present the same health risk.

End Uses

68. As discussed, in *EC-Asbestos*, the Panel found that domestic and imported products were "like", despite displaying physical differences due to their virtually identical end uses and substitutability.³⁴ However, the AB reversed this finding and noted that the foundation for determining product likeness is not end-use, substitutability (or other functionality criteria) but rather the nature of the "competitive relationships" between such products:
- under Article III:4 of the GATT 1994, the term "like products" is concerned with competitive relationships between and among products. Accordingly, whether the Border Tax Adjustment framework is adopted or not, it is important under Article III:4 to take account of evidence which indicates whether, and to what extent, the products involved are—or could be—in a competitive relationship in the marketplace.
69. *EC-Asbestos* placed significant emphasis on scientific research demonstrating the potential health dangers associated with the products in question, indicating that requirements for 'substitutability' of end characteristics and end-use is potentially a lot higher when the non-economic interests at stake (e.g. potential health dangers) are high – and that these risks must be the decisive criterion.

³³ European Communities – Measures Affecting Asbestos and Asbestos-Containing Products (Complaint by Canada) (2000) WTO Doc. WT/DS135/R at para. 8.126 (Panel report).

³⁴ European Communities – Measures Affecting Asbestos and Asbestos-Containing Products (Complaint by Canada) (2000) WTO Doc. WT/DS135/R at para. 8.126 (Panel report).

Consumer taste and habit

70. *EC-Asbestos* demonstrates that a product's competitiveness goes beyond physical characteristics and end uses to encompass a wide range of consumer preferences and that the health or environmental risks associated with a product could influence the preference (choice) of consumers and thereby determine product unlikeness.
71. This emphasis on both competitive relationships and consumer taste and habit also provides for the possibility of determining product likeness on criteria unrelated to actual functionality, such as process and production methods (PPMs), even in circumstances where the PPM does not leave a trace in the final product (non-product related PPMs), where it can be shown that consumers distinguish between products based on their PPMs. Both product-related and non-product related PPMs are lawful under GATT rules.

Application of this analysis

72. While fracked gas might superficially appear to have the same physical characteristics as conventional gas (e.g. a methane molecule is a methane molecule), scientists have shown that fracked gas has a unique chemical signature that can be identified in the atmosphere (i.e. methane from shale is different than methane from other geological layers),³⁵ and which is released at all stages of the supply chain; in other words, fracked gas possesses different physical characteristic to that of its conventional counterpart.
73. The scientific evidence (**Annex 2**) shows that the fracked gas production method pollutes and degrades the overseas environment (particularly the fracking host community where the fracking takes place) as well as the global environment due to climate impacts, and causes risks to human health and safety. Furthermore, the *end product itself* (the import) further pollutes and degrades these environments, causing further health, safety and environmental risks, including by its transportation, storage and use in Ireland. **Annex 2** sets out how fracked gas molecules, with their signature chemical footprint identifiable in the atmosphere, would be released from LNG terminals in Ireland. These emissions also possess a bigger carbon footprint than their conventional counterparts, making them deadlier to Irish consumers from a climate and public health perspective.
74. We submit that applying the AB's approach in *EC-Asbestos*, these risks are also relevant in determining that fracked gas has different physical characteristics, including because the fracking-PPM leaves a trace in the final product.

³⁵ Leahy, S., 2019. *Fracking Boom Tied To Methane Spike In Earth's Atmosphere*. [online] Nationalgeographic.com. Available at: <https://www.nationalgeographic.com/environment/2019/08/fracking-boom-tied-to-methane-spike-in-earths-atmosphere/>.

75. Furthermore, or in the alternative, we submit that these risks are, in any event, likely to influence the competitive relationship between products in the marketplace and affect the preference of consumers. **Annex 3** also provides evidence that the Irish public perceives and treats conventional gas and fracked gas differently. Inter alia, this is due to extraterritorial concerns such as impacts on local fracking communities. **(Note that the evidence we have provided at Annex 3 is not exhaustive, but rather indicative, and it would be for Ireland to evidence the public concern on this issue through factors such as opinion polls; legislative support for both the 2017 domestic ban on fracking and for the Proposal to ban foreign imports; civil society initiatives; and evidence regarding consumer preferences.)**
76. That the end-use of fracked gas and conventional gas is mostly the same is not disputed; however, the foundation for determining product likeness is not end-use, substitutability (or other functionality criteria) but rather the nature of the "competitive relationships" between such products (*EC-Asbestos*).
77. In sum, the difference in physical characteristics (including due to the risks posed by fracked gas as evidenced by scientific research), the propensity of Irish consumers to differentiate based on these risks and fracking's broader impacts, means that fracked gas and conventional gas must be viewed as 'unlike' products.
78. Because the two products are not 'like', there is, in fact, no need to consider the question of whether imported products are treated in a less favourable manner than domestic products – however, and solely for the sake of completeness, this question will be briefly considered.

If the products were "like products", would discrimination occur?

79. The crux of the non-discrimination principles of WTO law is that WTO Members may not distinguish in a discriminatory fashion between "like" products. If two products are found to be "like", one product cannot be treated less favourably than the other product. If the two products are not "like", then Ireland is free to treat the two products differently.
80. If two products are found to be "like" in nature, for a measure to be discriminatory, it must be shown that it either affords protection for domestic products (contrary to Art. III national treatment) or provides an "advantage" unique to some GATT members (contrary to Art. I MFN treatment).
81. However, in this case, because fracking has been banned domestically since 2017, and because the Proposal bans all fracking imports from all countries equally and without exception, we are of the view that no discrimination exists.

Article XX GATT

82. Again, because the ban does not violate Articles I and III GATT, there is no need to consider if it can be justified under Article XX. As such, the following, brief, assessment is included for completeness only.
83. In our view, the Proposal can be justified based on GATT Article XX (a) – necessary to protect public morals; XX(b) – necessary to protect human, animal or plant life or health, or XX(g) – relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption.

GATT Article XX (a) – necessary to protect public morals

84. Because the Proposal seeks to address the public concern (**Annex 3**) amongst the Irish public about fracking’s PPM, it is submitted that the Proposal is justifiable based on being necessary to protect public morals. Arguably, the Irish public is genuinely concerned about a decision to ban domestic fracking based on its social and environmental impacts, while simultaneously allowing the importation of fracked gas from abroad.
85. Article XX (a) does not set a jurisdictional limit to public morals; however, if a jurisdictional link is required, then domestic consumers and their concerns (which have no territorial limits) would represent that jurisdictional link.
86. We submit that nothing short of a trade ban would address the public concern amongst the Irish public on this issue and that Ireland must be granted autonomy to determine the appropriate level of protection in this instance. This is particularly the case as this moral concern relates to matters of serious concern to the public good, including health and environmental matters, and is inextricably linked to EU and international human rights and environmental law norms, including a desire to ensure the rights to health and life for all peoples everywhere.

GATT Article XX(b) – necessary to protect human, animal or plant life or health

87. Secondly, we submit that the Proposal can also be justified based on being necessary to protect human health and the environment under Article XX(b). The concerns the Proposal seeks to address by banning trade in fracked gas are matters of critical importance to the public good and are also matters which a member state must be supported to protect at the level of protection it deems appropriate (*EC-Asbestos*), particularly in light of the scientific evidence, and bearing in mind the future economic cost to Ireland of failing to address the climate impacts of fracked gas properly.

88. Should a link with Ireland's national interest be required, we submit that Ireland's 'use' of fracked gas with associated impacts for Ireland's own territory and citizens (including due to transboundary harms in the fracking supply chain), but also for the global commons, would constitute a sufficient nexus to bring extraterritorial health, safety, and environmental impacts within scope.³⁶

GATT Article XX (g) – relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption.

89. Thirdly, we submit that the Proposal can also be justified on the basis that the Proposal relates to the protection and conservation of an exhaustible natural resource (which we submit must also be understood to mean a stable climate) and is consistent with domestic anti-fracking legislation; as such it has impacts which are roughly equivalent and parallel to impacts on domestic products.
90. A clear nexus with Ireland's national interest is present in light of Ireland's domestic ban on fracking which aims to protect and conserve natural resources and preserve a stable climate in light of the threat climate change poses to these resources and the potential impacts for Ireland's citizens,³⁷ as well as those in other countries.

Other requirements of Article XX

91. The Proposal would also need to satisfy the good faith conditions in the "chapeau" section of Article XX to qualify for an exception, which requires that it not "constitute a means of arbitrary or unjustifiable discrimination" or a "disguised restriction on international trade."
92. We submit that, because the domestic prohibition on fracking has applied since 2017, the Proposal is not a disguised restriction on international trade. Furthermore, the measure is related to the characteristics of fracked gas and applies equally regardless of origin.
93. In our view, in light of the social and environmental concerns at issue, Ireland is under no duty to negotiate the prohibition contained in the Proposal.³⁸ This is because (a) Ireland has no duty to submit its moral standards to international negotiation; and (b) it would also be impractical and ineffective to negotiate in the face of the urgent health, safety and environmental issues associated with fracked gas.

³⁶ The case of *Shrimp Turtle* suggests that some identifiable level of domestic effect (in that case, turtles migrating in and out of U.S. waters) would appear a sufficient nexus to make measures with an extraterritorial effect permissible. *United States – Import Prohibition of Certain Shrimp and Shrimp Products (Complaint by India, Malaysia, Pakistan and Thailand)* (1998), WTO Doc. WT/DS58/R (Panel Report) [*Shrimp Turtle Panel*]; *United States – Import Prohibition of Certain Shrimp and Shrimp Products (Complaint by India, Malaysia, Pakistan and Thailand)* (1998) ETO Doc. WT/ DS58/AB/R (Appellate Body Report)[*Shrimp Turtle*].

³⁷ Again, *Shrimp Turtle* suggests that some identifiable level of domestic effect would be sufficient. The AB concluded in *Shrimp Turtle* that, "there is a sufficient nexus between the migratory and endangered marine populations involved and the United States for purposes of Article XX(g)."

³⁸ Sometimes a duty to negotiate is required, e.g. *US—Gasoline*, but this is based on the circumstances of each case. There is no general duty to negotiate.

94. In our view, this also means that there should be no duty on Ireland to take different situations of different countries into account.³⁹ We would submit that the urgency of the climate situation requires that nothing short of a prohibition would be sufficient or effective to address these concerns.

95. In conclusion, we, for the reasons outlined above, find that the Proposal does not violate the GATT non-discrimination principle because fracked gas and conventional gas are not “like” products. This is because the products have different physical characteristics (including due to the risks posed by fracked gas), and the fact that Irish consumers differentiate between these products based on these risks and fracking’s broader impacts.

96. It is our view, that even if the products were found to be “like products”, there is still no discrimination in light of the domestic ban on fracking in Ireland which has been in place since 2017 (which precludes a domestic market in fracked gas), and because the Proposal applies to fracked gas from all trading partners without discrimination.

97. We also present a further alternative argument that, even if these products were found to be “like products”, and even if discrimination was found to occur, the Proposal would still be justifiable under the Article XX exceptions for environmental and human health protection, and under the exception of being necessary to protect public morals. In our view, the Proposal satisfies the other requirements of Article XX because it is not applied in a manner which would constitute “a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail”, and is not “a disguised restriction on international trade” in light of the 2017 domestic ban. We place reliance on the urgency of the situation, and on the evidence of public concern, to show that any discrimination is not unjustifiable.

Cassie Roddy-Mullineaux

Sophie Fitzpatrick

Colin Carney

10 November 2020

³⁹ *Shrimp Turtle* shows that the AB will look to the extent to which “different situations” of different countries are taken into consideration in the consultative process.

Annex 1: The legislative Proposal

Amendment of Petroleum and Other Minerals Development Act 1960

Chapter IIA of Part II of the Petroleum and Other Minerals Development Act 1960 is amended:

(a) in section 5A by the insertion of the following definition after the definition of 'enactment':
"‘fracked gas’ means petroleum got, raised, taken, carried away or worked by means of hydraulic fracturing;"

(b) by the insertion after section 5C of the following section:

“Prohibition on the importation of fracked gas

5D. (1) Notwithstanding anything in this Act or any other enactment or rule of law, it shall not be lawful for a person to import or sell fracked gas.

(2) For the purpose of the Customs Act, 2015, the importation of fracked gas is hereby prohibited.”

(c) by the insertion in section 5C after the words “section 5B” and before the words “shall be guilty” of the words “or subsection (1) of section 5D”.

Annex 2: Scientific evidence on the impacts of fracking on the environment and health

1. Health and environmental impacts in the host community

Gorski, I. and Schwartz, B.S., 2019. Environmental Health Concerns from Unconventional Natural Gas Development. In Oxford Research Encyclopedia of Global Public Health.

Available at:

<https://oxfordre.com/publichealth/view/10.1093/acrefore/9780190632366.001.0001/acrefore-9780190632366-e-44>

- This is a recent comprehensive study, published in the Oxford Research Encyclopedia of Global Public Health in February 2019, which gathered several hundred scientific articles about the community and health impacts of fracking, and found that there was enough evidence about fracking's health impacts to make them of serious concern to policymakers interested in protecting public health. This included a number of documented health impacts, the most concerning being negative impacts on pregnancy and birth outcomes. The study also found evidence that water pollution, air pollution, and soil contamination caused by the industry have been linked to adverse health impacts through both exposure to toxic chemicals released during fracking and through increased stress and anxiety caused by the increased light, noise, and truck traffic associated with fracking.

Ireland, Environmental Protection Agency

- A five-year study was published by Ireland's Environmental Protection Agency (EPA) in 2017 which found that fracking has the potential to damage both the environment and human health and was one of the reasons for the 2017 domestic ban. A total of eleven reports were published on the subject and can be found here: <http://www.epa.ie/pubs/reports/research/ugeejointresearchprogramme/>

Concerned Health Professionals of New York & Physicians for Social Responsibility, Compendium of Scientific, Medical, and Media Findings Demonstrating Risks and Harms of Fracking (Unconventional Gas and Oil Extraction), Sixth Edition, June 19, 2019, available at http://concernedhealthny.org/wp-content/uploads/2019/06/Fracking-Science-Compendium_6.pdf

- The Compendium of Scientific, Medical, and Media Findings Demonstrating Risks and Harms of Fracking (the Compendium) is a fully referenced compilation of evidence outlining the risks and harms of fracking. It is a public, open-access document that is housed on the websites of Concerned Health Professionals of New York (www.concernedhealthny.org) and Physicians for Social Responsibility (www.psr.org).
- An overview of the Compendium's contents by Dr. Carroll O'Dolan, MRCGP General Practitioner and Health Spokesperson for Fermanagh Fracking Awareness Network (www.frackaware.com) is at **Appendix 2A**.

2. Global health and environmental impacts due to climate change

Gorski, I. and Schwartz, B.S., 2019. Environmental Health Concerns from Unconventional Natural Gas Development. In Oxford Research Encyclopedia of Global Public Health

- This 2019 study by Gorski and Schwartz (also referenced above) found evidence of the fracking industry's effect on climate change which would lead to further health and environmental impacts including, but not limited to, heat-related illness and death, increased respiratory diseases, increases in insect-borne diseases, increased mental health impacts from forced migration and civil conflict, and health impacts from severe weather events.

Joint Oireachtas Committee on Climate Action, Wednesday 9 October 2019:

https://www.oireachtas.ie/en/debates/debate/joint_committee_on_climate_action/2019-10-09/2/

- Scientific testimony by New York's Cornell University Professor, Robert W. Howarth, at the Joint Oireachtas Committee on Climate Change (JOCCA) hearing in October 2019 clarified that importing fracked gas from the US has a carbon-equivalent footprint 44% greater than that of the coal of Moneypoint (without even considering the emissions from the LNG transport itself). Professor Howarth further stated that *"if Ireland were to import LNG from the United States, it would largely be shale gas"*. He said that *"Methane is an incredibly powerful greenhouse gas, more than 100 times more powerful than carbon dioxide compared gram to gram"*. His latest peer-reviewed research has found that *"shale gas development in North America is the single largest driver of this increase in methane, accounting for one-third of the increase in global emissions from all sources"*. He went on to *"estimate that the use of shale gas imported as LNG to Ireland, would create greenhouse gas emissions of 156g CO₂-equivalents per MJ, or a foot-print 44% greater than that of coal"*. He urged Ireland to prohibit the importation of fracked shale gas from the United States. Professor Howarth explained that *"if we do not reduce methane emissions, the Earth will shoot through the 2 degree Celsius mark within the next 20 to 30 years, with devastating consequences"*.
- See for a further record of the JOCCA hearing, Safety Before LNG, Press Release, 14 October 2019, 'Scientists prove the importing US fracked gas into Ireland is a race to the bottom with a carbon-equivalent footprint 44% greater than coal', <http://safetybeforelng.ie/pressreleases/pressrelease20191014-ScienceAgainstFrackedGasImportsBeatsRaceToTheBottom.html>

The Permanent Peoples' Tribunal

- The [Permanent Peoples Tribunal on Human Rights, Fracking and Climate Change](#) Advisory Opinion published in April 2019 found: "The evidence presented to the PPT, along with other publicly available material it has considered in its deliberations, clearly demonstrates that "fracking" or, more broadly, unconventional oil and gas extraction (UOGE) poses many and varied consequential dangers to the rights of humans and nature. From many jurisdictions around the globe, the evidence is overwhelming: first, UOGE is a major contributor to the crisis the world is facing at the "climate crossroads"; second, the dangers of UOGE to the rights of people,

communities and nature are inherent in the industry, and that such dangers all too often result in serious, even catastrophic violations of those rights. Where UOGE operations impact, local ecosystems are destroyed and that of the planet comes under threat.”

2.1 New evidence regarding the fracking supply chain

- Howarth, R.W., 2019. Ideas and perspectives: Is shale gas a major driver of recent increase in global atmospheric methane. *Biogeosciences*, 16(15), pp.3033-3046.
 - Recent evidence has also emerged about the fracking supply chain in the form of a new study by Robert Howarth which has allowed scientists to track a link between recent increases in methane in the atmosphere and fracked gas production due to the unique chemical signature which fracked gas leaves in the atmosphere (which is different to that of conventional gas). The study indicates that the lighter form of methane released during fracking is a substantial component of the overall methane rise since 2008, demonstrating the scale of fracking's contribution to climate change (it has been well documented that methane is a heat-trapping gas with significant global warming potential). Significantly, the study also shows how methane is emitted into the atmosphere due to leaks and emissions at the well site, during processing and storage, and from transportation in pipelines – in other words at all stages of the fracked gas supply chain. This means that methane emissions from fracked gas (which are capable of being identified in the atmosphere by virtue of their unique chemical signature), would be emitted from LNG terminals in Ireland which are transporting, storing or 'using' fracked gas.
- See for a useful summary of the above-mentioned Howarth study, Leahy, S., 2019. Fracking Boom Tied To Methane Spike In Earth's Atmosphere. *Nationalgeographic.com*. Available at: <https://www.nationalgeographic.com/environment/2019/08/fracking-boom-tied-to-methane-spike-in-earths-atmosphere/>

3. Further evidence of the differential in climate impacts between fracked gas and conventional gas

- The fact that GHG emissions from fracked gas are greater than conventional gas (and coal or oil) is acknowledged in a September 2011 statement by the European Commission's DG Environment, available at https://ec.europa.eu/environment/integration/research/newsalert/pdf/251na1_en.pdf
- A new study by the Institute for Advanced Sustainability Studies (IASS) has estimated emissions from shale gas production through fracking in Germany and the UK, and shows that CO₂-eq. emissions would exceed the estimated current emissions from conventional gas production in Germany. See: Cremonese, L, Weger, LB, Denier Van Der Gon, H, Bartels, M and Butler, T. 2019. Emission scenarios of a potential shale gas industry in Germany and the United Kingdom. *Elem Sci Anth*, 7:

18. DOI: <https://doi.org/10.1525/elementa.359> available at https://publications.iass-potsdam.de/rest/items/item_4325890_3/component/file_4330893/content

- See also Howarth, R.W., 2014. A bridge to nowhere: methane emissions and the greenhouse gas footprint of natural gas. *Energy Science & Engineering*, 2(2), pp.47-60.

Annex 2A: Dr Carroll O’Dolan, MRCGP, General Practitioner, Compendium Overview

The impact of unconventional hydrocarbon development on Health. *An overview October 2020. Version 2.2*

The information below is drawn from the CHPNY compendium. CHPNY stands for 'Concerned Health Professionals of New York State' and is made up mostly, but not exclusively, of Doctors, Nurses & Medical Academics. Their website is www.concernedhealthny.org this very important compendium is updated every 12-18 months and is 'open access' to all, both researchers & public. The first edition in 2014 was 70 pages, it is now more than 360 pages of research.

Unconventional hydrocarbon extraction keeps changing its name, best known as 'Fracking'; it is, in all its different names & guises, used to extract petroleum products from underground. The commonest hydrocarbon extracted this way is methane gas, usually from shale or sandstone. It is very damaging to the environment but is especially damaging to human health. Two of the more common names are HVHF [high volume hydraulic fracking] or UGEE [unconventional gas exploration & extraction] all amount to the same thing. It involves multiple frack well pads each about two hectares [5 acres] every 1 to 2km in all directions with connecting roads, pipes and compressor stations. Vast quantities of polluted air and water [both above and below ground] are produced even before the gas is burned.

Below is summarised a small fraction of points from current compendium which covers 16 major topics relating to HVHF. A full read of all fracking's' negative impacts is both very long and very shocking. The Public Health section, pages 155 to 172, reveals a litany of never-ending and wide-ranging disasters inflicted upon hundreds of communities; everything from increased road traffic accidents to higher rates of chlamydia and gonorrhoea. I begin with the conclusion from the current [June 2019] sixth edition:

' All together, findings to date from scientific, medical, and journalistic investigations combine to demonstrate that fracking poses significant threats to air, water, human health, public safety, community cohesion, long-term economic vitality, biodiversity, seismic stability, and climate stability.

The rapidly expanding body of scientific evidence compiled and referenced in the present volume is massive, troubling, and cries out for decisive action. Across a wide range of parameters, from air and water pollution to radioactivity to social disruption to greenhouse gas emissions, the data continue to reveal a plethora of recurring problems and harms that cannot be sufficiently averted through regulatory frameworks. There is no evidence that fracking can operate without threatening public health directly and without imperilling climate stability upon which public health depends. The only method of mitigating its grave harm to public health and the climate is a complete and comprehensive ban on fracking.

In closing, we cite comments by epidemiologist Irena Gorski, co-author of the 2019 review of fracking's health concerns published in the Oxford Research Encyclopaedia of Global Public Health. Her words speak for all who have contributed to this Compendium:

What we found pushes back against the narrative we often hear that say we don't know enough about the health impacts yet. We have enough evidence at this point that these health impacts should be of serious concern to policymakers interested in protecting public health....As a fossil fuel, natural gas extraction and use is contributing to climate change, of course. But before conducting this study, I didn't realize the amount of evidence we have that it may be even worse than coal. We included this in our study because climate change has its

own contributions to health impacts. These indirect impacts will take longer to appear than the direct health impacts, but they have the potential to be significant.'

Air pollution:

Infant deaths rose six fold in Uintah, Utah over a three year period after the advent of fracking in the area. 'We know that pregnant women who breath more air pollution have much higher rates of virtually every adverse pregnancy outcome that exists'. {p171}

Lower birth weight and increased premature births [both predictors of increased risk of lifelong ill health] associated with mothers living near fracking sites; cause- air pollution. {p171}

Increased congenital heart defects [and possibly neural tube defects] if mother lived within ten miles [16km] of fracking area. {p171}

Colorado researchers found that BTEX [benzene, toluene, ethyl benzene and xylene] four common air pollutants from fracking operations can interfere with human hormones even at levels below the recommendations. BTEX cause sperm abnormalities reduced foetal growth, heart and lung disease. {p57}

281% predicted increase in Volatile Organic Compounds [VOCs; known carcinogens and neurological disruptors] due to HVHF in Eaglesford, Texas. {p62}

Review of existing data on air pollutants from fracking operations 'support precautionary measures to protect the health of infants and children' {p54}

The John Hopkins University discovered that asthmatic patients are 1.5 to 4 times more likely to suffer an asthma attack if living close to a fracking site compared to people living further away. The study was praised by an independent scientist for its "rigorous research methods". {p164}

91% increase in thyroid cancer in people living near shale gas developments. {p163}.

Elevated levels of polycyclic aromatic hydrocarbons found near frack sites. These hydrocarbons are linked to cancer risk, respiratory distress and poor birth outcomes. {p49}

Helicopter survey reveals that methane & VOC leakage at well heads much higher than found in earlier audits. An Engineer given his opinion on study stated 'It makes regulation very difficult. If you have all these possible sites where you can have leaks, you can never have enough inspectors with all the right equipment being in all the right places at all the right times. It is too complex a system'. {p54}

University of Maryland study shows that fracking can pollute air hundreds of miles downwind of well pads. {p58}

Dangerous levels of benzene in air around fracking sites; Health Official states 'The concerns of the Public are validated'. {p64}

American Lung Association states air quality in rural areas close to fracking sites now worse than air quality in urban areas. {p65}

Research estimates total annual VOC emissions at fracking sites are equivalent to 100 million cars [USA currently has 150M cars on its roads]. {p63}

University of California meta-analysis of 37 peer reviewed studies on air pollutants associated with fracking identified 61 hazardous pollutants. These pollutants are all either known to [or suspected to] cause cancer, birth defects and reproductive harm or other serious health effects. {p46}

The Colorado School of Public Health showed an increased risk of ill health, both cancer & non-cancer, of people living near frack pads. {p66}

Parts of Utah, previously with pristine air quality, now have levels of smog and pollution that rival downtown Los Angeles. {p60}

Albany University study shows eight highly toxic chemicals in air samples collected near fracking sites across five states. Most common were benzene & formaldehyde; 29 out of 76 samples far exceeded federal health & safety standards. Lead researcher stated 'Cancer has a long latency, so you're not seeing an elevation in cancer in these communities [yet]. But in five, 10, 15 years from now, elevation in cancer is almost certain to happen'. {p59}

For people living within 160m of a frack pad/well lifetime cancer risks were eight times higher than the EPA's [United States Environmental Protection Agency] upper threshold. Elevated levels of benzene and alkanes were of particular concern. {p49}

Water Pollution:

HVHF wells have significant leakage/ integrity problems in both the short & long term. Percentage of leaking wells varies from 5% [immediately], to 50+% at 15 years {p119/124}. The earthquakes triggered by fracking damage both the well casing and also the cement, further increasing the well failure rates {p123/124}. Industry has no solutions for rectifying this chronic problem. Polluted frack waste water, usually tens of millions of litres per frack pad, is lost long term to the hydrologic cycle {p168}. Leaking wells also allow methane to directly enter the atmosphere and exacerbate climate change.

Cornell University study showed that fracking fluid and the flow back water interfere with the ability of soil to bond to and sequester pollutants such as heavy metals. Thus fracking fluids may release from soils an additional repository of contaminants that could migrate into ground water. {p107}

University of Missouri team tested chemicals used in one frack area. Of the 24 fracking chemicals tested, all 24 interfered with one or more hormone receptors in humans. There is no safe level of exposure to hormone disrupting chemicals. {p107}

Many confirmed cases of drinking water contamination from fracking in Pennsylvania, Ohio, West Virginia & Texas, thus casting doubt on Industry view that this rarely or never happens. {p109}. A Pennsylvania Court found a gas corporation guilty of contaminating a home owner's drinking water; methane levels were 1,300 to 2,000 times higher than the baseline. {p108}

U.S. Geological Survey [USGS] study of groundwater pollution at HVHF site in North Dakota found that an area of 12 square miles was the result of a well casing failure. Another USGS report into fracking states 'the knowledge of how extraction affects water resources has not kept pace with the technology'. {p110}

Frack wastewater is the flow back water that returns back up the well after it has been fracked. The volume is usually between 5 to 10 million litres, per well fracked. There may be ten to 16 wells per frack pad and each well can be fracked several times. This huge volume of highly

contaminated frack wastewater is a very serious pollution hazard. “There is no known solution for the problem of fracking wastewater. It cannot be filtered to create clean drinking water, nor is there any safe method of disposal. Recycling is an expensive, limited option that increases radionuclide levels of subsequent [more concentrated] wastewater. Underground reservoirs that receive fracking wastewater via injection into disposal wells, a practice that is linked to earthquakes, are reaching capacity in many regions in the United States.” {p69}

EPA report demonstrates that a HVHF well that was fractured at 1300m [4,200 feet] contaminated a water supply only 120m [400 feet] from the surface. This dispels the myth that HVHF cannot cause contamination more than 500m away. {p116}

Oil & Gas operators generally opt for out of court settlements that include ‘non-disclosure’ agreements [gagging clauses]. This strategy keeps data from regulators, policymakers, the media and health researchers and makes it difficult to challenge the claim that fracking has never tainted anyone’s water. {p112}

Stanford, Duke & Ohio State joint assessment of fracking data shows that vertical fractures can propagate to over 600m upward, thus risking contaminating any water sources. The planned area in Fermanagh will be shallow fracking. {p93}

EPA concedes that insufficient baseline drinking water data & lack of long term systematic studies limited the power of its findings; meaning the contamination the EPA found near fracking sites could be easily denied by the Industry. {p95}

Stanford University researchers document that fracking in shallow layers of bedrock, including those that serve as drinking water aquifers, is not uncommon. This is because the HVHF industry is exempt from the Safe drinking Water Act. {p106}

West Virginia EPA confirmed that three private drinking water wells were contaminated by a fracking company when it mistakenly drilled into its own well, resulting in benzene being detected in the drinking water at four times the legal maximum limit. {p102}

Pennsylvania EPA fine drilling company \$4,500,000, in 2014, for contaminating groundwater due to leaking frack waste-water pits. {p103}

Public Health.

MVC [motor vehicle collisions], including fatal MVCs up by 50% since fracking boom began, especially on rural roads in fracking areas. More than 27% of fracking trucks operating with potentially life-threatening problems such as defective brakes. {p170}

An Ohio ‘Quality of life survey’ of residents living near UGEE development, 100% of respondents had experienced stress issues due to fracking, these included; fear of environmental harm, dangerous encounters with fracking lorries and divisions in within the community. {p174} Stress in all its forms is widely recognised as a risk factor for many adverse effects including heart attacks and strokes. Pennsylvania study showed more than 50% of people living near fracking sites were stressed; witnessing corruption, complaints being ignored and being denied information or given false information. {p179}

Researchers in Pennsylvania found more than 50% of people living near fracking sites could not sleep properly due to noise of operations; excess noise is known to increase the risk of hypertension and heart disease. {p173}

John Hopkins School of Public Health study found that indoor radon levels in Pennsylvania homes rising since 2004 when fracking arrived in State; radon is the second leading cause of lung cancer worldwide, after smoking. A Geochemist warned “Once you have a release of fracking fluid into the environment you have a radioactive legacy. {p130, p132} Fermanagh already has one of the highest levels of background radon levels in the British Isles and it is thus a significant health risk; any further increase in radon would be very detrimental to public health, specifically increasing the cases of people developing lung cancer.

Duke University researchers found water contamination from ‘spills’ was remarkably persistent in the environment. The bigger the spill, the higher the radioactivity level. {p129}

University of Pittsburgh study linked low birthweight infants with fracking in three Pennsylvania counties. Low birth weight is a leading cause of infant mortality. {p167}

Increase in hospital admissions seen for cardiology and cancer for people in Pennsylvania living near fracking wells. No such increase in health problems were observed in a control county with no fracking industry. {p166}

North Dakota HIV/AIDS cases double between 2012-2014, Director of disease control attributes this to the ‘man camps’ and human trafficking for prostitution associated with the fracking industry. {p169}

Yale University found that county’s with high shale gas drilling levels had a 20% increase in syphilis and gonorrhoea rate. These rates of infection continue to climb even after the workers leave. {p159} Hospital Emergency Department use up by over 300% and ambulance calls up more than 200% since arrival of fracking industry in North Dakota. {p170}

Climate Change.

The IPCC [The Intergovernmental Panel on Climate Change] state that methane is 86 times more potent at trapping heat [greenhouse gas] than carbon dioxide over a twenty year period {p260}. Methane leakage seriously worsens climate change. The Medical community now has very strong evidence that climate change has a serious negative impact on public health, and this impact will only worsen in the future if we don’t act. Methane leakage rate is averaging at least 8% from HVHF wells, up from 6% five years ago {p261/262}. Even if a very low leakage rate for methane of 2 or 3% was even achievable, methane would still be much more damaging for climate change over the medium [20 year] or long-term [100 year] time span than the carbon dioxide produced by coal fired power stations. Thus both need to be phased out as soon as possible.

Dr. Carroll O’Dolan. MRCGP General Practitioner.

Health Spokesperson for FFAN [Fermanagh Fracking Awareness Network]
www.frackaware.com

Annex 3: Evidence of Public Concern

Programme for Government 2020

The [2020 Programme for Government](#) provides as follows:

“We will:...

Support the tightening of the sustainability assessment rules prior to the approval of any projects on the EU PCI list.

...As Ireland moves towards carbon neutrality, we do not believe that it makes sense to develop LNG gas import terminals importing fracked gas, accordingly we shall withdraw the Shannon LNG terminal from the EU Projects of Common Interest list in 2021.

We do not support the importation of fracked gas and shall develop a policy statement to establish that approach.

We will ensure that local development plans are developed to stimulate economic activity for those areas which were expecting economic development arising from new fossil fuel infrastructure. As part of that we will consider the potential of the Shannon Estuary in terms of regional economic development across transport and logistics, manufacturing, renewable energy and tourism, and develop a strategy to achieve that potential with support from the Exchequer.

...We are conscious of the limitations of examining greenhouse gas emissions solely on a production basis. We will conduct a review of greenhouse gas emissions on a consumption basis, with a goal of ensuring that Irish and EU action to reduce emissions supports emission reductions globally, as well as on our own territories”.

Other political pledges and statements

The 2017 legislative ban on domestic fracking passed with widespread public support and cross-party political support. The Sligo County Council [County Development Plan 2017-2023](#) contains a written policy against fracking. The [Donegal County Development Plan 2018-2024](#) also contains an explicit policy against fracking. These are indications of how seriously the health and environmental impacts of fracking are already taken in Ireland.

Regarding the importation of fracked gas:

On 5 November 2018, Leitrim County Council [unanimously passed](#) the following motion:

“That Leitrim County Council support the community in Ballylongford, Co Kerry that are concerned about the construction of a regasification terminal that will bring shale gas from America into Ireland.”

On November 11th, 2019 Cork City Council [passed a motion](#) stating:

“That Cork City Council will write to the Port of Cork requesting that it ends all memorandums of understanding to jointly develop facilities in Cork Harbour to enable the importation of Liquefied Natural Gas extracted using hydraulic fracturing anywhere else in the world and that this letter be copied to the Minister for Communications, Climate Action and Environment.”

On November 25th, 2019 Cork County Council [passed](#) the following motion:

“The public health and environmental reasons for the banning of ‘fracking’ in Ireland, legislated by Dáil Éireann through the ‘Petroleum and Other Minerals Development (Prohibition of Onshore Hydraulic Fracturing) Act 2017’;

The international scope of adhering to the UN Sustainable Development Goals, reaffirmed in the Climate Charter signed by all local authorities in Ireland in October 2019;

The Global Covenant of Mayors for Climate and Energy, to which Cork County Council is a signature party:

“That Cork County Council will write to the Port of Cork requesting that it ends all memorandums of understanding to jointly develop facilities in Cork Harbour which would enable the importation of liquefied natural gas extracted via hydraulic fracturing, and that this letter be copied to the Minister for Communications, Climate Action and Environment.”

Almost half of the TDs elected to the Dáil in 2020 signed a pledge stating that they were "opposed to the importation of US fracked Gas into Ireland via LNG import terminals". Before the 2020 General Election, in their [#Pledge4Climate](#) campaign, environmental NGOS 'Love Leitrim', 'Friends of the Earth' and 'Safety Before LNG' obtained support from at least 193 candidates for the General election held on February 8th, 2020, for the pledge which stated:

"I am opposed to the importation of US fracked Gas into Ireland via LNG import terminals. If elected, I, as a T.D., will work to find a way in the next Dail to prevent fracked Gas from entering the Irish energy mix via fixed or floating LNG terminals. I am opposed to fracking in Northern Ireland. If elected, I, as a T.D., will work constructively in the next Dail to prevent fracking from taking place in Northern Ireland".

74 of those candidates were elected and this included all the elected T.D.s from the Labour Party, The Social Democrats, People Before Profit, The Green Party, Independents for Change, and Sinn Fein, along with leading elected Fianna Fail and Fine Gael T.D.s Eamon O’Cuiv, Marc McSharry and Frank Feighan.

These numbers were boosted by the clear positions against Fracking taken by Fianna Fail in the Dail on October 3rd, 2019 "[in recognition of the health and climate impacts of exploiting shale gas reserves](#)".

Also on October 3rd 2019, the Majority of Ireland's MEPs [told](#) the European Commission not to allow fracked gas into Ireland via the Projects of Common Interest list. The Irish MEPs were supporting a motion co-signed by 44 TDs initiated by Brid Smith TD, submitted to the Dail on September 26th, 2019 calling on the Irish Government:

"to remove any project from the proposed list of Projects of Common Interest that could support the building of an LNG facility in Ireland that will act as a gateway for fracked gas entering the Irish energy mix; and – to build support in Europe to prioritise sustainability criteria in the assessment of candidate PCI projects, that will address fossil fuel lock in and the long-term impacts of fracked gas in the European energy mix, given the expected change in climatic conditions."

On November 27th, 2019, in a signal of Government attention to the issue, Taoiseach Leo Varadkar, speaking in the Dail [stated](#):

"The Government banned fracking in Ireland, through a Private Members' Bill introduced by my colleague, Deputy McLoughlin. I am not sure whether we are in a position to ban the import of fracked gas from other jurisdictions. I will have to check it out".

On February 12th, 2020 the majority of Irish MEPs (including [Fine Gael's Maria Walsh](#)) [voted against](#) the 4th PCI list which included the proposed Shannon LNG fracked gas import project.

On July 14th, 2020 South Dublin County Council [passed by a majority of 24 votes to 5](#) the following motion:

"That this Council, in line with the recently declared Climate and Biodiversity Emergency, calls on the Minister for Climate Action, Communications Networks and Transport to remove the Shannon LNG terminal from the Projects of Common Interests List and to use all powers at his disposal to bar any further new LNG terminal projects from commencing."

On October 13th, 2020 The Northern Ireland Assembly [unanimously passed a motion](#) stating:

"That this Assembly recognises the moratoria, in various forms, on fracking in England, Scotland and Wales and the ban on fracking in the Republic of Ireland; notes that this motion builds on the 2015 Strategic Planning Policy Statement presumption against the exploitation of unconventional hydrocarbon extraction in Northern Ireland; acknowledges its responsibility to protect public health and the environment; and calls on the Executive to instigate an immediate moratorium on petroleum licencing for all exploration for, drilling for and extraction of hydrocarbons until legislation is brought forward that bans all exploration for, drilling for and extraction of hydrocarbons in Northern Ireland"

On October 22nd, 2020 Fermanagh and Omagh District Council [passed a formal motion against fracking and fracked gas imports](#), as follows:

"That this council restates its opposition to shale gas exploration and extraction by the process of hydraulic fracturing, otherwise known as 'fracking' and further opposes the importation of fracked gas to the island of Ireland.

Furthermore, that this Council, having already recognised that we are in a climate emergency; being aware of the environmental damage caused by fracking and all forms of exploration and extraction of fossil fuels; and furthermore aware of our duties under the Paris Agreement to drastically decarbonise to limit global warming to 1.5 degrees by the end of the century, again calls on the Minister for the Economy to place an immediate moratorium on the issue of all petroleum licenses, acknowledges the Minister for Infrastructure amending the regulations around permitted development rights and calls on that Minister to now place a ban on prospecting for oil and/or gas and update the 'Strategic Planning Policy Statement accordingly."

The Social Democrats published, on November 9th 2020, [a press release](#) entitled "Government must legislate to ban imported fracked gas following High Court ruling on Shannon LNG".

Other evidence of public concern

In February 2018 over 1,000 people and 23 Environmental Groups [objected](#) to the Shannon LNG Extension of Planning to An Bord Pleanála, stating:

"We oppose the building of an LNG terminal on the Shannon: We banned fracking in Ireland, it would be absurd to import fracked gas instead. It would lock us into fossil fuel dependence and blow our chances of containing climate change. An Bord Pleanála should not extend the planning permission for Shannon LNG. The Government and the EU should not support or subsidize it."

On November 15th, 2019, at the Youth Assembly on Climate Change held in Dáil Eireann, Roisin Keegan-O'Rourke made an appeal to the Irish public on behalf of communities in America and said it was "[a justice as well as a climate issue](#)". The ban is currently now one of 10 recommendations included in Ireland's First Youth Proclamation on Climate. A ban means justice for those communities, that their words have been heard and it is an acknowledgement of the work of Ireland's youth movement, including its Youth Assembly and climate strikers. Roisin Keegan-O'Rourke informed the House that the Youth Assembly was proposing: "[for Ireland to ban the importation of fracked gas and invest solely in renewables](#)".

In early 2020, over [150 NGOS and academics](#) supported an NGO-proposed LNG energy policy statement wording to be included in the 2020 Programme for Government which is:

"Liquefied Natural Gas

The new Government is not supportive of new fossil fuel infrastructure in the form of LNG import terminals that could facilitate the entry of unconventional liquefied natural gas into the Irish energy mix. Such imports may create a functional interdependence between Irish energy consumption and global warming due to the high levels of non-territorial methane emissions linked to the exploitation of global shale gas resources."

A call for an immediate ban on Fracking in Northern Ireland was signed by over 80 groups in October 2020: see <https://docs.google.com/document/d/1mrQIU-97eJFYBpBRi-1R0csqdtB09jOwyp9oLLezto4/edit?usp=sharing>

The No to Shannon LNG petition has gained 2,733 signatures: <https://my.uplift.ie/petitions/no-to-shannon-lng-terminal>

The No to Cork LNG petition has gained 3,712 signatures: <https://my.uplift.ie/petitions/stop-cork-lng>

A letter of support against Cork LNG was [signed by](#) 50 civil society groups in Ireland and around the world.

Since November 2017 to date there have been at least 11 protests, demos or events around the country organised against Shannon or Cork LNG.

Stop Shannon LNG was also one of Extinction Rebellion's 4 [asks](#) for Rebellion Week in October 2019.

Appendix 3 - Evidence Shannon LNG Project is for Fracked Gas Imports

Evidence that the Shannon LNG Terminal is for the importation of US Fracked Gas

Introduction

Shannon LNG is being proposed as an LNG Import Terminal by its owners, New Fortress Energy, to receive fracked gas from the one of the world's largest natural gas fields, the Marcellus Shale Formation in Pennsylvania, U.S.A. However, comments by politicians and some individuals from public organisations that the sources of gas for the proposed Shannon LNG terminal have not been specified yet are attempting to cast doubt over this fact. We calculate that almost 100% of the Gas in Pennsylvania is fracked gas since so-called *conventional* wells are also being drilled in shale and also need to be fracked. However, even if we take the more conservative approach of only *unconventional* wells being fracked, then it is still proven from official US figures that up to 97.85% of gas in Pennsylvania is fracked gas. This paper puts forward the evidence that Shannon LNG is a US fracked gas import project. This evidence comes from the following sources:

1. From the Company itself and it's company filings to the US Securities and Exchange Commission (SEC) on November 9th, 2018 where
 - New Fortress Energy tells the SEC that " *Certain of our suppliers employ hydraulic fracturing techniques*"
 - New Fortress Energy tells the SEC " *Increased regulation or difficulty in permitting of hydraulic fracturing, and any corresponding increase in domestic natural gas prices, could materially adversely affect demand for LNG and our ability to develop commercially viable LNG facilities*"
 - New Fortress Energy admits to the SEC that it " *seeks to use "stranded" natural gas to satisfy the world's large and growing power needs*"[...] " *We are currently developing two liquefiers in the Marcellus area of Pennsylvania, each of which is expected to have the capacity to produce approximately 3 to 4 million gallons of LNG*"
 - New Fortress Energy tells the SEC " *Shannon, Ireland – We have entered into an agreement to purchase all of the ownership interests in a project company that owns the rights to develop and operate an LNG terminal and a CHP plant on the Shannon Estuary near Ballylongford, Ireland [...]* ***We intend to supply all existing and future customers with LNG produced primarily at our own Liquefaction Facilities.*** *We have one operational liquefaction facility in Miami, are currently are currently developing our Pennsylvania Facilities and plan to develop five to ten additional liquefaction facilities over the next five years*"
2. From the Pennsylvania Department of Environmental Protection (DEP) 98.23% of Gas produced in Pennsylvania in 2018 was fracked gas
3. From the US Energy Information Administration (EIA) at least 97.85% of Gas produced in Pennsylvania in 2018 was fracked gas
4. From the Methane Life Cycle Scientist Professor Robert Howarth, Cornell University who informed the Oireachtas Joint Committee on Climate Action on October 9th 2019 that " *If Ireland were to import liquefied natural gas from the United States, it would largely be shale gas*"
5. From Richard Bruton, T.D., the Minister for Communications, Climate Action and Environment himself who admitted on RTE Radio on May 10th 2019 that the gas coming from the US would be fracked gas
6. From Business and Investment Media Reports on the Issue
7. From Industry Analysis on the Issue
8. From U.S. President Donald Trump on 23rd October 2019 who stated at *the 9th Annual Shale Insight Conference in Pittsburgh, Pennsylvania* " *they won't do any fracking in New York [...] They don't do it in New York. Somebody, someday, will explain why. They do it in Pennsylvania. They do it in Ohio.*"

Detailed Evidence

1. From the Company itself and it's company filings to the US Securities and Exchange Commission (SEC):

- We know from the corporation - New Fortress Energy - seeking to build the 'Shannon LNG' terminal that the gas is from fracking in Pennsylvania because they said that to their investors and in their filing to the US Securities and Exchange Commission. See their direct quotes from their SEC filing here¹:
 - New Fortress Energy LLC Filing at the US Securities and Exchange Commission on November 9, 2018 *"Hydraulic Fracturing. Certain of our suppliers employ hydraulic fracturing techniques to stimulate natural gas production from unconventional geological formations (including shale formations), which currently entails the injection of pressurized fracturing fluids (consisting of water, sand and certain chemicals) into a well bore. Moreover, hydraulically fractured natural gas wells account for a significant percentage of the natural gas production in the U.S.; the U.S. Energy Information Administration reported in 2016 that hydraulically fractured wells provided two-thirds of U.S. marketed gas production in 2015"* (Page 49)
 - *"Hydraulic fracturing activities are typically regulated at the state level, but federal agencies have asserted regulatory authority over certain hydraulic fracturing activities and equipment used in the production, transmission and distribution of oil and natural gas, including such oil and natural gas produced via hydraulic fracturing. Federal and state legislatures and agencies may seek to further regulate or even ban such activities. For example, the Delaware River Basin Commission ("DRBC"), a regional body created via interstate compact responsible for, among other things, water quality protection, water supply allocation, regulatory review, water conservation initiatives, and watershed planning in the Delaware River Basin, has implemented a de facto ban on hydraulic fracturing activities in that basin since 2010 pending the approval of new regulations governing natural gas production activity in the basin. More recently, the DRBC has stated that it will consider new regulations that would ban natural gas production activity, including hydraulic fracturing, in the basin. If additional levels regulation or permitting requirements were imposed on hydraulic fracturing operations, natural gas prices in North America could rise, which in turn could materially adversely affect the relative pricing advantage that has existed in recent years in favor of domestic natural gas prices (based on Henry Hub pricing). Increased regulation or difficulty in permitting of hydraulic fracturing, and any corresponding increase in domestic natural gas prices, could materially adversely affect demand for LNG and our ability to develop commercially viable LNG facilities"* (Page 49 and 50)
- New Fortress Energy is trying to get planning permission in Pennsylvania to build two plants to liquify the fracked gas in order to ship it here to Ireland. This is also stated in the SEC filing here:

¹ https://marcellusdrilling.com/wp-content/uploads/2018/11/s002392x7_s1.pdf

- New Fortress Energy LLC Filing at the US Securities and Exchange Commission on November 9, 2018 *“We are an integrated gas-to power company that seeks to use “stranded” natural gas to satisfy the world’s large and growing power needs”[...] “We are currently developing two liquefiers in the Marcellus area of Pennsylvania, each of which is expected to have the capacity to produce approximately 3 to 4 million gallons of LNG (which is the equivalent of 250,000 to 350,000 MMBtu) per day, and intend to develop five or more additional liquefiers over the next five years.”* (Page 9)
- *“On March 2, 2018, the Company entered into a gas purchase agreement with a major Marcellus Shale producer to supply approximately 160 mcf/d or equivalent of approximately 2,000,000 LNG gallons per day to the Company effective upon fulfillment of certain conditions precedent”.* (Page 175)
- *"Shannon, Ireland – We have entered into an agreement to purchase all of the ownership interests in a project company that owns the rights to develop and operate an LNG terminal and a CHP plant on the Shannon Estuary near Ballylongford, Ireland. The Ireland Terminal is expected to commence commercial operations in the fourth quarter 2020. We intend this terminal to include a storage facility with onshore regasification equipment and pipeline connection into the distribution system of Gas Networks Ireland, Ireland’s national gas network. We plan to deliver LNG to the terminal via a traditional size LNGC. The equipment on site will have the capacity to import and regasify more than 6 million gallons of LNG (500,000 MMBtu) per day, which is the equivalent of Ireland’s total foreign natural gas imports. Additionally, the planning permission approval for the terminal includes the ability to build an integrated 500MW power plant on-site with priority dispatch. Our Liquefaction Assets*
We intend to supply all existing and future customers with LNG produced primarily at our own Liquefaction Facilities. *We have one operational liquefaction facility in Miami, are currently are currently developing our Pennsylvania Facilities and plan to develop five to ten additional liquefaction facilities over the next five years."* (Page 80)
- New Fortress Energy has stated that the fracked gas will come to the Gibbstown, PA liquification plant directly from fracked gas from the Marcellus Shale in Bradford County PA. As noted in the “State Impact Pennsylvania”² journal about local opposition in Pennsylvania to the plant.
 - *“LNG would be shipped to the Gibbstown port via truck from a new liquefaction plant being built in Bradford County, Pennsylvania, amid the abundant natural gas supplies of the Marcellus Shale, according to a Securities and Exchange filing by the plant’s developer, New Fortress Energy. The plant, costing an estimated \$750-\$850 million, would have a capacity of 3.6 million gallons a day and could serve markets in the Northeast by truck, the company said in a statement.”*
 - *“Environmentalists said during a conference call with reporters that an LNG export terminal would endanger public safety by risking an explosion; boost fracking for natural gas by opening up overseas markets...“We’re looking at massive public safety impacts from Bradford County all the way to South Jersey,” O’Malley said.*

² <https://stateimpact.npr.org/pennsylvania/2019/06/15/delaware-river-basin-commission-confirms-plan-to-build-lng-export-terminal-at-new-south-jersey-port/>

2. From the Pennsylvania Department of Environmental Protection (DEP) 98.23% of Gas produced in Pennsylvania in 2017 was fracked gas:

- We assume that almost 100% of the Gas in Pennsylvania is fracked gas since so-called conventional wells are also being drilled in shale and also need to be fracked (for more details see point 7.4). However, even if we take the more conservative approach of only unconventional wells being fracked, then it is still proven from official US figures that up to 98.23% of gas in Pennsylvania in 2017 was fracked gas.
- According to the Pennsylvania Department of Environmental Protection (DEP)³, most of the gas coming from Pennsylvania, the second largest producer of natural gas in the States after Texas - which New Fortress Energy wants - is from fracking otherwise known as unconventional drilling. Over 90% of Well Drilling permits issued in Pennsylvania were for unconventional wells in 2017 and this figure was over 86% in 2018.

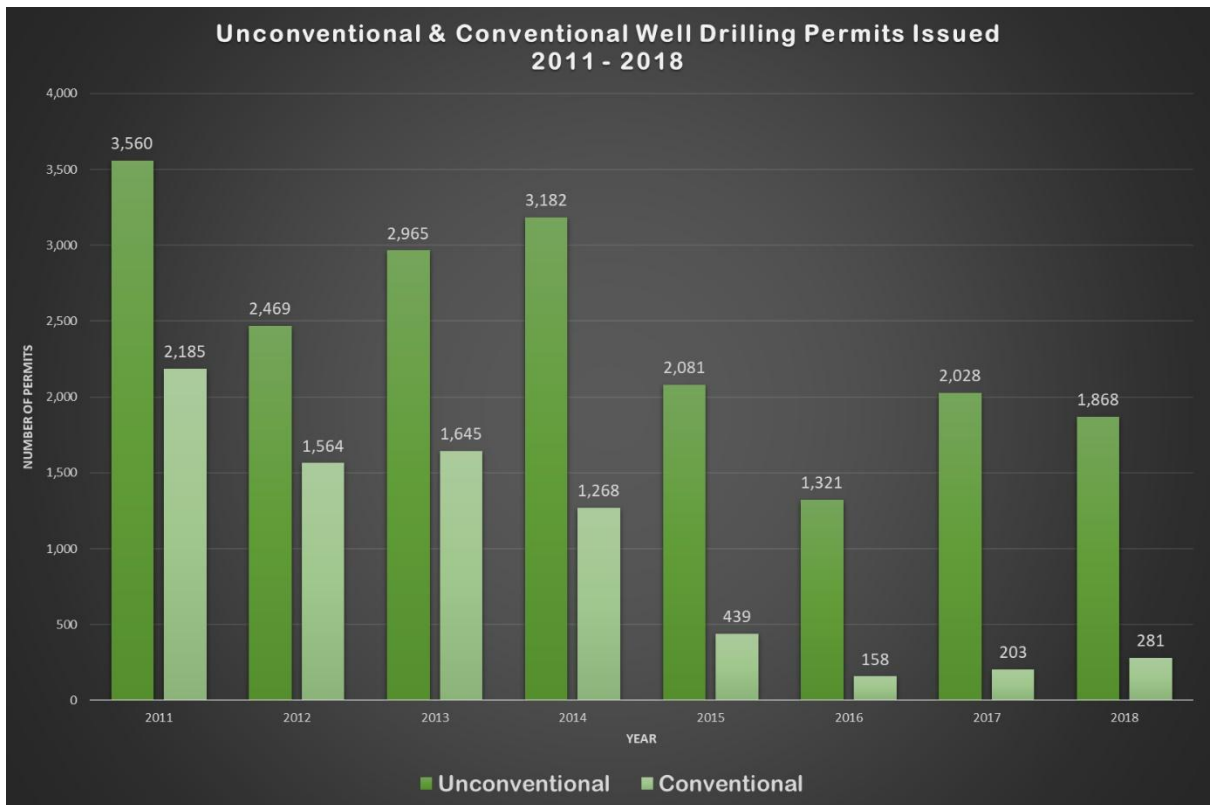


Figure 1. Source:

https://www.depgis.state.pa.us/OGAnnual2018Report/DrillingPermitIssued11_18.png (Percentage of Unconventional/Fracking Well Permits issued in Pennsylvania in 2017 is $2,028/2,231 * 100 = 90.9\%$ and in 2018 is $1,868/2,149 * 100 = 86.92\%$)

³ <https://www.depgis.state.pa.us/2018OilGasAnnualReport/index.html> and <http://www.depgis.state.pa.us/2017oilandgasannualreport/>

- According to the Pennsylvania Department of Environmental Protection (DEP)⁴, unconventional/fracked gas production in Pennsylvania increased from 5.3 trillion cubic feet in 2017 to 6.1 trillion cubic feet in 2018.

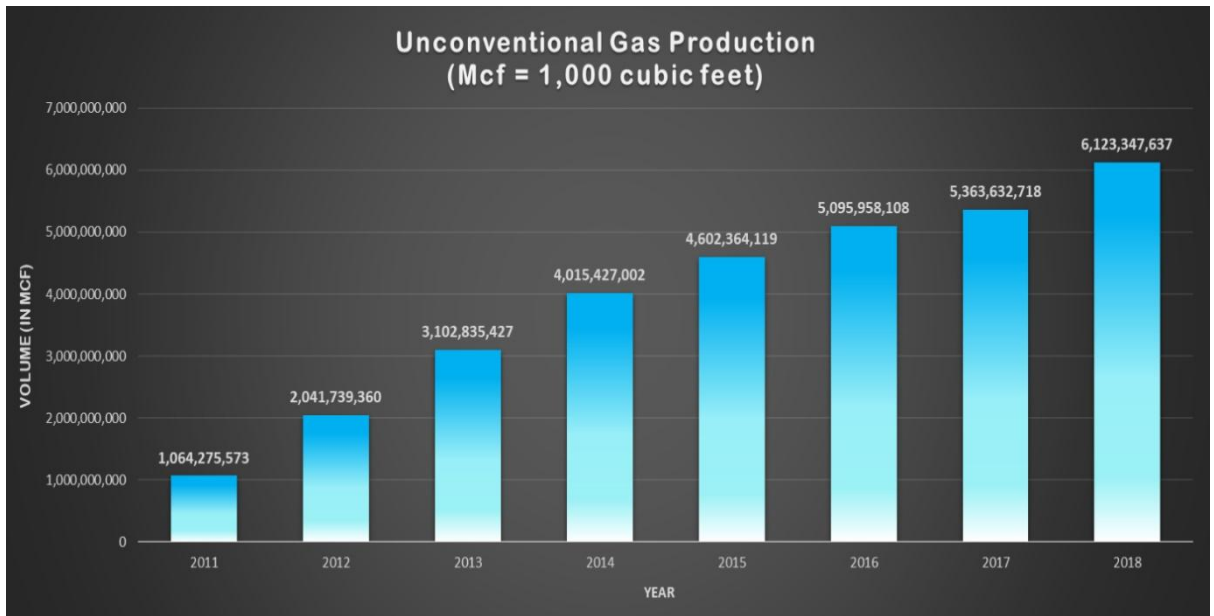


Figure 2. Source: <https://www.depgis.state.pa.us/OGAnnual2018Report/UnconvGasProd.png>

- And again, according to the Pennsylvania Department of Environmental Protection (DEP)⁵, unconventional/fracked gas production in Pennsylvania as a percentage of total gas production was 98.23% in 2017.

Pennsylvania Department of Environmental Protection Office of Oil and Gas Management AT A GLANCE	
PA Natural Gas Production (unconventional):	5.36 trillion cubic feet
Avg. # Wells Reporting Gas Production (unconventional):	7,794
PA Natural Gas Production (conventional wells):	96.5 billion cubic feet
# Wells Reporting Gas Production in 2017 (total):	57,461

Figure 3: Source <https://www.depgis.state.pa.us/2017oilandgasannualreport/img/OGKeyFacts-2017.pdf> This gives a figure of natural gas production in Pennsylvania from unconventional/fracked sources as a percentage of overall production of $5.36 / (5.36 + 0.0965) * 100 = 98.23\%$ in 2017

⁴ <https://www.depgis.state.pa.us/2018OilGasAnnualReport/index.html>

⁵ <http://www.depgis.state.pa.us/2017oilandgasannualreport/>

3. From the US Energy Information Administration (EIA) at least 97.85% of Gas produced in Pennsylvania in 2018 was fracked gas:

- According to the US Energy Information Administration (EIA)⁶, Pennsylvania's gross natural gas production, primarily from the Marcellus Shale, reached 5.4 trillion cubic feet in 2017, rising to 6.2 trillion cubic feet in 2018. This means that, as per Figure 4 below, Unconventional Shale gas production in Pennsylvania was 98.01% of total gas production in 2017 and **97.85%** in 2018.

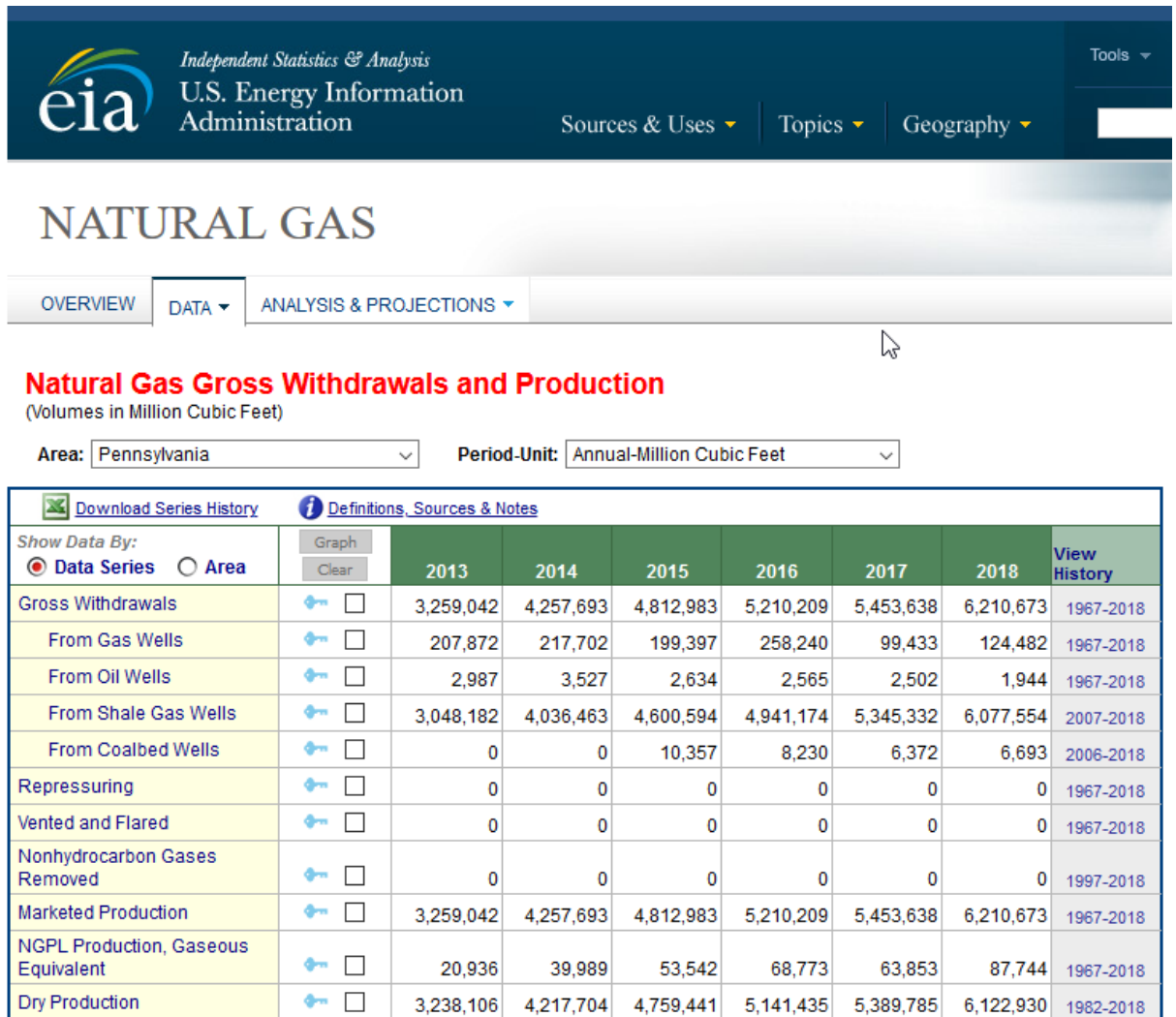


Figure 4. Natural Gas Production in Pennsylvania. Source: US Energy Information Administration - https://www.eia.gov/dnav/ng/ng_prod_sum_dc_spa_mmcf_a.htm. This shows that Unconventional Shale gas production in Pennsylvania in 2017 was $5,345,332/5,453,638,000 \times 100 = 98.01\%$ of total gas production and in 2018 this figure was $6,077,554/6,210,673 \times 100 = 97.85\%$ of total gas production.

⁶ https://www.eia.gov/dnav/ng/ng_prod_sum_dc_spa_mmcf_a.htm

4. From the Methane Life Cycle Scientist Professor Robert Howarth of Cornell University New York :

- Professor Robert Howarth of Cornell University of New York, an expert on the global methane cycle, addressed the Oireachtas Joint Committee on Climate Action meeting on Wednesday, 9 October 2019 to discuss *'the impact of fracked gas on the climate and its impact on Irelands climate goals should we facilitate the importation of fracked gas from North America into Ireland'*. He stated that

"If Ireland were to import liquefied natural gas from the United States, it would largely be shale gas."⁷

5. From Richard Bruton, T.D., the Minister for Communications, Climate Action and Environment himself:

- In an interview with Seán O'Rourke on RTE Radio on May 10th 2019, Minister Bruton, in the defence of exploration in Ireland, admitted that the gas coming from the US would be fracked gas when he stated the following:
 - *"My attitude is that we are not in a position now to talk about ceasing exploration. We need, for this transition, we need access to fossil fuels, particularly to gas, and if that gas resource is available, that can be supplied through our own network, which we have built and is available to us, that is far preferable to being dependent on bringing in **FRACTED** gas from the US, bringing in Russian gas. So it is absolutely appropriate that we have security of supply for fossil fuels during this transition but our determination is to reduce dramatically and rapidly our dependence on fossil fuels. So at the end of the day I have to pick the route, the changes, select measures carefully and weigh the costs of proposals against the benefit of the yield and introduce them in a timely way".⁸*

6. From Business and Investment Media Reports on the Issue:

- <https://www.bloomberg.com/news/articles/2019-06-04/fortress-billionaire-wes-edens-bets-on-freedom-gas-exports>
- <https://www.naturalgasintel.com/articles/116533-new-fortress-energy-planning-two-lng-plants-in-northeast-pennsylvania>
- <https://www.rivieramm.com/news-content-hub/news-content-hub/lng-refuelling-options-grow-with-new-small-scale-plants-55949>
- <https://www.inquirer.com/business/lng-export-terminal-philadelphia-repauno-fortress-approved-20190612.html>

⁷ https://www.oireachtas.ie/en/debates/debate/joint_committee_on_climate_action/2019-10-09/2/

⁸ <https://www.youtube.com/watch?v=ie6agMwF9jE&feature=youtu.be>

- <https://marcellusdrilling.com/2018/11/new-fortress-energy-building-second-pa-lng-export-facility/>
- <https://eu.delawareonline.com/story/money/business/2019/03/02/new-fortress-energy-lng-port-delaware-river/2990003002/>
- <https://www.desmogblog.com/2018/10/04/lng-by-rail-small-scale-exports-florida-edens-fortress>
- <https://www.njspotlight.com/2019/07/19-07-16-lng-export-terminal-would-take-360-trucks-a-day-24-7-army-corps-says/>
- <https://stateimpact.npr.org/pennsylvania/2019/06/15/delaware-river-basin-commission-confirms-plan-to-build-lng-export-terminal-at-new-south-jersey-port/>
- <https://therealnews.com/columns/a-fossil-fuel-baron-just-bought-usa-today>

7. From Industry Analysis on the Issue:

7.1 The Shale boom in the US because of fracking. The Fracking debate that is happening in the US, EU and Ireland is because of shale.

- The Marcellus Shale is the most prolific natural gas-producing formation in the Appalachian basin (in Pennsylvania). EIA estimates proven reserves in the Marcellus Play of 77.2 trillion cubic feet (Tcf) at year end 2015 which makes it one of the largest natural gas plays in the U.S.⁹
- Pennsylvania's marketed natural gas production averaged a record 15 billion cubic feet per day (Bcf/d) in 2017, 3% higher than the 2016 level¹⁰. This production is largely from shale plays in the Appalachian Basin¹¹. Pennsylvania accounted for 19% of total U.S. marketed natural gas production in 2017 and produced more natural gas than any other state except Texas¹².

7.2 Shale gas production in the Appalachia region has increased rapidly since 2012, driving an overall increase in U.S. natural gas production. According to EIA's *Drilling Productivity Report*¹³, natural gas production in the Appalachia region—namely the Marcellus and Utica shale plays—has increased by more than 14 billion cubic feet per day (Bcf/d) since

⁹ https://www.eia.gov/maps/pdf/MarcellusPlayUpdate_Jan2017.pdf

¹⁰ https://www.eia.gov/dnav/ng/ng_prod_sum_a_EPGO_VGM_mmcf_a.htm

¹¹ <https://www.eia.gov/todayinenergy/detail.php?id=33972>

¹² <https://www.eia.gov/todayinenergy/detail.php?id=35892>

¹³ <https://www.eia.gov/petroleum/drilling/>

2012. Overall Appalachian natural gas production grew from 7.8 Bcf/d in 2012 to 22.1 Bcf/d in 2016 and was 23.8 Bcf/d in 2017, based on EIA data through October 2017.¹⁴ Drilling wells in the Appalachia region has become very productive. The average monthly natural gas production¹⁵ per rig for new wells in the Appalachia region increased by 10.8 million cubic feet per day since January 2012. EIA attributes this increase to efficiency improvements in horizontal drilling and hydraulic fracturing¹⁶ in the region, which include faster drilling, longer laterals, advancements in technology, and better targeting of wells¹⁷.

7.3 Dry Gas Production in the U.S.

- "The U.S. Energy Information Administration (EIA) estimates that in 2018, U.S. dry shale gas production¹⁸ was about 20.95 trillion cubic feet (Tcf), and equal to about 69% of total U.S. dry natural gas production in 2018."¹⁹
- LNG Exports based on shale
 - New LNG exports will super-charge additional fracking, as 80 percent of the increased exports will come from new, i.e. fracked, wells.²⁰
 - "About 80% of the increase in LNG exports is satisfied by increased U.S. production of natural gas...Possible future export levels in the scenarios evaluated include very unlikely extremes, from zero in cases in which the U.S. "shale revolution" ends abruptly and global demand is limited to levels that exceed the total export capacity for which LNG export authorization applications have currently been filed at DOE/FE."²¹
- "In just a matter of years, American shale gas exports have loosened the grip of traditional exporters and restrictive long-term contracts. Significant surplus gas production, increasingly competitive E&P techniques, rising oil prices and export-favourable policies at home are likely to support growth in the US LNG industry, with eleven LNG export projects approved by the US Department of Energy and 16 others proposed so far. [...] Transcontinental Gas Pipe Line's Atlantic Sunrise project could have an impact much sooner. By September, the new pipe would move low-

¹⁴ <https://www.eia.gov/petroleum/drilling/#tabs-summary-2>

¹⁵ <https://www.eia.gov/petroleum/drilling/#tabs-summary-1>

¹⁶ <https://www.eia.gov/todayinenergy/detail.php?id=22252>

¹⁷ <https://www.eia.gov/todayinenergy/detail.php?id=33972>

¹⁸ <https://www.eia.gov/tools/glossary/index.php?id=Dry%20natural%20gas>

¹⁹ <https://www.eia.gov/tools/faqs/faq.php?id=907&t=8>

²⁰ <https://www.foodandwaterwatch.org/insight/fracking-endgame-locked-plastics-pollution-and-climate-chaos>

²¹

<https://www.energy.gov/sites/prod/files/2018/06/f52/Macroeconomic%20LNG%20Export%20Study%202018.pdf>

priced gas from the Marcellus Shale to Transco's mainline, bringing cheaper Appalachian supply into Louisiana."²²

7.4. The Misleading "Conventional vs. Unconventional" terminology:

- One is always warned to avoid using these terms because they are entirely misleading. We must talk about fracked and non-fracked wells. Germany has used the same trick to still allow fracking (in sandstone layers) in protected areas.
- The Pennsylvania Department of Environmental Protection (DEP) definition of "conventional" wells is as follows:

*"A conventional well is typically a well that is drilled vertically into a shallow oil or gas reservoir. Conventional wells are constructed on much smaller well pad sites than unconventional wells. Most conventional wells do not require large volumes of water for hydraulic fracturing and do not employ horizontal drilling techniques. In Pennsylvania, what constitutes a conventional well is defined by law in Act 52 of 2016 and 25 Pa. Code Chapter 78."*²³

- The General Assembly of Pennsylvania defines a "conventional oil and gas well." in Senate Bill Number 279 as:

*"a bore hole drilled or being drilled for the purpose of or to be used for construction of a well regulated under 58 pa.c.s. Ch. 32 (relating to development) that is not an unconventional well, irrespective of technology or design. The term includes, but is not limited to:(1) wells drilled to produce oil.(2) wells drilled to produce natural gas from formations other than shale formations.(3) wells drilled to produce natural gas from shale formations located above the base of the elk group or its stratigraphic equivalent.(4) wells drilled to produce natural gas from shale formations located below the base of the elk group where natural gas can be produced at economic flow rates or in economic volumes without the use of vertical or nonvertical well bores stimulated by hydraulic fracture treatments or multilateral well bores or other techniques to expose more of the formation to the well bore."*²⁴

Having already anticipated the "trick" to exclude some wells from being counted as "fracking", (i.e. "unconventional") wells it is now clear from the definition above that "conventional wells" in Pennsylvania still produce gas from shale plays.

²² <https://www.spglobal.com/platts/plattscontent/assets/files/en/specialreports/naturalgas/us-Ing-shale-june-2018.pdf>

²³ <http://www.dep.pa.us/2017oilandgasannualreport/>

²⁴ <https://www.legis.state.pa.us/CFDOCS/Legis/PN/Public/btCheck.cfm?txtType=PDF&sessYr=2015&sessInd=0&billBody=S&billTyp=B&billNbr=0279&pn=1903>

In support of this argument, it is also of note that more new permits were given to "unconventional wells" and more violations were reported concerning "conventional" wells in 2017²⁵:

Permits Issued:

Unconventional Drilling Permit	2,028
Conventional Drilling Permit	203

Wells Drilled:

Unconventional	810
Conventional	103
Total Wells Drilled	913

Violations:

Unconventional	821
Conventional	3,273

- Even the Industry itself (The Pennsylvania Independent Oil & Gas Association) confirms the "conventional vs. unconventional" misleading terminology – and leave no doubt that nearly all of the Gas produced in Pennsylvania is fracked:

"Thanks to technological advances in finding and producing natural gas" [i.e. FRACKING - ndr]" Pennsylvania again is playing a key role in meeting the nation's energy needs. A rock formation approximately a mile below the surface known as the Marcellus Shale has become one of the world's largest natural gas fields, containing over 500 trillion cubic feet of natural gas. A significant portion of Pennsylvania is underlain by the Marcellus Shale, and drilling activity targeting this formation is taking place in more than 25 counties. A few thousand feet below the Marcellus is another formation called the Utica Shale that could ultimately become another huge natural gas resource for Pennsylvania, as could Upper Devonian formations just above the Marcellus. ...

Pennsylvania law defines an unconventional gas well as a well drilled into a shale formation below the base of the Elk Sandstone or its geologic equivalent where natural gas cannot be produced by horizontal or vertical well bores except when stimulated by hydraulic fracturing. Essentially, these wells are drilled into a shale that is so dense that the gas trapped inside cannot be released except by cracking the rock by means of hydraulic fracturing.

A traditional, conventional well is usually drilled into a sandstone formation that can range from as shallow as 1,500 feet to as much as 21,000 feet deep. Oil and gas are able to pass through these formations without hydraulic fracturing, but nearly all wells are stimulated through fracturing to improve production. Conventional wells have been drilled vertically, although a few operators are experimenting with horizontal drilling techniques in conventional formations. An estimated 350,000 conventional oil and gas wells have been drilled in Pennsylvania over the years (most

²⁵ <http://www.depgis.state.pa.us/2017oilandgasannualreport/>

of which were plugged and abandoned as their useful lives came to an end), compared to the current total of more than 11,000 unconventional wells.

Conventional oil and gas wells can be found in parks and on public land, along highways, even in residential neighborhoods. A well pad cleared for a conventional oil or natural gas well is smaller than that of a deep well and requires a smaller drilling rig to drill vertically and reach the targeted formation. It typically takes less than two weeks to drill these wells, with a few additional days required to stimulate and complete the well. Since the number of fractures into the rock are fewer than those of a horizontal well, the scope of the well stimulation operation is not as significant and does not require as much equipment or water.

The average conventional gas well in Pennsylvania produces less than 13 thousand cubic feet (mcf) per day, compared against 2,000 mcf for the average unconventional well."²⁶

7.5. FracTracker Oil & Gas Activities in PA²⁷

- FracTracker, the project, was originally developed to investigate health concerns and data gaps surrounding western PA fracking. Today, as a non-profit organization, FracTracker Alliance supports groups across the United States, addressing pressing extraction-related concerns with a lens toward health effects and exposure risks on communities from oil and gas development. We provide timely and provocative data, ground-breaking analyses, maps, and other visual tools to help advocates, researchers, and the concerned public better understand the harms posed by hydrocarbon extraction.

8. From U.S. President Donald Trump on 23rd October 2019:

- *At the 9th Annual Shale Insight Conference in Pittsburgh, Pennsylvania, President Trump admitted that Pennsylvania is being fracked when he stated*
 - *" New York doesn't allow pipelines to go through. I don't know, there has to be some kind of a federal something that we can do there. But they won't allow pipelines to go through New York; this is for a long time. And they won't do any fracking in New York. And they won't take all of that wealth underneath and reduce their taxes. Wouldn't that be nice? They don't do it in New York. Somebody, someday, will explain why. [...] They do it in Pennsylvania. They do it in Ohio. They do it in states right around New York. They don't do it in New York."*²⁸

--- End ---

²⁶ <https://pioga.org/education/pa-oil-and-gas/>

²⁷ <https://www.fractracker.org/map/us/pennsylvania/>

²⁸ <https://www.whitehouse.gov/briefings-statements/remarks-president-trump-9th-annual-shale-insight-conference-pittsburgh-pa/>

Appendix 4 - Submission by Predator Oil & Gas to the Draft Cork County Development Plan 2022-2028 - June 2021

23rd June 2021

Draft Cork County Development Plan 2022 - 2028
Senior Planner,
Planning Policy Unit,
Cork County Council,
County Hall,
Carrigrohane Road,
T12 R2 NC.

Submitted via the online consultation portal

Our Ref: 501.00269.00004 L

Your Ref: Draft Cork County Development Plan 2022 - 2028

Dear Sir/Madam

RE: DRAFT CORK COUNTY DEVELOPMENT PLAN 2022 - 2028

SLR Consulting Ireland acts as planning and environmental advisors to Mag Mell Energy Ireland Ltd, 3rd Floor Standard Bank House, 47-49 La Motte Street, St. Helier, Jersey JE2 4SZ. This submission relating to the Draft Cork County Development Plan 2021 has been prepared on their behalf.

'Mag Mell' is the name of a proposed Floating Storage Regasification Unit located beyond the horizon, some 50km off the Cork coast. It is a strategic offshore LNG (Liquified Natural Gas) storage facility designed to provide enhanced security of energy supply for Ireland's energy network with less environmental impact than land based energy infrastructure.

Ireland is entering a period of major transition of its energy systems as part of the national Climate Action Plan 2019 objective to double the electricity generated from renewable sources to 70% of the nation's consumption with the majority of the remaining 30% of electricity generated from natural gas. Maintenance of energy security for Ireland within this transition period depends on the provision of a strategic natural gas storage facility such as Mag Mell to provide security of supply for the national network.

This submission considers the scope of this project in respect of the Draft Cork County Development Plan 2022 – 2028 and reviews the wider alignment of the proposal with the provisions as set out in national and regional statutory plans and strategies for Ireland's sustainable development.

The submission is structured as follows,

- Project Concept and Proposal
- Subject Site Context
- Basis of the Submission
- Submission Comments
- Concluding Remarks

PROJECT CONCEPT AND PROPOSAL

The 'Mag Mell' floating storage and regasification unit (FSRU) acts like a combination of a seaborne supply chain and a land-based LNG receiving terminal. In addition to transporting LNG to Ireland, Mag Mell has the onboard capability to vaporise LNG and deliver natural gas from some 50km offshore through specially designed submerged buoys to onshore receiving facilities. It is envisaged that two such 'MagMell' units will shuttle LNG cargoes to Ireland in rotation, discharging vaporised natural gas on demand while temporally moored to the subsea buoy system anchored offshore, linked by flexible risers to the existing subsea 24" pipeline connected directly to the Gas Networks Ireland (GNI) **entry point at the onshore Inch Terminal**. Through this arrangement regasification of LNG can continue uninterrupted ensuring a continuous supply of gas to the Irish Grid market.

The submerged buoy system will be used as both the mooring mechanism for Mag Mell and the conduit through which natural gas is delivered to the subsea pipeline. This submerged buoy system is in use at various locations worldwide in compliance with the highest safety and operations standards established by Lloyds Classification. Accordingly, there will be no Ship-to-Ship (STS) LNG transfers in Irish waters either at sea, in sheltered bays or at piers or berths in Irish ports.

The floating storage and regasification unit will use the existing subsea Petronas (Kinsale Energy) 24" export pipeline from the decommissioned Kinsale Head Gas Field that ties directly into the Irish gas transmission network at the onshore Inch Terminal where there is a GNI entry point. The elements of the Mag Mell facility subject to regulation and permitting are:

1. Two Specialised LNG Carriers with LNG transport, offshore storage & regasification capability
2. Twin Submerged Buoys System
3. Subsea 24" export pipeline (existing)
4. Inch onshore GNI entry point (existing)

The storage and regasification unit has elements of high seas LNG transport, offshore gas storage, offshore subsea mooring systems, regasification and transfer via existing offshore subsea pipeline, and existing onshore AGI at Inch. There is no element of ship-to-ship LNG transfer. The Mag Mell LNG Carriers can weathervane freely around the buoy system while on station. Refer to the figures below.

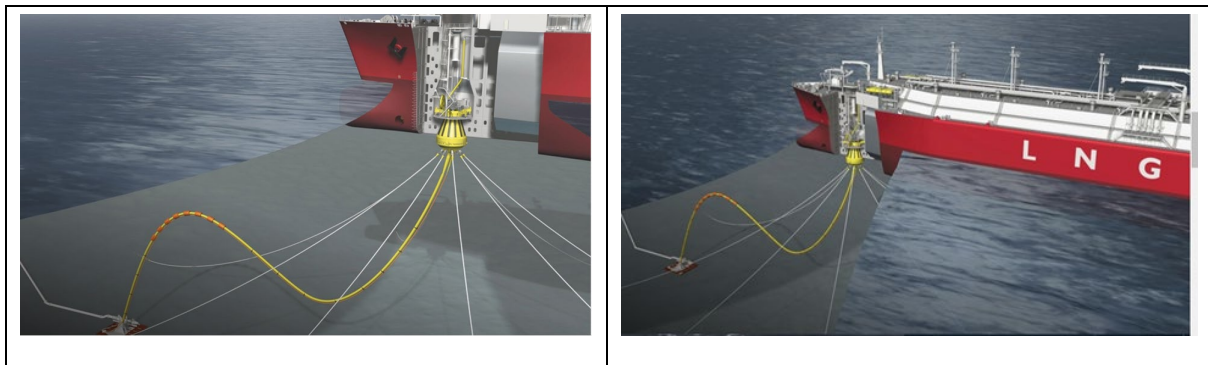


Figure 1 An FSRU vessel with submerged turret loading (STL) system (Source: APL Offshore)

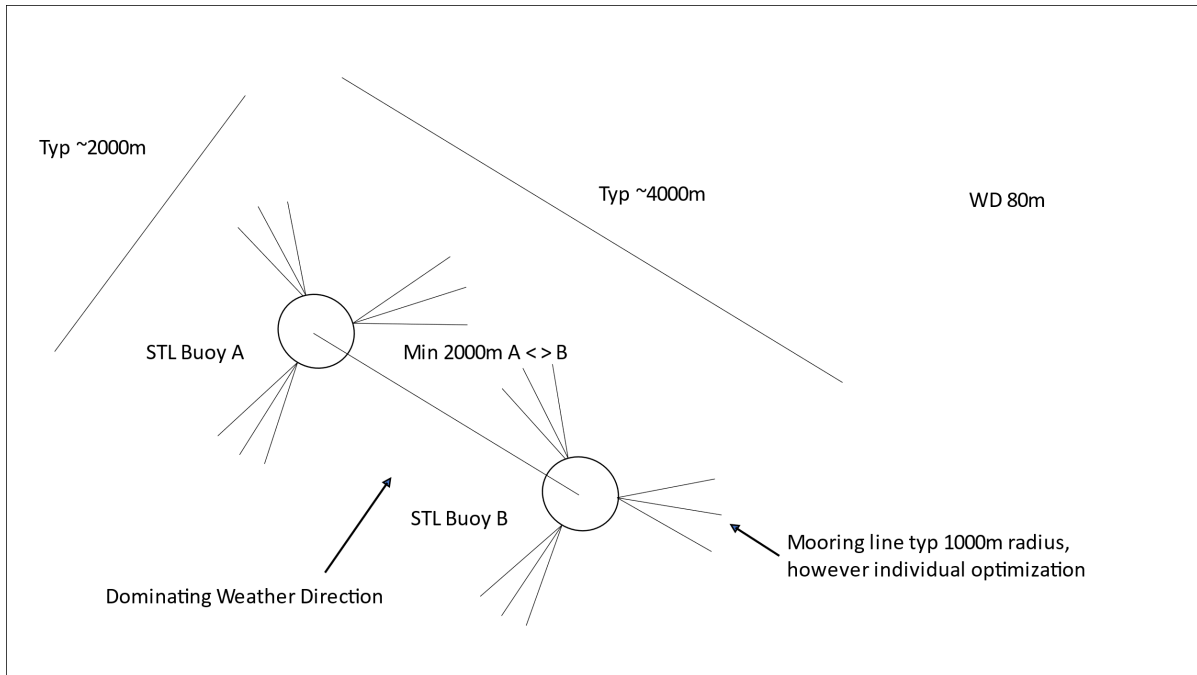


Figure 2 STL Twin Buoys with mooring line/anchor footprint

SUBJECT SITE CONTEXT

As described, the Mag Mell LNG storage unit will make use of existing assets and infrastructure, in particular the existing Petronas 24" export pipeline from the decommissioned Kinsale Head Gas Field that ties directly into the Irish gas transmission network at the onshore Inch Terminal where there is a GNI entry point.

The Kinsale Head, Ballycotton, Seven Heads and South-West Kinsale gas fields lie approximately 50 km off the south coast of County Cork. The gas fields were developed in the period 1978 to 2003. The fields supplied all of Ireland's natural gas from 1978 to 1995 and remained Ireland's only indigenous source of natural gas until 2015.

The offshore infrastructure consists of two steel platforms installed as part of the initial field development, Kinsale Alpha and Kinsale Bravo. These were commissioned in 1978. There are also a number of underwater (subsea) wells which were drilled to produce smaller gas discoveries. These wells are connected to the platforms by means of underwater pipelines and control cables. The facilities have only been used to process natural gas, as no oil has been produced in the area. Gas from the offshore fields is transported by a 24" pipeline to a terminal at Inch in East Cork, where the gas is transferred to the GNI onshore gas grid. Refer to the location figures below.

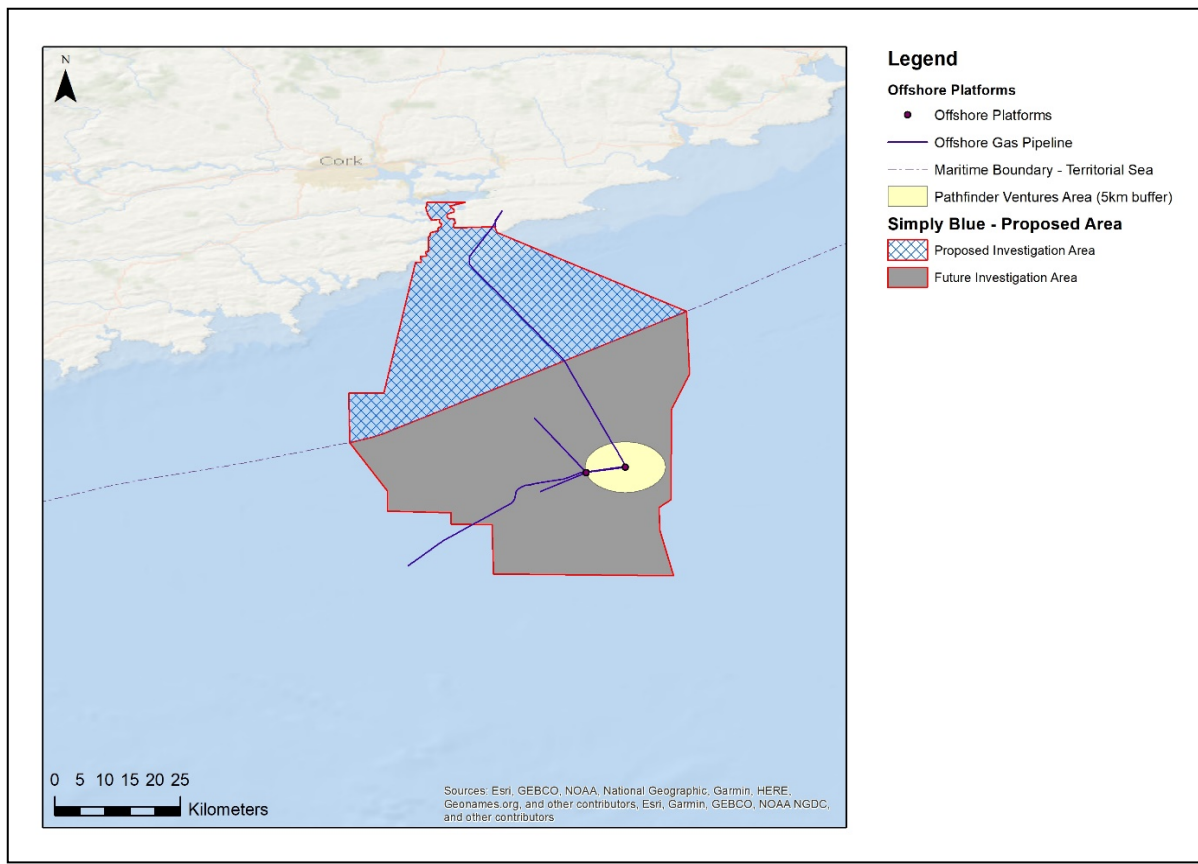


Figure 3 Proposed project Location and scale showing 5km buffer zone around STL Buoys in relation to Simply Blue Energy's Emerald Project



Figure 4 Site context map illustrating the existing Kinsale Areas Gas Fields in relation to the Inch Terminal and the wider Gas Network (Source: *Kinsale Area Gas Fields Decommissioning Project Information Leaflet*).

BASIS OF THE SUBMISSION

National Marine Planning Framework

In 2014 the European Parliament and the Council of the European Union adopted Directive 2014/89/EU. This directive established a framework for Marine Spatial Planning and set in motion a number of legislative and policy requirements for each of the member states including Ireland. The first of these was the transposition of the Directive into national legislation by way of regulations made in 2016 (SI 352 of 2016). Since the regulations were made under the European Communities Act 1972, they were strictly limited to measures required to transpose the directive. However, in October 2018 these regulations were repealed and replaced by Part 5 of the Planning and Development (Amendment) Act 2018. Part 5 re-transposes the Directive in primary legislation and contains a number of measures that are additional to those required by the directive, including:

- Adoption of the National Marine Planning Framework (NMPF) by both Houses of the Oireachtas;
- Review and replacement of the NMPF every 6 years;
- Obligation for marine regulatory bodies to secure the objectives of the NMPF when making policies, plans, or granting consents; and
- Enforcement powers for the Minister if the foregoing obligations are not being fulfilled.

This legislation will be repealed and replaced by the forthcoming Marine Planning and Development Management Bill.

The National Marine Planning Framework (NMPF) is a national plan for Ireland's maritime area, setting out, over a 20 year horizon, how the country of Ireland wants to use, protect and enjoy its seas. The NMPF sits at the top of the hierarchy of plans and sectoral policies for the marine area. It is described that the plan has been informed by existing sectoral plans and will, in turn, be used to inform future cycles of those plans in an ongoing feedback loop. It is stated that it provides a coherent framework in which those sectoral policies and objectives can be realised. It will become the key decision-making tool for regulatory authorities and policy makers into the future in a number of ways including decisions on individual consent applications which will have to secure the objectives of the plan, similar to the way that terrestrial plans form part of the decision-making tool-kit in the on-land planning process.

The marine plan will cover Ireland's maritime area, including internal waters (sea area), territorial seas, exclusive economic zone (EEZ) and continental shelf. The maritime area comprises approx. 490,000 km² and extends from mean high water mark at the coast seaward to in excess of 200 nautical miles in parts. A single plan will be prepared for the entire area now with the possibility of more detailed regional plans being made at a later date.

Of relevance to this submission Chapter 7 **Energy – Offshore Gas Storage** describes that Gas Storage is an activity that allows for the storing of gas during periods of low demand (e.g. summer months) in large-scale storage reservoirs, then accessing that gas when demand increases (i.e. in winter). It is further described that Gas storage in depleted fields is achieved by injecting gas into the reservoir. To maintain pressure within the reservoir a certain amount of gas ('cushion gas') is left. This gas maintains the pressure within the fields and enables deliverability of gas from the field during the winter when the gas is withdrawn to meet winter demand. As natural gas can be stored for an indefinite period it is largely a commercial decision for a storage operator as to when gas is injected and withdrawn.

It is noted that **there is limited gas storage capacity in Ireland despite the role it may play in enhancing security of supply and in electricity generation flexibility.** It is concluded that the commercial viability of gas storage is dependent on the price differentials between summer and winter gas. Furthermore, it is suggested that there are a number of factors that influence this, including:

- The nature of Europe's integrated gas pipeline network which reduces the need for storage capacity;
- Greater flexibility in pipeline import contracts, including contracts with Russia, Norway and Algeria, which has enabled buyers to rely on contractual flexibility rather than book storage capacity;
- Increased European LNG imports resulting in surplus regasification capacity.

Of relevance, it is stated that **Kinsale Energy operated the first and, to-date, the only offshore natural gas storage facility utilising the depleted Southwest Kinsale gas field.** The Southwest Kinsale gas field was converted to an offshore storage facility with a storage capacity of 230 million cubic meters. However, in 2016 Kinsale Energy decided to close the storage facility and the last of the gas reserve was withdrawn from the reservoir in March 2017.

It is further described that the **2015 Energy Whitepaper, the Department of Communications, Climate Action and Environment provided for provision to conduct an analysis of options for increased gas storage, which will take into account the interdependent nature of gas and electricity systems, interconnections with other jurisdictions where storage exists and LNG potential.** It is noted that pending the completion of that work, the NMPF does not propose specific Petroleum Services-related marine planning policies, but the situation will be kept under review in light of broader policy development.

The NMPF further outlines potential **synergies and interactions** with other sectors. It is described that there are a wide range of potential synergies and operational interactions between gas storage and other sectors. **Synergies include the continuous use of ports and harbours in supply and transfer operations, possible colocation with wind energy installations, supply chain services, and the potential for installations to act as artificial reefs providing new protections for biodiversity.**

In relation to **security of supply**, it is stated that the **future sustainability and energy security are intrinsically linked. Security of energy supply is a key imperative for Ireland and the European Union. One possible option for enhancing security of supply, if it is deemed necessary, is commercial gas storage as a measure to mitigate potential security of supply disruptions.**

It is noted that the White Paper further acknowledges that petroleum will remain significant elements of Ireland's energy supply in the evolution to a low carbon energy system. In the **short to medium-term, the mix of non-renewables will shift away from more carbon-intensive fuels**, like peat and coal, **to lower-carbon fuels like natural gas. Natural gas would continue to play an important role in the energy transition; firstly, to ensure system flexibility and inertia with more renewables in the power sector and, secondly, to substitute for fuels with higher carbon emissions for heating purposes and in transport.**

Gas Network Ireland and EirGrid, with oversight by the Commission for the Regulation of Utilities (CRU) and DCCA, are conducting a study into Ireland's resilience to a long-term gas disruption, which includes the need for gas storage and LNG. This study will inform the formulation of future policy measures to maintain the resilience of Ireland's gas and electricity supply. Mag Mell Energy Ireland Ltd has engaged with Gas Networks Ireland on advance works to facilitate the connection of the Mag Mell LNG storage and regasification unit to the GNI entry point at Inch.

Chapter 9.0 **Energy – Transmission** is also of significance to this submission. An objective of which aims to,

- Ensure good regulatory practices in the provision of gas and electricity transmission infrastructure, according to international best practice.

In this regard, the following relevant planning policies are provided,

Transmission Policy 1 Gas or electricity transmission proposals that maintain or improve the security and diversity of Ireland's energy supply, including interconnectors, should be supported.

In relation to Gas, the chapter further describes that **Natural Gas** remains an important component in Ireland's energy mix. It is the **dominant fuel for electricity generation (48% in 2016)**. Ireland's natural gas comes from both indigenous production and imports. The indigenous resources include gas fields at Kinsale and Corrib. The balance of the country's natural gas requirement is imported from the UK. Ireland, Northern Ireland, and Great Britain are physically interconnected by two interconnector pipelines under the Irish Sea, which are owned and operated by Gas Networks Ireland (GNI) and its subsidiary GNI (UK), and there is a continued mutual interest in ensuring the ongoing operation of arrangements to deliver safe, secure and competitive energy supplies for consumers.

Natural gas imported from the UK is a significant percentage of Ireland's overall gas supply. In 2015, prior to the Corrib gas field, gas imported from GB accounted for 97% of total demand. In 2016, indigenous gas production met over 55% of Ireland's gas demand, with the balance of our natural gas imported from the UK via the interconnectors. **Supplies from Corrib will decline in the coming years with 84% of Ireland's natural gas peak day demands forecast to be met by imports from the UK in 2024/2025.** This demonstrates continued reliance on imported natural gas from the UK in the medium term. The two undersea interconnectors will therefore remain as a vital part of Ireland's energy transmission infrastructure for the foreseeable future.

It is further described that it is not envisaged that any further international interconnector pipelines will be constructed. The undersea upstream pipelines connecting production facilities to downstream shore terminals such as Corrib – Bellanaboy and Kinsale Area – Inch are not 'interconnectors' as they do not connect separate national systems. It is stated that any upstream pipelines from any further offshore sources that may be found will be developed in accordance with relevant legislative and regulatory regimes, including the Marine Spatial Plan.

Linkage with land planning and the National Planning Framework

The National Marine Planning Framework (NMPF) is a parallel document to the National Planning Framework (NPF). The NPF is a national document to guide at a high-level strategic terrestrial planning and development for the country over the next 20+ years, so that as the population grows, that growth is sustainable in economic, social and environmental terms.

Finalisation of the NPF alongside the ten-year National Development Plan puts together one plan to guide strategic development and infrastructure investment at national level.

The NPF with the National Development Plan also sets the context for each of Ireland's three regional assemblies to develop their Regional Spatial and Economic Strategies taking account of and co-ordinating local authority County and City Development Plans in a manner that will ensure national, regional and local plans align.

The NPF recognises the importance of integration between land and marine planning through chapter **7 Realising our Island and Marine Potential** and the many shared aims and overlapping areas of co-ordination and activity across the two regimes. The NPF contains 6 national planning objectives that are specific to the marine sector.

Similarly, the NMPF mutually recognises the importance of integration and co-ordination with the land planning regime at national, regional and local levels. In future it will be equally important in turn those national, regional and local terrestrial plans are consistent with the NMPF, as they will be required to do under the Planning and Development Act 2018. Many activities and uses that take place on land or in the sea can have impacts on both the land and the maritime area. The Marine Spatial Planning Directive requires that these interactions are considered.

National Development Plan

The National Development Plan 2018 – 2027 (NDP) sets out the investment priorities that will underpin the successful implementation of the MNP and NPF. It is described that this will guide national, regional and local planning and investment decisions in Ireland over the next two decades to cater for an expected population increase of over 1 million people.

Of significance to this submission, the section titled **Commercial State Sector Investments** describes that a significant proportion of this renewable power generation is being delivered from wind energy but given **the intermittent nature of this technology, a proportion of Ireland’s electricity needs will likely continue to be generated from gas over the medium to longer term**. It is stated that it will therefore remain necessary for a certain level of gas fired generation to continue to be available to ensure continuity of supply and the integrity of the electricity grid during the transition towards a low-carbon energy system.

Continued investment by Gas Networks Ireland (GNI) in the gas network, to ensure it remains fit for purpose, will also be made in the years ahead. Any further investment over and above maintenance levels will primarily be driven by future gas consumption levels. In this regard, GNI is also exploring investment in gas demand growth opportunities, including the potential for extending its gas network from a gas-supply perspective. It is noted that the delivery of indigenous gas from the Corrib gas field has enhanced the security of supply but **Ireland will still need to import gas via the UK on a long-term basis as Corrib production is projected to decline over the medium term**. An important project in this regard that is now nearing completion is the approximately €100 million gas pipeline twinning project (South-West Scotland On-shore System project), which involves the construction of 50 km of gas transmission pipeline from Cluden to Brighthouse Bay, Scotland.

A point within National Strategic Outcome (NSO) 8 is relevant to the above. As part of ‘Commercial and Private Sector Investments’, there is an objective for the,

“Development of gas infrastructure projects to support regional and rural development and the low-carbon transition.”

Regional Spatial and Economic Strategy

The Regional Spatial and Economic Strategy (RSES) for the Southern Region is a 12-year strategic regional development framework. It describes that it establishes a broad framework for the way in which our society, environment, economy and the use of land should evolve. The RSES primarily aims to support the delivery of the programme for change set out in Project Ireland 2040, the NPF and the NDP. As the regional tier of the national planning process, it will ensure coordination between the City

and County Development Plans (CCDP) and Local Enterprise and Community Plans (LECP) of the ten local authorities in the Region.

Of relevance to this submission Chapter 5 **Environment**, provides the following Regional Planning Objective (RPO),

RPO 96 - Integrating Renewable Energy Sources

It is an objective to support the sustainable development, maintenance and upgrading of electricity and gas network grid infrastructure to integrate renewable energy sources and ensure our national and regional energy system remains safe, secure and ready to meet increased demand as the regional economy grows.

Section 8.3 **Gas Networks** within chapter 8 Water and Energy Utilities is also of significance. It is described within that Gas Networks Ireland (GNI) operates, builds and maintains the state-owned gas network (representing 30% of Ireland's primary energy). They aim to move to a 'carbon neutral' gas network by 2050. It is stated that renewable gas is an extremely flexible and efficient fuel that can be fully accommodated into the existing gas network.

It is further described that **in urban areas, natural and renewable gas are economically beneficial routes to a decarbonised energy sector**. The network currently includes Cork, Limerick, Waterford, Kilkenny, the towns of Metropolitan Cork, Carlow, Tramore, Wexford, Clonmel, Carrick on Suir, Nenagh, Ennis, Shannon, Mallow, Bandon, Fermoy, Kinsale and Listowel. It is considered that there are opportunities to extend the gas network to other settlements and to draw further upon the use of renewable gas supplies and support decarbonisation in the energy sector.

It is also stated that the gas network also has the capacity to accommodate new loads as part of the Climate Change Adaptation Strategy. It is further stated that **increased use of the gas network can provide enhanced energy security at a relatively low cost**.

With respect to the above, the following RPO is provided,

RPO 225 Gas Network

Subject to appropriate environmental assessment and the planning process where required, it is an objective to:

- a) Promote renewable gas leading to carbon emission reduction in agriculture, industry, heating and transport as well as sustainable local employment opportunities.*
- b) Support the transition of the gas network to a "carbon neutral" gas network by 2050, which will drive Ireland and the Region to becoming a low carbon society.*
- c) Support investment in the sustainable development of agricultural biogas sector and regional gas supply projects which strengthen gas networks in the Region and assist integration of renewable gas to the grid network.*
- d) Support investment in developing renewable gas and provision of CNG refuelling infrastructure which will help reduce the Green House Gas emissions in both the agriculture and transport sectors and support Carbon Capture and Storage initiatives, which has the potential to decarbonise power generation at scale.*

- e) *Strengthen the gas network sustainably to service settlements and employment areas in the Region, support progress in developing the infrastructures to enable strategic energy projects in the Region. An example is the Tarbert/Ballylongford landbank in Co Kerry which is a strategic development site under the Strategic Integrated Framework Plan for the Shannon Estuary and support for the extension of the Gas Network from Listowel into the Kerry Hub and Knowledge Tri-Angle settlements of Tralee, Killarney and Killorglin.*

Draft Cork County Development Plan 2022 – 2028

The Draft Cork County Development Plan 2021-2027 (CDP) states that it sets out an approach centred on the core principle of sustainability with a focus on creating vibrant, liveable, climate resilient communities. It is described that the CDP is consistent with both the NPF and the RSES.

Of significance to this submission is chapter 7 **Marine, Coastal and Islands**. It provides an ‘aim’ which states that,

“Through the application of the Marine Planning Framework and the planning principles set out in this document, to provide an integrated approach to the protection and management of our coastal areas including our Island Communities and to maintain their sustainable contribution to the economic, social and cultural life of the County”.

It is described that marine spatial planning is a process that brings together all of the multiple users of the ocean to make the best decisions about how to use marine resources sustainably. Maritime planning will apply from the High Water Mark in Ireland’s coastal waters, territorial seas, and exclusive economic zone and in designated parts of the continental shelf.

It is further considered that marine planning will contribute to the effective management of marine activities and more sustainable use of our marine resources. It will enable the Government to set a clear direction for managing our seas, to clarify objectives and priorities, and to direct decision makers, users, and stakeholders towards more strategic and efficient use of marine resources. It will inform decisions about the current and future development of the marine area, aiming to integrate needs.

The chapter lists some of the key issues facing the coastal zone of Cork. The following is of relevance in relation to this submission,

- The phasing out of the exploitation of natural energy resources (i.e. Gas).

Chapter 13 **Energy and Telecommunications** is of relevance and significance to this submission. The chapter begins by providing an ‘aim’ which states,

“Facilitate and support investment in sustainable energy production and infrastructure in Cork to meet the future local, regional and national needs, while transitioning to a low carbon economy, addressing the climate change challenge with greenhouse gas emissions and protection of the environmental, cultural and heritage assets of the county. Cork will benefit through its contribution to national renewable energy targets, in a renewable energy framework that will also ensure the protection of local environmental assets in line with the National Planning Framework, the Regional Spatial and Economic Strategy and all other key Energy policies.”

The chapter describes that **reliable energy services are essential to the daily functioning of society and the economy**. It further states that **demand for energy has continued to increase in line with population and economic growth**. The greenhouse gases produced in the production and use of

energy are one of the major contributors to climate change and a ‘radical transformation’ of our energy system is required to meet National, European, and International climate policy objectives.

In relation to **Cork’s local energy**, it is described that the county plays a significant role in the security of energy supply and electricity production in Ireland being home to two Power Stations at Aghada/Whitegate operated by the ESB and Bord Gáis, Whitegate Oil Refinery which supplies about 40% of national petroleum needs, and Whiddy Island Oil Terminal which stores Ireland’s oil reserves. It further describes that the **Kinsale Gas Field is currently being decommissioned as the gas field is depleted**. Of significance it is stated that **opportunities for future uses of the gas field for carbon storage and capture are currently being considered**.

In addition it is described that Gas Networks Ireland has confirmed that the GRAZE Gas project, in Mitchelstown, Co Cork, due to be implemented by 2022, will be Ireland’s first central grid injection (CGI) facility for delivering renewable gas into the national gas network. The Mitchelstown facility will be the first of 17 CGI facilities, and GRAZE Gas will deliver 8% of Ireland’s residential gas demand, the equivalent to demand from 56,000 homes. This development will allow local on-farm Anaerobic Digestion Plants to inject into the CGI plant. It is described that the GRAZE Gas project will be another stepping-stone in reaching the 50% Gas supply targets by 2050. It is also planned to fund development of over 70 Compressed Natural Gas (CNG) stations by Gas Networks Ireland as part of the GRAZE Project, to cater for trucks and buses to transition from diesel to renewable gas.

It is stated that energy generation in Cork is likely to evolve significantly over the next number of years as the move towards a low carbon economy increases and the need to produce more energy for renewal sources. It is suggested that Cork is well positioned to become self-sufficient in renewable energy and contribute to the achievement of national energy targets. In addition it is considered that other aspects of energy use are also likely to change over the life of the CDP as carbon pricing creates behavioural change, buildings became more energy efficient and transport demand is reduced due to modal shift, greater alignment between where people live and work, and reduced commuting due to increased take up of remote working.

With respect to the above, the following County Development Plan objective is provided,

ET 13.1

Energy Ensure that County Cork fulfils its potential in contributing to the sustainable delivery of a diverse and secure energy supply and to harness the potential of the county to assist in meeting renewable energy targets.

Although there is no mention of gas or LNG projects within section 13.5 **Renewable Energy**, the Gas Distribution Network, and the Kinsale Head and Southwest Kinsale, Seven Heads and Ballycotton Gas Fields are highlighted at the end of the section through a figure titled ‘*Key Energy and Renewable Energy Infrastructure in County Cork*’. This figure is also illustrated below.



Figure 5 Key Energy and Renewable Energy Infrastructure in County Cork (Source: Section 13.5 Renewable Energy of the Draft Cork County Development Plan 2022 – 2028)

Gas Storage is detailed in section 13.12. It is described that it is an activity that allows for the storing of gas during periods of low demand (e.g. summer months) in large-scale storage reservoirs, then accessing that gas when demand increases. It is **noted that there is limited gas storage capacity in Ireland. Up until 2017 Kinsale Energy operated the only offshore natural gas storage facility utilising the depleted southwest Kinsale Gas Field.**

In this regard, it is highlighted that **Gas Network Ireland and EirGrid conducted a study into Ireland’s resilience to a long-term gas disruption, which includes the need for gas storage and Liquefied Natural Gas (LNG).** It is noted that the study will help form future policy measures to maintain Ireland’s gas and electricity supply. Of significance, it is described that **the study found that Ireland’s gas network is largely resilient to cope with a long duration gas disruption in the medium to long term. Cork Harbour or Kinsale Gas Field have been highlighted as possible locations for an LNG terminal in Ireland.**

Section 13.16 **Transmission Network** provides significant content in relation to the **Gas Network** itself. It is described that Gas Networks Ireland (forming part of Eirvia) owns, operates, builds, and maintains the natural gas network in Ireland and connects customers to the network. **At present there is approximately 688,000 homes and businesses with a connection to the gas network nationwide.**

It is noted that Gas Networks Ireland has published a long-term strategy document named Vision 2050 whereby the national gas network will evolve to become net zero carbon by 2050. In doing so, it is stated that it will support emissions reductions across every sector of the Irish economy at the lowest

cost possible. In terms of gas infrastructure in Cork, Bord Gáis Energy (a privately owned company since 2014) owns a state of the art 445MW energy efficient Power Generation Plant in Whitegate, Co. Cork which can power up to 400,000 homes.

Of pertinence to this submission it is described that the **Inch entry point, located in Cork, connects the Kinsale and Seven Heads gas fields and the Kinsale storage facility to the onshore network and allows direct access to the gas network.** In this regard, it is stated that,

Gas Infrastructure has as an important role to play in the development of renewable energy. It can facilitate future renewable energy development by providing reserve fuel for heat and power facilities otherwise provided by renewable resources, in a local and national context.

In this regard, the following policy objective is also provided,

ET 13.24 Gas Network Infrastructure

Facilitate the delivery, improvement, and expansion of natural gas infrastructure throughout the County and have regard to the location of existing gas infrastructure in the assessment of planning applications.

In relation to **Energy from Oil and Gas** the Draft CDP states that Cork plays an important role in the production/management of national oil and gas supplies and in the generation of electricity from both oil and gas. Whitegate, Irelands Energy Park, on the eastern shore of Cork Harbour, is a strategically important area at national level for energy supply and security with up to 25% of all national energy produced in one square mile. Also, 90% of the oil reserves for the state are stored here and elsewhere in the Cork region. Additionally, on the other side of the Harbour is the Irish Maritime and Energy Resource Cluster (IMERC), Beaufort Laboratory, National Maritime College of Ireland (NMCI) and Maritime Renewable Energy Ireland (MaREI) at Ringaskiddy, making Cork a worldclass hub of marine renewables and offshore research and training.

In terms of Energy Infrastructure assets, Ireland's only oil refinery, operated by Irving Oil, is located at Whitegate in East Cork. Extensive oil storage facilities at Whitegate and Bantry Bay place Cork at the centre of the oil industry in Ireland. This position has the potential to be boosted with the development of Ireland's first indigenous oil field at the Barryroe prospect 50km off the Cork coast. Barryroe Gas and Oil Field is located very close to the depleted Kinsale Gas Field. It is stated that during the lifetime of the CDP, there are proposals to develop the Barryroe facility for gas storage, carbon capture and a hydrogen generation site.

It is further described that Cork Harbour, operated by the Port of Cork Company, is a well-developed deep-water port for commercial traffic with a track-record of service to the energy industry. Cork Harbour is the most significant port outside Dublin's and it is noted **that this infrastructure will support the development and future maintenance of offshore energy resources.** Cork Airport also facilitates the support of oil and gas infrastructure off the coast.

In addition, Whitegate is close to the Kinsale Gas Field (with access to the gas grid). This is the location of Ireland's only strategic gas storage facility with gas imports used to refill this storage facility. It is highlighted that in July 2020, Gas production in the Kinsale Gas Feld was ceased and is currently being decommissioned. Of significance, the Draft CDP states that,

"...the infrastructure available offers opportunities for potential Carbon Capture and Storage with a calculated practical capacity of 330 million tonnes CO₂. Studies are being undertaken by Ervia to determine the opportunities."

The section concludes by acknowledging that Ireland needs to reduce its reliance on fossil fuels, and national policy supports increasing the renewable energy share of final energy consumption. In the short to medium-term, the mix of non-renewables will shift away from more carbon-intensive fuels, like peat and coal, to lower-carbon fuels like natural gas. Cork County Council will work with all stakeholders in progressing plans to transition to carbon neutrality by 2050. The chapter concludes with the following objective,

ET 13.27 Carbon Emissions reduction

To reduce carbon emissions in the county by achieving national, regional and any potential county targets to progress the national targets as set out in the Climate Action Plan (2019). To seek to reduce greenhouse gas emissions by promoting energy efficiency and the development of renewable energy sources utilising the natural resources of County Cork in an environmentally sustainable manner consistent with best practice and planning principles.

SUBMISSION COMMENTS

The following outlines the key points that Mag Mell Energy Ireland Ltd would like to address in relation to the proposed Draft Cork County Development Plan 2022 – 2028 and its concept FSRUP, that would make use of the existing 24” pipeline connected to the GNI entry point at the onshore Inch Terminal.

Compliance with Statutory Documents

As described in the MNPF security of energy supply is a key issue, in that the future sustainability and energy security are intrinsically linked. Security of energy supply is a key imperative for Ireland and the European Union. The MNPF further suggests that one possible option for enhancing security of supply, is commercial gas storage as a measure to mitigate potential security of supply disruptions.

It is considered that this a priority option to consider given the synergies included and opportunities offered through the continuous use of Cork’s ports and harbours in supply and transfer operations, possible colocation with wind energy installations, supply chain services, and the potential for installations to act as artificial reefs providing new protections for biodiversity.

Albeit it is acknowledged that the ultimate endeavour is for Ireland to shift energy supply in the evolution to a low carbon energy system in the long term, it is considered that natural gas will continue to play an important role in the energy transition. As supported by the MNPF this would be to firstly, ensure system flexibility and inertia with more renewables in the power sector and, secondly, to substitute for fuels with higher carbon emissions for heating purposes and in transport.

In this regard, it should be noted that Natural Gas remains an important component in Ireland’s energy mix, as it is the dominant fuel for electricity generation (48% in 2016). Furthermore, and as noted previously, supplies from the Corrib gas field will decline in the coming years with 84% of Ireland’s natural gas peak day demands forecast to be met by imports from the UK in 2024/2025. In this regard it is alarming to note that the draft Cork CDP states that there is limited gas storage capacity in Ireland. Up until 2017 Kinsale Energy operated the only offshore natural gas storage facility utilising the depleted southwest Kinsale Gas Field.

It has been outlined throughout this submission that providing a natural gas network infrastructure is essential for the proper functioning of the markets. In this context, developing, maintaining and upgrading the gas networks is crucial, to ensure that the energy system remains safe, secure and ready to meet increased demand as the country’s population continues to increase. Statutory documentation further acknowledge that infrastructure will be required to support this energy transition across the transport, heat and electricity sectors, with the need for this new energy infrastructure to be assessed through robust analysis.

In response, it should be noted that GNIs and Eirgrids’ ‘Long Term Resilience Study 2018’¹ concluded that the most economically advantageous option for Ireland to enhance its security of supply is a floating LNG terminal, along with bio-methane integration. These measures would significantly improve Ireland’s security of supply position.

Cork Harbour or Kinsale Gas Field have been highlighted as possible locations for an LNG terminal in Ireland and in this regard the following proposed County Development Plan policy objective is welcomed,

¹ Gas Networks Ireland and Eirgrid (2018) *Long Term Resilience Study*.

ET 13.24 Gas Network Infrastructure

Facilitate the delivery, improvement, and expansion of natural gas infrastructure throughout the County and have regard to the location of existing gas infrastructure in the assessment of planning applications.

In response, it is submitted that the proposed FSRUP should be considered a key project to facilitate this objective, as would enable Ireland to ensure energy security of supply by providing an alternative source of gas, through the use of existing infrastructure. In support of this it should be noted that diversification of supply sources is considered paramount both for energy security as well as for competitiveness. Ensuring that all Member States have access to liquid gas markets is a key objective of the EU's Energy Union².

Security of Supply and Public Interest Considerations

Natural gas storage as proposed within the Mag Mell FRSU is well established as an issue of 'public interest'. By virtue of targets and actions set within the Government's Climate Action Plan, Ireland is entering a period of major transition of its energy systems, including a doubling of the electricity generated from renewable sources to 70% of the country's final consumption. This target was set in the Climate Action Plan in June 2019, with the majority of the remaining 30% of electricity anticipated to be generated from natural gas. The maintenance of energy security within this transition period is critical to the Plan's success, and the provision natural gas storage is acknowledged as having the potential to make a major contribution to our energy security.

In terms of wider energy security considerations, the following factors are important:

- Ireland's demand for electricity is expected to increase in the coming years due to increased electrification in the heat and transport sectors and growth in demand from large energy users such as data centres;
- following the phasing out of peat and coal use for electricity generation, Ireland's security of electricity supply is expected to become much more dependent on natural gas which is likely to be the principal source of non-variable generation supporting variable renewable sources such as wind and solar;
- there will be a significant reduction in indigenous supplies of natural gas due to production at the Kinsale fields having ceased in July 2020, and the planned tapering decline in production from Corrib over the next decade;
- Ireland's gas import dependency is predicted to increase from over 50% in 2019 to circa 80% by the middle of the decade and to over 90% import dependency by 2030;
- all of Ireland's natural gas imports are sourced (via the two pipelines) from a single supply point at Moffat in Scotland with no alternative import routes;
- there is no natural gas storage in Ireland at present; and
- the UK has left the European Union which will lead, at the end of the withdrawal period, to difficulties for Ireland in meeting the requirements of EU law in relation to gas security of

² European Commission (2016) *Liquefied Natural Gas and gas storage will boost EU's energy security*.

supply including potential challenges for future compliance with EU law including the “N-1” infrastructure standard and the supply standard.

As alluded to previously, several studies have examined Ireland’s security of supply with a particular focus on natural gas. In November 2018 the Long-Term Resilience Study was published³ by GNI and EirGrid and examined Ireland’s resilience to a prolonged gas disruption. It made recommendations on how Ireland can future-proof its gas supply.

The leading recommendation of the report identified the need for a cost benefit analysis of a floating LNG terminal as “*the most economically advantageous option*” to improve the resilience of Ireland’s natural gas supply.

In addition, in July 2018, the Irish Academy of Engineering published a report⁴ on the role of natural gas in Ireland’s energy security. The report highlighted the following key conclusions,

1. Natural Gas is critical to Ireland’s Energy Supply

Gas plays a critical role in Ireland’s energy mix. Gas supplies around 30% of Ireland’s total primary energy and is used to generate about 50% of Ireland’s electricity. Many indigenous and multinational companies in Ireland rely on gas. Approximately 650,000 households in Ireland depend on natural gas for home heating.

2. Natural gas will be essential for Ireland’s transition to a low-carbon future

Electricity generation in Ireland in the future will be a combination of renewables and natural gas. Ireland’s dependence on natural gas for electricity generation will increase further when coal and peat use in generation end. Gas would then account for over 90% of Ireland’s electricity generation at times of very low renewables generation. Natural gas has the lowest carbon emissions of all fossil fuels and is the ideal complement to renewables. Gas will also be needed for many industries in Ireland where there is no low-carbon alternative. Gas will be critical for Ireland’s transition to a low-carbon future.

3. Ireland will have no indigenous natural gas supply after 2030

Corrib will only supply around 20% of Ireland’s annual gas demand in 2025. Corrib production will cease by around 2030. This will leave Ireland in the vulnerable position of having no indigenous gas supply and being totally dependent on gas imports from Britain.

4. Ireland needs to develop alternative gas supply sources

Ireland needs to develop diverse sources and routes of gas supply to ensure its energy security in the longer term. By 2030, Britain will need to import 75% of its gas due to the decline in North Sea production. The gas supply route to Ireland will be longer than at present with a greater risk of supply disruption. Ireland should have at least two separate supply sources and

³ Gas Networks Ireland and Eirgrid (2018) *Long Term Resilience Study*.

⁴ Irish Academy of Engineering (2018), *Natural Gas Essential for Ireland’s Future Energy Security*.

supply routes. Developing an LNG import terminal would enhance Ireland's security of supply and provide access to the competitive global gas market. Exploration for offshore gas should be promoted in parallel. Options of gas storage in Ireland also need to be assessed.

5. A Strategic plan for gas supply security is needed.

A strategic government plan is needed to diversify Ireland's gas supply. This strategic plan should include appropriate fiscal, licensing and legislative frameworks to facilitate the development of new sources of gas supply and encourage investment. The plan needs to factor in a lead-time of five to ten years for large energy infrastructure developments in Ireland.

However, it should be noted that there have been a number of important developments since both of these studies were published. These include,

- a new target of 70% for the level of electricity generated from renewable sources by 2030 has been set;
- clarity that the UK will leave the internal energy market and the full spectrum of EU energy law will no longer apply to the UK;
- the planned closure of two of the three peat-fired power stations at the end of 2020 and the significant reduction in generation of electricity from coal increasing the reliance of the electricity supply in Ireland on natural gas in the near term; and
- a reduction in the number of active petroleum exploration licences and the commitment in the Programme for Government to end the issuing of new licences for the exploration and extraction of gas, which in turn means a significant reduction in the likelihood of additional indigenous production of natural gas.

In light of the above, it is considered that these previous studies are no longer considered to be fully representative of the key risks to security of supply in natural gas and electricity systems. In response, the Department of the Environment, Climate Actions and Communications has therefore commissioned a further study on the Security of Energy Supply of Ireland's Electricity and Natural Gas Systems. This newly commissioned study will be undertaken throughout 2021 and will include extensive stakeholder consultation and the preparation of a technical analysis to inform a full strategic review.

The case for the Mag Mell FRSU will be presented to this review through the course of the 2021. In this regard, and with respect to the above points it is submitted that the proposed Draft Cork County Development Plan 2022 – 2028 should acknowledge the benefits of the concept FSRUP, that would make use of the existing 24" pipeline connected to the GNI entry point at the onshore Inch Terminal.

CONCLUDING REMARKS

This submission has set out the rationale that Mag Mell Energy Ireland Ltd would like to highlight in support of a concept FSRU making use of the existing 24" pipeline connected to the GNI entry point at the onshore Inch Terminal. It is submitted that the proposed Draft Cork County Development Plan 2022 – 2028 should acknowledge the benefits of such a project locally, but also in a regional and national context as outlined within the contents of this submission. In relation to Gas Storage, Mag

Mell Energy Ireland Ltd would like to welcome the acknowledgement of the Kinsale Gas Field as a possible location for an LNG terminal in Ireland. Further support for the Kinsale Gas Field as a location for a LNG terminal and for the Mag Mell FSRU in particular is also sought on the basis that this project:

- is critical to Ireland’s energy security of supply providing an alternative source of gas to the vulnerable pipeline interconnectors through a third party country from unreliable sources.
- could prove pivotal to Ireland’s energy transition replacing the depleting Corrib gas field as a source gas acting as the transition fuel to complement the currently intermittent renewable energy while waiting on offshore renewable energy projects to mature over the next 15 to 20 years.
- capitalises on the opportunity presented by existing infrastructure associated with the decommissioned Kinsale Head Gas Field.

We request that the following County Development Plan Objective ET 13.19a be inserted after paragraph 13.12.2 of Volume 1 Main Policy Material.

County Development Plan Objective ET 13.19a: Gas Storage to Support Security of Supply

Support the development of Gas Storage facilities and the Kinsale Gas Field as a location for an LNG terminal.

We trust that the rationale as outlined in this submission is both understood and justified but should you have any queries, please do not hesitate to revert to the undersigned.

Yours faithfully
SLR Consulting Ireland

**Appendix 5 - Submission by Kilcolgan Residents
Association to Original Planning Application by Shannon
LNG PA0002 - November 2007**

An Bord Pleanala,
64 Marlborough Street,
Dublin 1.

Direct Planning Application to An Bord Pleanala in Respect of a Strategic Infrastructure Development

Case reference: PL08 .PA0002 (liquefied natural gas regasification terminal proposed for Ralappane and Kilcolgan Lower, Co. Kerry)

Name of Person (or agent) making submission/observation: Johnny McElligott (Group submission for the 'Kilcolgan Residents Association')

Address to which Correspondence should be sent: Island View, 5 Convent Street, Listowel, Co. Kerry

Subject matter of submission or observation: Proposed LNG Terminal: Recommending complete Rejection of the Planning application

Reasons/Considerations/Arguments:

We are objecting to the submitted planning application due to, among other things, the safety, environmental, economic and residential amenity grounds supported in detail in the attached letter

(Please use additional pages if necessary & attach supporting documentation if applicable)

Fee: There is no fee applicable in this instance

Signed:

Date:

Johnny McElligott

Name	Address
Johnny McElligott	Island View, 5 Convent Street, Listowel, Co. Kerry
Morgan Heaphy	Glencullare North, Tarbert, Co. Kerry
Patricia Anglim O'Connor	Saleen, Tarbert, Co. Kerry
Josephine Anglim	Saleen, Tarbert, Co. Kerry
Adam Kearney	Bridge Street, Ballylongford, Co.Kerry (landowner Kilcolgan, Tarbert)
Seamus Leane	Knockenagh, Listowel, Co. Kerry (land-owner Puleen, Tarbert)
Fiona Leane	Knockenagh, Listowel, Co. Kerry (land-owner Puleen, Tarbert)
Michael O'Connor	Upper Kilcolgan, Tarbert, Co. Kerry
Willie Hayes	Puleen, Tarbert, Co.Kerry
Kathleen Hayes	Puleen, Tarbert, Co. Kerry
Richard McElligott	Gunsboro, Knockenagh North, Listowel, Co. Kerry (landowner Kilcolgan)
Shannon O'Mahony (Age 6)	Kilcolgan, Tarbert, Co. Kerry

Raymond O'Mahony	Kilcolgan, Tarbert, Co. Kerry
Tim Mahony	Kilcolgan, Tarbert, Co. Kerry
Padraig O'Connor	Upper Kilcolgan, Tarbert, Co. Kerry
Margaret O'Mahony	Kilcolgan, Tarbert, Co. Kerry
Margaret Finnucane	Kilcolgan, Tarbert, Co. Kerry
Kathleen Finnucane	Kilcolgan, Tarbert, Co. Kerry
Andrew Finnucane	Kilcolgan, Tarbert, Co. Kerry
Noleen Finnucane	Kilcolgan, Tarbert, Co. Kerry
Ann Marie Finnucane	Kilcolgan, Tarbert, Co. Kerry
Catherine Finnucane	Kilcolgan, Tarbert, Co. Kerry
Seamus Finnucane	Kilcolgan, Tarbert, Co. Kerry
Sean Heaphy	Lislaughtin Abbey, Ballylongford, Co. Kerry
Michael Heaphy	Lislaughtin Abbey, Ballylongford, Co. Kerry
Ena O'Neill	Puleen, Tarbert, Co. Kerry
Jim O'Neill	Puleen, Tarbert, Co. Kerry
Michael O'Connor	Carhoonakineely, Ardmore, Tarbert, Co. Kerry
Beatrice O'Mahony	Kilcolgan, Tarbert, Co. Kerry
Chris Kelly	Carhoonakilla, Tarbert, Co. Kerry
Jayne Kearney	Kilcolgan, Tarbert, Co. Kerry
Kenneth Finnucane	Ballymacassy, Ballylongford, Co. Kerry
Kathleen Kelly	Carhoonakilla, Tarbert, Co. Kerry
Frank Kelly	Carhoonakilla, Tarbert, Co. Kerry
Esther Flavin	Carhoonakilla, Tarbert, Co. Kerry
Mary Kelly-Godley	Glensillagh, Tarbert, Co. Kerry
Sasha Godley	Glensillagh, Tarbert, Co. Kerry
Brian Godley	Glensillagh, Tarbert, Co. Kerry
Noelle Jones	Carhoonakilla, Tarbert, Co. Kerry
Ger Buckley	Cockhill, Tarbert, Co. Kerry
Eileen O'Connor	Lislaughtin, Ballylongford, Co. Kerry (landowner Kilcolgan)
Chloe Griffin (age 10)	Carhoonakilla, Tarbert, Co. Kerry
Catriona Griffin	Carhoonakilla, Tarbert, Co. Kerry
Pat Griffin	Carhoonakilla, Tarbert, Co. Kerry
Patricia O'Connor	Saleen, Tarbert, Co. Kerry
Ger Shanahan	Kilcolgan, Tarbert, Co. Kerry
Donncha Finnucane	Kilcolgan, Tarbert, Co. Kerry
John O'Connor	Lislaughtin, Ballylongford, Co. Kerry (landowner Kilcolgan)
Bridget Shanahan	Kilcolgan, Tarbert, Co. Kerry
John J O Mahony	Kilcolgan, Tarbert, Co. Kerry
Lily O'Mahony	Kilcolgan, Tarbert, Co. Kerry
TJ O'Mahony	Kilcolgan, Tarbert, Co. Kerry
Geraldine Carmody	Kilcolgan, Tarbert, Co. Kerry
Cathal Carmody	Kilcolgan, Tarbert, Co. Kerry
Betty Doherty	Kilcolgan, Tarbert, Co. Kerry
James Doherty	Kilcolgan, Tarbert, Co. Kerry
Anthony O'Mahony	Kilcolgan, Tarbert, Co. Kerry
Jamie O'Mahony (age 5)	Kilcolgan, Tarbert, Co. Kerry
Catherine Heaphy	Glencullare, Tarbert, Co. Kerry
Tom O'Connor	Ardmore, Tarbert, Co. Kerry
Kathleen O'Connor	Ardmore, Tarbert, Co. Kerry.

Kilcolgan Residents Association
c/o Johnny McElligott
Island View,
5 Convent Street,
Listowel,
County Kerry
johnmcelligott@hotmail.com
Tel: (087) 2804474

14th November 2007

An Bord Pleanála,
64 Marlborough Street,
Dublin 1.

Submission to An Bord Pleanála regarding the Proposed Liquefied Natural Gas (LNG) regasification terminal located on the Southern shore of the Shannon Estuary in the townlands of Ralappane and Kilcolgan Lower, County Kerry (reference PL08 .PA0002 and PC 08.PC0002).

Dear Sir/Madam,

This submission is being made by nearby residents of the proposed LNG regasification terminal and by people with close family and economic ties to the area. We are totally opposed to the planning application in its present form and ask that An Bord Pleanála refuse planning permission to Shannon LNG.

It must be highlighted that there are serious environmental, safety, economic, residential-amenity and other concerns surrounding the proposed LNG terminal in Tarbert parish, which have not been raised at all to date. These concerns may be overlooked by the general public until it is too late as the decision by An Bord Pleanála on whether or not to grant planning permission will already have been made. This is because the new fast-track planning process allowed for this application means that all environmental, safety and development issues are being examined in parallel and by different government bodies without the right of appeal in the planning process that would exist if the application was first submitted to Kerry County Council. This is unacceptable because it is depriving the public of meaningful or effective participation in the planning process due to information not being disclosed in a timely manner and therefore removing the transparency that must continue to exist in the planning process. This is contrary to both the Planning and Development Act 2000 and the EU EIA directive. For this reason we hereby insist on being allowed to make more submissions once this information has been obtained.

The primary concern is the lack of safety for nearby residents due to the fact that they live too close to the proposed site. Conservative scientific evidence provided below shows that it is unsafe to live within 3 miles of the site. This area covers the villages of Ballylongford, Tarbert and Killimer in County Clare. More seriously, the limited QRA undertaken by Shannon LNG itself admits categorically that a vapour cloud from a leaked tank could travel as far away as **12.4 kilometers** before being ignited (page 32). This will mean that the Kerry towns and districts of Asdee, Moyvane and Beal, the Limerick town of Glin and the Clare towns of Kilrush, Moyasta, Killimer, Knock and Kilmurry McMahan, as well as surrounding countryside, are in the possible fallout zone. This is from Shannon LNG's own research.

This will therefore also prevent further use being made of the rest of the land bank due to the danger posed to people working nearby, if safety standards are in fact implemented.

The most serious environmental concern is that up to 100 million gallons of chlorinated seawater will be pumped into the estuary daily, causing serious environmental damage to the eco-system of this SAC area. The withdrawal and discharge of huge volumes of seawater would affect marine life by killing ichthyoplankton and other micro-organisms forming the base of the marine food chain unable to escape from the intake area. Furthermore, the discharge of cooled and chemically-treated seawater would also affect marine life and water quality.

The most serious economic concern is that the gas-industry's own standard-recommended exclusion zone of 2 miles around an LNG tanker will stop shipping – including the Tarbert-Killimer car ferry - in the estuary every time an LNG tanker is in the area (and Shannon LNG plan up to 125 tankers a year) and prevent marine use of the rest of the land bank – if those safety standards are implemented.

Finally, whereas the developer emphasises that it is in the national strategic interest to have an LNG terminal in Ireland, we are of the opinion that only a strategic interest in LNG as another strategic alternative source of gas in Ireland has been accepted and that there has been no acceptance of the strategic need for an LNG terminal if no suitable site in Ireland is found. This distinction is very important because this need for LNG is already being met with the construction of the LNG terminals in the UK which can then provide LNG to Ireland via the existing gas pipeline from the UK. It must also be noted that the developer, in any case, does not guarantee supply of LNG via Tarbert. What is proposed is no more than a private storage and transshipment facility albeit on a very large scale. It does not purport to offer any strategic benefit to the country, nor in reality does the country gain any strategic benefit from it. On the contrary, it undermines the stated government policy. It does so in a number of respects - in particular by entirely prejudging the outcome of the all-Island study and the strategic goal No. 2 in the government's white paper on delivering a sustainable energy solution for Ireland.(See 17 below). On that basis alone the application is clearly premature and should be refused.

The methodology used in this submission is to support each topic with data from published scientific reports, governmental reports, decisions and strategy documents, statutory regulations (both Irish and European) and from standards produced by the Gas industry itself. Any reference to non-scientific based claims will be clearly stated. Data was collected initially by various members of the association individually. This was then followed on by a visit to the Dragon LNG plant at Milford Haven in Wales on October 13th 2007 where the views of concerned residents were noted. Information was raised since then in contacts with Shannon LNG at their office in Listowel on October 15th, with other local residents in Tarbert in meetings with Shannon LNG representatives on October 18th and October 29th, and with various governmental, scientific, academic and voluntary organisations in Ireland and abroad. Our concerns were taken seriously by one and all but many questions were left unanswered. The overwhelming feedback has been that a submission of these concerns needs to be made to An Bord Pleanála,

For the reasons given below we submit that the Bord is obliged to refuse the application. We accept that the Bord may of course take a different view. While we reserve our rights to challenge such a view if necessary we make any comments on conditions that could be applied by the bord if it grants permission to the developer entirely without prejudice to our

over-riding contention that this application should be refused.

STATUTORY REGULATIONS:

- Planning and Development Acts 2000 – 2006. This includes the Planning and Development (Strategic Infrastructure) Act 2006
- EU Habitats Directive 92/43/EEC On the conservation of natural habitats and of wild fauna and flora– as 25 acres of the site is in a Special Area of Conservation (SAC)
- EU 1998 Aarhus Convention Directives, Directive 2003/4/EC and Directive 2003/35/EC – on the right of the public to be informed on the environmental impact and being provided with the opportunity to make comments and have access to justice
- EIA directive 87/337/EEC as amended by Directive 97/11/EC - concerning the effects of certain public and private projects on the environment, the precautionary, preventative-action and polluter-pays principles
- Seveso II Directive 96/82/EC as amended by 2003/105/EC – for placements of hazardous sites
- EU Water Framework directive 2000/60/EC
- Kyoto Protocol
- County Clare and County Kerry Development Plans
- European Convention on Human Rights Act 2003
- Planning and Development (Strategic Environmental Assessment) Regulations 2004

INVALID APPLICATION

1. The developers in their planning application describe the 10 hectares to be developed offshore as zoned industrial. This is false as it is zoned Special Area of Conservation. We therefore object to this invalid and misleading application and want the whole application to be declared invalid – as would be the case if an individual made such a serious and misleading mistake in a planning application.

SAFETY ZONE

2. The evidence obtained from the Dr. Jerry Havens' Report (see. attachment 1), prepared by the Public Utilities Commission of the State of California for the Federal Energy Regulatory Commission, highlights worrying scientific evidence. Dr. Havens, Distinguished Professor of Chemical Engineering at the University of Arkansas and Director of the University's Chemical Hazard's Research Center, concluded that people living within **3 miles** of the proposed site would be in harm's way (this radius covers the Kerry villages of Tarbert and Ballylongford and the Clare village of Killimer). "Dr. Havens is extremely qualified and has studied LNG safety issues for more than 30 years. His primary specialisation is in the analysis and quantification of the consequences of releases of hazardous materials into the environment, with emphasis on the consequences that can occur as a result of toxic and/or flammable gas releases into the atmosphere". "He has provided detailed analysis supporting his conclusion that there should be a minimum of 3 miles between an LNG terminal and a densely populated area. Anything closer than **3 miles** could put the public in harm's way." This is based on a spillage of 3,000,000 gallons of LNG, which he claims is widely accepted as credible.

However, he also examines the consequences of a vapour cloud fire which could result if the LNG spill vapours were not immediately ignited and a vapour cloud formed. The

cloud thus formed would drift downwind until it reached an ignition source or became diluted below the flammable concentration level - after which time it would not constitute a hazard. In his opinion, the maximum distance downwind to which portions of a cloud (sufficiently large to constitute a severe fire hazard) formed from the rapid spillage onto water of 3,000,000 gallons of LNG could be ignited is approximately **3 miles**. If the vapour cloud were ignited as it drifted downwind, those persons in that area or immediately adjacent (thermal exposure could occur at some distance beyond the edge of the fire) who could not gain protection could be killed or seriously injured.

In any case, he states that such fires cannot be extinguished and would just have to burn themselves out.

Havens also deals with the explosion hazards of confined vapour cloud explosions, unconfined vapour cloud explosions, boiling liquid expanding vapour explosions, Toxicity hazards, Cryogenic (“cold” burn) hazards and Rapid phase transition (flameless explosion) hazards. Their importance in the public safety context lies in the potential for RPT’s to cause secondary damage which could lead to cascading failures and further releases of LNG.

Dr. Havens’ report is based on a spill of **3 million gallons**. The EIS submitted by Shannon LNG proposes (volume 1 page 3) to design a jetty capable of taking ships with a capacity of up to 265,000 m3 of LNG. This is equivalent to **58 million gallons** approximately.

The distance of the proposed site from vulnerable residential areas must therefore be taken into account by An Bord Pleanála.

3. The limited QRA implemented by Shannon LNG goes even further than the Havens’ report when it admits that a vapour cloud could travel up to **12.4 kilometres** before being ignited:
“A rule-set has been created for the QRA by considering the development of the largest cloud produced by the consequence analysis, that for catastrophic failure of a full tank in F2 weather. This cloud has a maximum downwind distance to LFL [lower flammable limit] of 12.4 km.” (they do not state how far the cloud could travel beyond this distance before it meets the upper flammable limit – the level at which the oxygen mix with the gas is so high that the gas can no longer be ignited).

LNG FIRE HAZARDS

4. A report by the IoMosaic Corporation – “Understand LNG Fire Hazards” (see attachment 19 page 15) found that the maximum impact hazard footprint of a 200,000 m3 LNG tanker will result from a pool fire leading to **a fatality limit of 50 percent at a distance of 3.7 kilometres from the leak.**
5. The safety zone of 3 miles conservatively required by the Havens’ report has implications for further residential development in the area surrounding the gas terminal. It will potentially have the effect **of sterilising residential areas (stopping any new houses from being built on safety grounds)** and it will also prevent other areas of **the landbank from being developed as the levels of risk increase with more complex developments side by side.** Shannon LNG proposes in the EIS (volume 1 page 5) that the remainder of the site may be used for a gas-fired power station , but the exclusion

zone of 3 miles will make this proposal untenable. The Bord is asked to take these issues into consideration and issue an opinion on them as they will have serious social and economic long-term consequences on the area. In any case, Article 12 of the EU Seveso II directive states: "Member States shall ensure that their land-use and/or other relevant policies and the procedures for implementing those policies take account of the need, in the long term, to maintain appropriate distances between establishments covered by this Directive and residential areas".

6. SIGTTO (The Society of International Gas Tanker and Terminal Operators Ltd) is a non profit making company, formed to promote high operating standards and best practices in gas tankers and terminals throughout the world. It provides technical advice and support to its members and represents their collective interests in technical and operational matters. To become a full Member of SIGTTO it is necessary for a company to have equity interest in or to operate a gas tanker or terminal. Two of the company's published works are
 - "**LNG Operations in Port Areas : Essential best practices for the industry**" (see. attachment 2) which SIGTTO describe as follows: "This document draws on this collective experience in setting out guidance to best practice for managing gas shipping operations within ports. It also illuminates the profile of risks attaching to gas operations, for the information of those who administer", and
 - "*Site Selection & Design (IP no.14) for LNG Ports & Jetties*" (see. attachment 3) which SIGTTO describe as follows: "Information Paper No.14: Bearing in mind the high consequential risks of a serious accident in the LNG trade, this publication has been prepared for port developers as a guide to the minimum design criteria considered necessary when a port is to be built or altered to accommodate LNG carriers." Although HESS is not a member of SIGTTO, in the absence of direct Irish or EU regulation on the matter, it is only reasonable to expect that HESS would follow the standards set by its own industry.

In the public meeting held at the "Lanterns Hotel" in Tarbert on October 29th 2007, Shannon LNG stated that the SIGTTO standards were "a wish list for the ideal site, which was not, in any case, binding on Shannon LNG". We object extremely strongly to this claim because the Gas industry's own standards should be a minimum that the Kilcolgan Residents Association would expect to be applied. The Bord is fully entitled to regard that response from Shannon LNG as an admission that the present application does not match what they accept is "a wish list for an ideal site". There is no objective reason why the Bord should depart from that standard when assessing this application. The Bord has the opportunity, as well as the Statutory obligation to maintain the highest possible standard and the Company's statement eloquently describes exactly what that standard is

RISK ASSESSMENT

7. a) SIGTTO clearly state in "LNG Operations in Port Areas:Essential best practices for the industry" that risk exposures entailed in an LNG port project should be analysed by a Quantitative Risk Assessment (QRA) study which "must involve the operations at the terminal and the transit of tankers through the port" (Section 2 page 5). Shannon LNG have only undertaken a QRA for the storage tanks on the shore, but no QRA has been done on the marine side of the operation. This is not in line with the industry's own best practice guidelines. The QRA includes a tanker on the jetty but it does not consider ship collision between two ocean-going vessels. It should be bourn in

mind that tug boats themselves can also be a cause of collision

b) The SIGTTO standards also clearly state (page 7) that any risk-mitigating factors introduced - such as traffic control, exclusion zones around transiting tankers, tug escorts and specified limiting operating conditions of wind speed and visibility – should also be used in the QRA. This has not been done.

c) No QRA of intrusive risk exposures has been undertaken either. There are two categories of intrusive risk; that arising from intrusions threatening the physical integrity of the terminal and berthed tankers (e.g. heavy displacement ships), and that arising from the introduction of uncontrolled ignition sources.

d) Shannon LNG (in EIS Volume 2, section 3.10.2.3) states that “Shannon LNG understands that a more detailed Quantitative Risk Assessment (QRA) covering all navigational aspects of shipping will be undertaken by Shannon Foynes Port Company during development of the project”. This splitting of risk assessment responsibility is not acceptable and indeed dangerous. Furthermore this is contrary to the EU 1998 Aarhus Convention Directives, Directive 2003/4/EC and Directive 2003/35/EC which declare the right of the public to be informed on environmental impact and to be provided with the opportunity to make comments and have access to justice.

e) The Quantitative Risk Assessment is based on “Land-use Planning Advice for Kilkenny County Council in relation to Grassland Fertilisers (Kilkenny) Ltd at Palmerstown”. This is completely inadequate for a risk assessment of an LNG installation because the chemicals are different and the manner in which they leak is completely unique to LNG because it is at such a low temperature (-160 degrees).

f) One obvious and questionable claim in the QRA undertaken by the developer can be seen where only one of the four LNG storage tanks is covered by the inner zone contour in Figure 6.2 of the QRA on page 59. This means (using the criteria of table 5.1 on page 49) that it would be acceptable to build residential houses up against the remaining 3 LNG storage tanks even if the first tank leaks. This does not make sense and can only lead to the conclusion that the contours have been unrealistically tightened so as not to encompass current residential areas. We therefore object to this QRA which has not been made available to the general public.

h) We request more time from An Bord Pleanála to get our own independent technical assessment of the QRA undertaken by the developer because it has only been made available to us a very short time ago and is still not available to the general public.

i) Misapplication of Risk Assessment: Recently it has become popular on the international front to apply risk assessment to justify otherwise poor decisions not necessarily in the best interest of the public or the country. RA can be a very unwise tool to force the will of a powerful few on the uninformed public. One factor signalling some very poor applications of RA is the comparison to other risks that in a technical reality are not really related, especially as to consequences. Some consequences are so great that no matter what the probability the risks cannot be justified, especially if economic benefit to the decision makers is actually driving the poor application of this tool. A reality test in such poor applications is to ask what the real liability of the organisation is, if their risk call (aka their key technical “facts” assumptions) should prove wrong. Are their liabilities, both economic and criminal, for reckless decisions shall we say, limited by layers of attorneys citing loopholes, are

the real assets moved off shore or to another country? What are the real corporate risks here if the RA is incomplete, inaccurate, or poor?

SITE SELECTION

8. SIGTTO clearly state criteria which must be followed in “Site Selection and Design for LNG Ports and Jetties”. These include (page 12):
 - Find a location suitably distant from centres of population
 - Provide a safe position, removed from other traffic and wave action. For an “LNG carrier of about 135,000 m³ capacity, the waves likely to have such effects are those approaching from directly ahead or astern, having significant heights exceeding 1.5 metres and periods greater than 9 seconds” (page 7). The EIS submitted by Shannon LNG proposes (volume 1 page 3) to design a jetty capable of taking ships with a capacity of up to 265,000 m³ of LNG so the port criteria must satisfy this capacity of ship

These criteria seem to be unobtainable given the proximity of the villages of Ballylongford, Tarbert and Killimer (all 3 miles from the proposed gas terminal) and the huge amount of ships using the estuary already. Also, windage has to be accounted for because the specific gravity of LNG is a lot lower than oil and so the ship runs a lot higher on the water.

MOVING SAFETY ZONE

9. SIGTTO clearly state in “Site Selection and LNG Operations in Port Areas: Essential best practices for the industry”, that it is sound practice to establish a cordon sanitaire or exclusion zone around a transiting gas tanker. “Where traffic is proceeding in the same direction as the tanker the zone may extend some 1 to 2 miles ahead of the gas carrier, a distance determined by the distance required to bring the following gas carrier safely to a stop. Traffic following the gas carrier should be excluded for a similar distance, allowing scope for the gas carrier to slow down to manoeuvre without it being impeded by the approach of following ships. In general, traffic should not cross closer than 1.5 miles ahead or 0.5 miles astern of a gas carrier” (page 15).

a) These conditions have therefore an effect on the traffic moving through the estuary towards Tarbert, Moneypoint, Foynes, Aughinish and Limerick, especially since Shannon LNG have plans for 125 ships a year coming to the gas terminal

b) This also has an effect on the Tarbert-Killimer car ferry.

c) This also has an effect on all leisure boats using the estuary, including dolphin watchers in this SAC area of the Lower Shannon and the boats from Saleen Pier.

d) Furthermore, the exclusion zone will prevent other sea-based industries setting up in the land bank as they will not be able to access the site when LNG tankers are at port.

ENVIRONMENTAL POLLUTION: SEAWATER USE POLLUTING THE SHANNON ESTUARY:

10. Intermediate Fluid Vaporizer (IFV) technology using the Shannon seawater as a heat

source is the intended method by which Shannon LNG will convert the liquid LNG to gas. The EIS (volume 2 page 63, section 3.6.3.2), notes that up to 5 pumps will be used to circulate up to 20,000 cubic metres of water per hour. This equates to 4.4 million gallons per hour. To prevent marine growth (bio-fouling) within the system, sodium hypochlorite (bleach, an oxidiser) will be added to the seawater on a continual basis. As it exchanges heat with the glycol solution, the seawater will be cooled such that at discharge it is cooler than the ambient seawater.

The withdrawal and discharge of huge volumes of seawater (***over 100 million gallons on a daily basis***) would affect marine life by killing ichthyoplankton unable to escape from the intake area (see attachment 4) . Further, the discharge of cooled and chemically-treated seawater would also affect marine life and water quality. For this reason, open-loop technology (and the Shannon LNG proposal is still an open-loop seawater technology even if it is using a closed-loop glycol system) has been successfully opposed continuously by government bodies due to its negative environmental impact. This is because IFV technology poses the same environmental problems faced by Open Rack Vaporiser (ORV) technology which also relies on huge quantities of seawater (see attachment 7, section 3.5.2.3). It must be remembered that the Lower Shannon waters (including the 25 acres offshore of the proposed LNG site) are in a Special Area of Conservation (SAC) designated area (see attachment 6) – therefore constituting waters that must be protected under the EU habitats directive.

The waters of the Shannon can be protected using an alternative heating solution e.g. a **closed-loop vaporiser** but this will prove more costly for Shannon LNG.

Concern also has to be expressed on the effect of the additional surface water runoff from the site and water supply to and from the proposed new pond (EIS volume 1 page 21) as well as the chemically-modified cooler seawater discharged from the vaporising process on the wetland habitats to the north-west of the site.

THE EU HABITATS DIRECTIVE

11. The Bord is bound to uphold the provisions of Art. 6 of the Habitats Directive and of the Irish implementing measures. It is plain that the provisions of Art 6(3) apply to this development. It is also plain that the development will by definition have negative implications for the lower Shannon Estuary candidate SAC. The Bord therefore has no basis for finding that the development will in the words of the Directive, “ not adversely affect the integrity of the site”.

The applicant itself does not purport to claim that the development comes within the provisions of Art. 6 (4) of the Directive and in our view they are quite correct not to attempt to make any such claim.

It is therefore not open to the Bord to grant permission.

We also rely on the protection afforded under European and Domestic law to the Ballylongford Bay proposed Natural Heritage Area and the Shannon-Fergus Special Protection Area in submitting to the Bord that the impacts of the development also mandate the Bord to issue a refusal.

12. The ecological sensitivity of the area has been recognised in the Kerry County

Development Plan (see appendix 22) in declaring both Ballylongford Bay and Tarbert Bay as areas of Ecological Importance. For this reason we object to any environmental damage to this area.

13. The Environmental Protection Agency, in its 2006 report on water quality in Ireland (see attachment 23) emphasised the need to have, under the Water Framework Directive (WFD)(2000/60/EC) all waters, both surface and groundwater in good or higher status by 2015. We therefore object that the use of the Shannon waters as proposed in this planning application directly ignore or obligations under the Water Framework Directive.

PROJECT SLICING

14. Shannon LNG is artificially cutting this LNG project into pieces for the purpose of winning legal approval. Through this process, known as “salami-slicing”, sections of this project will be assessed and permitted. The idea is that the less environmentally-questionable parts of the project are authorised and built first, making continued development of the project a virtual fait-accompli, even if the latter sections of the project seriously violate environmental regulations. This is contrary to, among others, article 2.1 of the EIA (Environmental Impact Assessment) directive, which requires that “projects” likely to have significant effect on the environment – not parts of projects – are subject to the assessment.

Shannon LNG has made only vague reference to the pipeline from the proposed gasification terminal to Foynes ***even though this pipeline could also pose serious environmental and safety risks depending on the pressure of the gas in the pipeline.***

It has only made vague references to its plans for the rest of its site on the land bank. They suggest maybe a gas-fired power station which would, they say, “be the subject of a separate planning application and EIS” (EIS volume 1 page5).

Shannon LNG also states (EIS volume 1 page5) that electricity to be supplied via 110kv lines from the ESB network at Tarbert will also “be the subject of a separate planning application”.

Shannon LNG goes on to state (EIS volume 1 page5) that Kerry County Council will upgrade the coast road from Tarbert which “will also be the subject of a separate planning application”.

It is to be feared that, due to the necessary exclusion zone required for LNG tankers, the land bank will only be fit for other “dirty” projects, which, if assessed along with the LNG gasification terminal, would almost certainly be denied planning permission.

This piecemeal approach to the planning process is extremely questionable as it does not deal with the sustainable development of the area.

LIMITED GAS SUPPLY

15. The justification for the project being that the supply of gas to Ireland is not assured must be questioned and it cannot be assumed that the proposed gas terminal is of overriding national interest. Reference has been made to the threat from the Russian

pipeline. It must be pointed out that

- A gas pipeline also exists from Norway to the UK (see attachment 8). After the start up of the Langeled pipeline from Norway's Sleipner platform to the UK in the autumn of 2006, shockwaves were sent through the market. "History was made when over-the-counter prices fell to negative territory for the first time".
- LNG terminals in the rest of Europe provide an indirect source of gas through the European network.
- Gas has been discovered off the coast of Ireland
- Shannon LNG is giving no guarantees of supply whatsoever. It is assumed that the intention of the gas industry is to make LNG a commodity product where more gasification terminals increases liquidity in the market and the LNG tankers can change routes more easily if the spot price of LNG changes. From the Poten & Partners report (see attachment 8) Ofgem, the UK regulator, had to invoke use-it-or-lose-it provisions to stop BP and Sonatrach from diverting cargoes elsewhere to take advantage of price movements. Shannon LNG do not want the same types of provisions as can clearly be seen from the pre-planning consultation documents from An Bord Pleanála.
- Gas is still a fossil fuel and when the whole supply chain of LNG is considered from the extraction, liquefaction, transport and gasification stages it is thought that LNG is no cleaner than coal. This contradicts our national commitments signed up to in the Kyoto Protocol

LNG: UK Gas Sellers Face Looming Supply Glut

16. Poten and Partners have issued a report on their website of a looming glut of LNG in the UK market which should guarantee the supply of LNG to Ireland (see attachment 8). They state that a rapidly expanding import infrastructure in the UK threatens to outstrip requirement by a large margin. "In addition to Langeled, operation of the BBL and Tampen pipelines from the Netherlands and Norway will add 100 Bcm/y of new import capacity by 2010, equivalent to half the country's demand." The report also claims that "LNG import capacity will grow ten-fold during the same period". "This is thanks to the new dockside regasification facility at Teesside in northeast England and two grassroots terminals under construction at Milford Haven in Wales, known as Dragon LNG and South Hook", they add.
17. The Government White Paper, "Delivering a Sustainable Energy Solution for Ireland", the Energy Policy Framework from 2007 -2020 (see attachment 9 section 3.3.2), states that in implementing strategic goal 2 (ensuring the security and reliability of gas supplies):

"The UK is now the source of some 87% of our natural gas and the UK's own demand for imports is growing strongly. Norway will remain a significant supplier of gas to UK in the medium term. Ireland's location in Europe from the view-point of gas supply sources is becoming less peripheral. In the last 12 months the UK has achieved a significant increase in gas import capacity through accelerated infrastructure developments with resultant benefits for Ireland. Both pipeline and LNG capacity has increased significantly. These include the Langeled pipeline from Norway, the new pipeline from the Netherlands and new LNG terminals at Milford Haven. Further expansion of LNG capacity and gas interconnection is underway in the UK and Europe which will benefit Ireland in terms of security of wholesale gas supplies within this regional market... the prognosis for gas supplies is relatively secure as a

result”.

The White paper goes on to state:

“We will put in place an all-island strategy by 2008 for gas storage and LNG facilities in light of the outcome of the all-island study”. This would represent an independent strategic view of LNG facilities, rather than depending on the non-independent representation by Shannon LNG. “He who pays the piper, calls the tune”.

Therefore, while awaiting the government’s all-island strategy for LNG facilities and while noting that “the prognosis for gas supplies is relatively secure”, we strongly bring to An Bord Pleanála’s attention that there is no over-riding urgent, strategic imperative or immediate need for an LNG terminal in Tarbert and that therefore, the “National Interest” cannot be used as an excuse to prime over and ignore the dangers being posed to the safety of the nearby populations in Clare and Kerry and the environmental damage that will be suffered on the SAC waters of the Lower Shannon which must be protected under the EU Habitats Directive if the development is given the go-ahead.

ALTERNATIVE LOCATION FOR AN LNG TERMINAL

18. The Second International Conference of Renewable Energy in Maritime Island Climates held in University College Cork in April 2006 suggested that Cork, close to the Kinsale Gas Field, would be an ideal site for an LNG terminal (see attachment 10):

“In the longer term it is important to fully explore and maximize geographical diversification in gas supply. One potentially promising option is through LNG (liquid natural gas) trade. This would provide give possibility to transfer gas from remote countries (Algeria, Nigeria, Malaysia, Trinidad and Tobago, United Arab Emirates and Qatar), without using pipelines, which are not economically viable. An LNG terminal in Ireland could be constructed near Kinsale Gas Field, connected to the gas platform, thus the existing gas pipeline from the gas field to Inch can be used. In this way, LNG could be used provide at least a quarter of national gas demand or be sufficient entirely for the Cork area. LNG can also be used as seasonable gas storage at the LNG plant (liquefaction and storage during warm season and vaporisation and injection into local pipelines during cold period). This service can increase the volume of storage in Ireland, which is currently limited to what is contained within the pipelines and remaining reserves at the Kinsale Gas Field.”

19. The Second International Conference of Renewable Energy in Maritime Island Climates held in University College Cork in April 2006 also noted (see attachment 10) that:

“Germany has already started the construction of a gas pipeline from St-Petersburg to Germany under the Baltic Sea, avoiding borders. This is expected to provide more reliable supply from Russia to the West by 2010”.

20. In 2006, a natural gas storage licence was granted to Marathon Oil Ireland Limited at parts of the Kinsale facilities (including the Southwest Kinsale Reservoir and wells,

offshore platforms, pipelines, compression, processing plant and the shore terminal) used from time to time to inject, store and withdraw natural gas (see attachment 21, schedule 1 page 19) . This would seem to suggest that the Kinsale Reservoir would be a more ideal site for strategic gas storage than Kilcolgan.

PUBLIC ACCESS TO INFORMATION, PUBLIC PARTICIPATION AND ENVIRONMENTAL IMPACT ASSESSMENT

21. Shannon LNG submitted a risk assessment to the Health and Safety Authority on the same day it submitted the planning application to An Bord Pleanála. The HSA will make a recommendation to An Bord Pleanála based on its own examination of the risk assessment.

However, the risk assessment has never been made available to the general public and neither has it been submitted to An Bord Pleanála. This means that the public will not have access to vital environmental information (e.g. the environmental impact of an LNG leak) before the deadline of November 16th and people who would make a submission based on the risk assessment are now being illegally deprived of participation in the planning process. This is contrary to Article 6 of the EU EIA directive.

This issue can be solved by an order that the HSA or Shannon LNG produces both the Risk Assessment submitted and the HSA assessment to an Bord Pleanála and that this information be disclosed to the general public. **Further submissions will have to be allowed from the general public – not only oral (for example in an oral hearing) but more importantly in written submissions.** This is to take into consideration people who would be unable to speak at an oral hearing but who would have serious concerns they could put in writing. These written submissions will therefore have to be allowed from all members of the public who have not made a submission before November 16th in order to maintain transparency in the planning process.

We object that the division of responsibility for the Environmental Impact Assessment across a number of bodies including, but not limited to, An Bord Pleanála and the EPA is not clearly defined because the general public does not have all the environmental impacts before planning permission is applied for in order to participate fully in the planning process.

We as members of the public concerned have been given 7 weeks to prepare this submission to the bord. In that time we have faced a literally impossible task. We have been denied access to critical documentation including the materials submitted to the HSA and the HSA's own documents and reports on that material. Yet that material and the HSA analysis of it will without doubt form the basis of the HSA's opinion and the Bord in turn will rely on that opinion in the context of the Seveso II Directive. By the time we are eventually able to access the material to examine it further the Bord may have already dealt with the application on an erroneous assumption about the contaminants in the LNG. The Bord will have closed the door to further submissions from us. That is a clear example of one of the ways in which we are being shut out from meaningful participation in the process in flagrant breach of our rights under Irish and European Law. Our rights in this regard are guaranteed by the provision of the European Convention on Human Rights as adopted and as further made binding on An Bord Pleanála by the European Convention on Human Rights Act 2003 as well as by the principles of natural justice and the obligation on the decision makers including

the Bord to apply fair procedures. There are several other aspects which are in breach of our rights including:

- a) The complete inequality of arms between us and the applicant. This is accentuated by the ability of the applicant to engage in pre-application consultations with the Bord so that it can be advised on how to present the application. The Bord has concluded, with no public input, that the application is one fit to be dealt with as Strategic Infrastructure and has literally pre-judged that vital issue. That in turn puts the Bord in a position of objective Bias when it comes to assessing our contention that the application is no such thing and should not be considered as such.
- b) The Applicants have been granted ample time to liaise privately with the Bord, to compile their material, to liaise with other Statutory bodies and to finalise this application. It has done so over a period in excess of 12 months. By contrast the local residents and other members of the public have been given no access to the statutory decision makers and instead are expected to convey our concerns in one fell swoop within 42 days of being granted sight of some, but not all, of the necessary documentation. This is fundamentally unjust.

ORA NOT DOWNLOADABLE

22. In a public meeting held by Shannon LNG on October 29th 2007, it was stated that the QRA would be available to the general public over the Shannon lng website. However, this has never been downloadable and has therefore never been available to the general public. This was reported by Catriona Griffin to An Bord Pleanála and was noted by the Bord.

BUILDINGS TO BE DEMOLISHED

23. We object to old buildings being demolished as they represent a history of all the people that lived there over the centuries. The old stone buildings also represent our national heritage as they are built in the style of the region. As these houses are also used by bats, we object that the homes of the bats will be destroyed, contrary to the Wildlife Act 1976/2000 and the EU Habitats Directive.

RESIDENTIAL AMENITY

24. We object to the detrimental affect of the proposed development on the lives of the nearby residents and general public.
- i. The Environmental Impact Statement anticipates (EIS volume 1 page 17) that construction work will take up to 4 years
 - ii. The Environmental Impact Statement anticipates (EIS volume 1 page 17) that construction activities will require 24-hour working at the site.
 - iii. Added to this are the enormous changes to the visual landscape proposed (EIS volume 1 page 11).
 - iv. The noise and vibration impacts from construction traffic and blasting (EIS volume 1 page 17 and 18) are expected to be within the EPA limits. However, this does not take account of the fact that this area currently has hardly any noise whatsoever as it is on a lonely coastal country road and that the changed level of noise over many years is unacceptable.
 - v. In addition, Ballylongford village is not designed to take the huge increase in

- construction traffic expected.
- vi. Trucks will come from Tarbert to the site but workers cannot be prevented from approaching the site from Ballylongford and no upgrade of the road between Kilcolgan and Ballylongford is proposed. This very winding road is therefore going to prove to be a death trap for the many people that currently walk on this road as a leisure activity.
 - vii. We are afraid that children might cut themselves on the barbed wire fencing proposed around the site.
 - viii. We object to the storage tanks proposed at 50 metres height and want them put underground on visual impact and safety grounds
 - ix. We object to the blight on the landscape from the water.
 - x. Tourists visiting the County of Kerry after crossing over the Shannon on the Ferry from Killimer to Shannon will not want to pass a dangerous industrial zone as proposed and this will have a hugely negative impact on the tourism sector in the north Kerry coastal regions beyond Ballylongford (Asdee, Beale, Ballybunnion). Furthermore, the site will not be in keeping with the county's reputation as one of outstanding beauty and will destroy our image.
 - xi. The environmental damage to the water caused by 100 million gallons of cooled, chlorinated water being daily discharged into the estuary will have a negative impact on the oyster farming on Carrig Island at the other side of Ballylongford Bay as well as the reputation of Ballylongford as it hosts the Ballylongford Oyster Festival every year (see attachment 18).
 - xii. The residents in the area surrounding this proposed development will have to live with the constant fear that an accident may happen at any time and this will be a constant source of worry and fear, no matter how long the terminal works without an accident. This is unfair to burden an innocent population with this threat and residual risk.
 - xiii. The EIS does not include the 2.9 metre barbed wire fencing in the photo montages and this is giving a misleading image of the full visual impact of the proposed development
 - xiv. The EIS does not include the proposed gas power station in the photo montage and this is also giving an extremely misleading image of the full visual impact of the proposed development.
 - xv. We object that the photo montages in the EIS do not represent the true size of the tanks and ask that this be confirmed independently.
 - xvi. We object that the huge construction traffic will effect the safety of the children on the school bus routes

RIGHT OF WAY

25. The EIS (volume 2 section 15.5.2) states that the right-of-way on the farm track at the western boundary of the LNG terminal site used by anglers to access the shore "will not be accessible to anglers when the LNG terminal is operational". We object to this.
26. The EIS (volume 2 section 16.14) claims that there are no registered rights of way or wayleaves on the site. We object to this because the site has always been used to access the shore for swimming, for angling etc by all the Kilcolgan residents, and to access the site owned by Stevie Lynch and John O'Connor of Lislaughtin.

HESS LNG's OTHER LNG TERMINAL REFUSED PERMISSION IN THE USA

27. The Weaver's Cove site (see <http://www.weaverscove.com/aboutus.html>)describes

Hess LNG as follows:

“Weaver’s Cove Energy, LLC, is owned by Hess LNG, LLC, which is a joint venture owned equally by Poten & Partners and Amerada Hess Corporation. A team of professionals that are among the most experienced and reputable executives in the global LNG and energy industry manages Weaver’s Cove Energy. The project team members have decades of experience in the design, development and operation of large energy projects around the world, as well as right here in Massachusetts.”

One newspaper article described it as follows:

“The river that runs past a proposed liquefied natural gas terminal in Fall River isn't safe for frequent traffic by massive LNG tankers, the Coast Guard ruled Wednesday in what could be a fatal blow to the controversial project (see attachment 11)”

And another paper said:

“BOSTON --A proposed liquefied natural gas terminal in Fall River may have been dealt a fatal blow.

The Coast Guard has ruled the river approaching the Weavers Cove Energy project is unsafe for navigation by massive LNG tankers.

The decision affirms concerns the Coast Guard expressed last year. The agency has since done an extensive review of the project.

A major problem is the relatively short distance between two bridges on the Taunton River. The Coast Guard found the safety risks of the 700 foot long, 80 foot wide tankers navigating the 1,100 foot gap were too great.

A Coast Guard spokesman says the ruling "kills the project, as proposed."

Weavers Cove officials did not immediately return calls for comment on the ruling” (see attachment 12 and 13).

The real lesson to be learned from the debacle at Weaver’s Cove is that Hess LNG were stopped from building an LNG terminal on safety grounds even though they claimed that what they were proposing to do was safe. Our interpretation of this is that, no matter what the obstacle, Hess LNG will claim that they can make it work and ignore their own standards of Best Practice and put people’s lives at risk in order to “clinch the deal”. This further proves that Hess LNG is not capable of self-regulation and the independence of their own risk and environmental assessments have now to be seriously questioned. Furthermore, the increase in LNG traffic all over the world will only increase the risk of an accident and this only accentuates the need for the implementation of the strictest safety standards. We therefore implore An Bord Pleanála to refuse planning on safety grounds.

ACCOUNTABILITY

28. Shannon LNG is described as a wholly-owned subsidiary of Hess LNG Limited in the Environmental Impact Statement submitted by Shannon LNG to An Bord Pleanála (Volume 1 page 1). However, it has not been pointed out to An Bord Pleanála that Hess LNG is an offshore company incorporated in the Cayman Islands (see attachments 15 and 16). In the event of an environmental disaster at the plant Shannon LNG would be liable for the costs of any loss to property and human life. However, Shannon LNG has no assets of note. This can lead to problems in litigation where cases can go on for decades as attempts are made in the courts to apportion blame and

liability. Companies can deny liability by creating shell companies in different jurisdictions, where ownership of the land is shared among some companies and ownership of the operations is shared out among other companies – all in different jurisdictions with different litigation laws.

Hess Corporation itself has never proposed that it could accept from the outset all responsibility for any environmental or human losses at the site for which Shannon LNG itself (or any other related companies) could be held liable as if it still owned the site and operations and that this liability would not be given away or sold without the express permission of the local planning authority in Ireland (Kerry County Council). This would have had the added advantage of creating an incentive for Shannon LNG to maintain the highest environmental and safety standards.

However, we object to the fact that an offshore company controls the private company that is applying for planning permission to construct this dangerous LNG terminal in Tarbert.

LNG CONTRIBUTING TO GLOBAL WARMING

29. In its report on LNG (see attachment 17), Greenpeace found that the use of natural gas that has been liquefied and transferred across the Pacific reduces the difference between natural gas power plant CO2 emissions and coal power plant emissions by nearly half. However, it also found that the development of LNG terminals would open up nearly limitless quantities of natural gas to the energy markets and that this shift threatens to turn natural gas, previously viewed as a “transitional” fuel, into a permanent source of global warming gases. This surely goes against the spirit of the Kyoto Protocol and we therefore ask An Bord Pleanála to note this and refuse planning permission for the project. Furthermore, this trend towards an increased dependence on LNG increases reliance on environmentally destructive fossil fuels and significantly delays the possibility of moving towards renewable energy sources by creating a costly infrastructure for LNG.

Furthermore, the idea of building a Gas Power station on the site (EIS volume 1, page 5) will increase the dependency on LNG as a permanent fuel rather than a transitional fuel and we object to this result.

DISAGREEMENT AMONG EXPERTS ON THE DANGERS OF LNG

30. A report for the US Congress was undertaken by the United States Government Accountability Office (see attachment 14) with advice from 19 of the world’s top international LNG experts. The startling findings from this report was that even they seem unable to agree, hence the reports conclusion that the US DOE should carry out further tests on spills of LNG. We therefore also feel that due to the uncertainty in judging the risk to people’s safety, An Bord Pleanála should apply prudence and rule against this planning application.

31. In The GAO Report for Congress (see attachment 14) the section on Cascading Tank failure is illuminating as it states that the worst case scenario is a small hole in an LNG carrier’s containment; this is because the LNG Pool Fire will last longer close to the ship; so giving more time to heat the adjacent tank. A big hole allows the LNG to empty quickly from the tank in question so limiting the time any fire has to heat the adjacent tank. For this danger posed to the nearby residents we ask once again that An

Bord Pleanála should apply prudence and rule against this planning application.

HOUSES NOT DISPLAYED ON SITE MAP

32. On the site map made available to the public, there are 6 houses missing – namely those of Raymond O’Mahony, Adam Kearney, Geraldine Carmody, Mrs. Kathleen Finnucane and two other houses belonging to the Finnucane family. We object that this is distorting the number of homes immediately adjacent to the site and question if this is also distorting the QRA.

NO BENEFIT TO KERRY

33. There is no plan to send any of the gas imported to Kerry. The only monetary benefit to Kerry shall be the rates that will be charged to the terminal and we object that this should influence the submission from Kerry County Council.

COMMUNITY ENGAGEMENT IN PLANNING

34. The final Report from the APaNGO project entitled ‘community engagement in planning exploring the way forward’ (see attachment 20) was launched at the international APaNGO closing conference in Brussels at the end of October 2007. The APaNGO project is one of the first studies of community engagement and involvement at the European level, covering findings from the seven Member States in North West Europe (Belgium, France, Germany, Luxembourg, the Netherlands, the Republic of Ireland, and the UK). It noted that the “legitimacy of any planning decision will vitally depend on the quality of democratic input to the process; without that input, decision-making itself will be discredited.

For this reason, and from the Aarhus Convention Directives on the right of the public to be informed on the environmental impact and being provided with the opportunity to make timely comments and have affordable access to justice, we therefore object that we do not have the financial means to challenge the EIS and QRA presented by the developer who has access to unlimited resources through Hess Corporation. This EIS and QRA are not independent. We need funds to challenge this with our own safety and environmental experts and therefore request that An Bord Pleanála puts those funds at our disposal in order to maintain transparency and equality in the planning process, given that this is for a complex chemical installation in a SEVESO II site.

QUESTIONABLE REZONING BY KERRY COUNTY COUNCIL

35. We object that the development is proposed on a green field site – even if it has recently been zoned industrial (EIS volume 2, section 4.6.3). In march 2007, the LNG site was rezoned from “Rural General” to Industrial (see attachment 29)

“The stated purpose of the variation was as follows:

The purpose of the variation is to facilitate consideration of suitable development of these lands in accordance with the provisions of section 5.2.9 of the Kerry County Development Plan 2003-2009 which states: ‘lands have been identified at Ballylongford/Tarbert as suitable for development as a premier deep-water port and for major industrial development and employment creation’. The adoption of this variation gives effect to objective ECO 5-5 of the Kerry County Development Plan 2003-2009 which states: ‘It is an objective of Kerry County Council to identify lands in key strategic locations that are particularly suitable for development that may be required by specific sectors. Land in such locations will form part of a strategic reserve that will be protected from inappropriate development that would prejudice its long-term

development for these uses.”

- a) If the LNG terminal goes ahead then the landbank will not be a deep-water port as all other ships will be forbidden and unable to use the port.
- b) The creation of 50 long-term jobs does not constitute “major employment creation”.
- c) The LNG terminal is in actual fact a hazardous chemicals installation, defined as the most dangerous of sites in EU legislation – a Seveso II site. This does not fall under the type of installation to be considered for the rezoned site because if it was the intention of Kerry County Development Plan to include hazardous sites within the landbank then Kerry County Council would never have given planning permission for the new houses currently being built (such as that of Jayne Kearney) less than 900 metres from the LNG tanks. Any new houses built after the LNG terminal is constructed would constitute “inappropriate development” which means that hazardous sites were never to be considered as appropriate development within the landbank.
- d) This Seveso II site will sterilise the remainder of the site which means that the aim in the Kerry County Development Plan of “major industrial development and employment creation” cannot be fulfilled.
- e) The County Manager stated that sufficient natural amenity lands had been reserved to the west of the site which included a walking route to Carrig Island. However, Carrig Island is at the other side of Ballylongford Bay and takes several miles by car to reach by driving through Ballylongford.
- f) The County Manager went on to state that “the impact of development on the residential amenity of houses in the vicinity of zoned industrial land will be dealt with at the planning stage”. This clearly shows that the site is not intended for a SEVESO II development.
- g) More importantly Clare County Council objected to the rezoning on the grounds that:

“the proposed rezoning is likely to have a significant impact on the future development of the region, and will have a direct impact on the planned objectives for the Mid West Regional guidelines for the Shannon Estuary and in particular the Planning, Economic and Service Infrastructural development objectives for zone 5 of the plan. Any industrial development including the construction of a deepwater harbour will have a major impact on both the visual and ecological amenities of the area, and potentially on the Lower Shannon Estuarine Environment, including the foreshore of County Clare. Clare County Council would like an appraisal of any SEA investigation which may have been undertaken in respect of the proposed variation”. The Kerry County Manager replied: “Any future application of these lands will be subject to an Environmental Impact Assessment. This process will ensure that any proposals will take into account impacts on the visual and ecological amenities of the area. A copy of the SEA screening report for the proposed variation will be forwarded to Clare County Council.”

This is reprehensible. **There is no evidence of an SEA having been undertaken** as required for a variation to a development plan under Statutory Instrument No 436 of 2004 Article 7 section 13K and article 12 schedule 2A of the same Statutory Instrument

(<http://www.irishstatutebook.ie/2004/en/si/0436.html#article12>). Without any information in the public domain regarding the scoping or the actual execution of an SEA (see attachment 32), this rezoning is fundamentally unsound and invalid. Clare County Council does not even know that this is a SEVESO II development. This rezoning process is also being brought to the attention of the relevant authorities as we object that the variation and rezoning of this site has been undertaken in a highly questionable and indeed invalid manner. We therefore object to the planning application because we maintain that this land is not zoned industrial.

These points mean that An Bord Pleanála should rule that the proposed development does not conform to the Kerry County Development Plan for the site, nor to the Planning and Development Act and should therefore be refused planning permission.

OTHER ISSUES

36. We object to any possible movement by road of LNG, due to the dangers and want this to be confirmed by An Bord Pleanála.
37. We need An Bord Pleanála to rule clearly on the use that may be made of the rest of the landbank if planning permission is given to the developer. We object that the rest of the landbank will be sterilised. It must be remembered that if the Bord allows other installations be built on the site near the gas terminal then they will have an influence on the risk of an accident at the regasification terminal. A clear ruling on this matter must be made.
38. We need An Bord Pleanála to rule clearly on how close residential property may be constructed to the site. We object that people will not be allowed to build on their own property close to the site due to the dangers.
39. We need An Bord Pleanála to rule clearly on the exclusion zone it recommends for boat users on the Shannon Estuary and object that use of the Shannon will be hindered by LNG tankers.
40. We object that most of the statutory bodies informed of the planning application will not have time to make detailed submissions to An Bord Pleanála due to the minimum time scale of 6 weeks from the date of planning application. This is such a serious installation that considered opinions cannot be given in this short timescale.
41. Under Seveso II regulations, we insist that An Bord Pleanála, if it decides to accord Planning permission to the developer, gives a detailed ruling on the type of emergency plan to be put in place, both onsite and offsite, and insist on the implementation of an early-warning system to all residents within 12.4 kilometers, including (but not limited to) a form of public siren and information to be given to the same residents on how to react to this siren.
42. The Tarbert Development Association and The Ballylongford Development Association do not speak for the residents surrounding the Kilcolgan site and we object to any attempt to claim anything to the contrary as this does not represent local consultation as far as we are concerned.
43. Morgan Heaphy, Glencullare, asked Shannon LNG to elaborate on the exclusion zone in a written comment on one of the information days (see EIS Volume 4 , Appendix

1F) and this has never been answered in any format (other than the words “limited exclusion zone” (EIS volume 4 appendix 3c)) and therefore this does not represent consultation with the nearby residents. We object that the developer has always maintained that the site is safe and has kept such a low profile in discussing safety issues that the general public has been completely unaware of the issues in the euphoria of having new industry and jobs coming to the area. This is completely against the spirit of the planning process and we object to this serious misrepresentation of the installation to our detriment and the developer’s economic advantage.

44. We object to the application of the Strategic Infrastructure Act 2006 as it applies to this application as we are extremely worried about the possibility of “agency capture”. By this, we mean that we are extremely worried that An Bord Pleanála may inadvertently become compromised by having too close an interaction with the developer during the decision making process. We expect An Bord Pleanála to maintain a professional distance from the developer and to inform us of all negotiations it has with the developer and to give us a right of reply to all correspondence between the developer and the Board. In the interest of public safety in this Seveso II development we require that all new information be disclosed to the public and that the public be allowed sufficient time to analyse the data and make further submissions, both written and oral.
45. A report on the LNG blast in Algeria (see attachment 24) mentions the contaminant gases that Lng is made up of. Note that when HSE ,Sandia and other regulators do tests with LNG, it is with 100% pure Methane. We object that the level of contaminant gases to be shipped by Shannon LNG have not been disclosed and request that An Bord Pleanála ask the developer to state the level of contaminant gases they expect to have in the LNG shipments and whether they will vary depending on the origin of the LNG in order that a QRA be undertaken and analysed with this information in mind:
“A 1980 Coast Guard study titled "LNG Research at China Lake," states that LNG imported into this country is often far from pure, and it reveals that vapour clouds made from "impure" LNG actually explode as readily as the highly volatile LPG. When natural gas is super-cooled and turned into a liquid, as much as 14 % of the total cargo shipped as LNG may actually be LPG or other hydrocarbon fuels, according to the Coast Guard report. Natural gas contains these other fuels when it is pumped from the ground. LNG containing these so-called "higher hydrocarbons" is known as "hot gas" and has a higher energy content than pure methane. The Coast Guard report reveals that vapour clouds of LNG containing at least 13.6 % of these other fuels can detonate just like pure propane gas. The agency concluded in its report that this deserves "special consideration, as the commercial LNG being imported into the US East Coast has about 14 % higher hydrocarbons." “
46. Is the limited exclusion zone proposed by Shannon LNG around the LNG tankers taking into account the risk of an ignition source as well as the risk of a collision?
47. Lloyds Casualty Week dated September 16 2005 (see attachment 25, page 11/12) noted an LNG fire from a pipeline leak in Kalakama, Nigeria started a wild fire covering 27 square kilometres. We object that the developer has not included pipeline incidents in the QRA because the pipeline EIS has not even been completed. This shows the dangers in slicing a project into several separate projects for planning

purposes.

48. What is the thermal flux that An Bord Pleanála would determine as acceptable? Is it 1.5 kw/m2.?
49. We object that the State does not determine the most suitable site in Ireland for an LNG terminal, rather than a biased private-sector company applying for planning permission.
50. We ask that An Bord Pleanála take account of the Buncefield Reports (<http://www.buncefieldinvestigation.gov.uk/index.htm>).
51. From speaking to people in Milford Haven it was noted:
 - a) Jobs increased initially but the unemployment rate increased when the jobs finished as some of the workers had settled down in the area
 - b) Rental costs were high during construction which made life more expensive for locals
 - c) Skilled labour (such as welders) were attracted away from local industry so some local business suffered as a result
 - d) There are other construction works on top of one of the tanks equivalent in size to a five-storey building. Will that be the same in Tarbert?
 - e) Dolphins used to be resident in the Haven but left and never came back
52. We object that this LNG terminal would increase or dependency on the Opec nations – contradicting Energy independence objectives (e.g. windfarms where we have best windspeeds in Europe)
53. We object that the permanent jobs to be created will not be for unskilled labour (see attachment 27), which means that it is likely that many will not be filled by locals.
54. We object that since the government is still giving licences for exploration that must mean more gas exists in the country
55. We want all archaeological sites protected (including the one near the jetty)
56. We object that the bird and sea life will be seriously impacted by the lights and the sounds
57. We object that the gas tanks will be visible from county Clare as that county will be expected to get all the disadvantages and none of the advantages (rates) from this development.
58. We object that we do not know if Shannon LNG has options to buy more land but need to know this as it would be an indication of their real intentions.
59. We object to the idea of dumping soil and stone from the site near to Scattery Island.
60. The Climate Protection bill on the 3rd October was in the senate and it refers to a 3 % decrease per annum. Facilitating the importation and dependence on more fossil fuels like LNG goes against the spirit of the Climate Protection bill.
61. We object that an offshore location for a terminal would be safer than the onshore one

proposed.

62. We object that the terminal could hit house prices. An article in the Kerryman newspaper dated October 17th 2007, page 5 predicts a 29% drop (see attachment 28).
63. No Material Safety Data Sheets (MSDS) have been supplied with the EIS and we object that these have not been provided. We ask that An Bord Pleanála obliges the developer to provide these and allow us sufficient time to analyse them.
64. While all chemistry is dangerous, we agree that it is also feasible if the hazards can be contained. However, we object to the real problem here which is one of scale. 4 tanks of LNG represent 2400 tanks of gas.
65. We object that the HAZOP study is not available to enable us and the general public participate fully in the planning process as required by the EU EIA Directive. We ask that An Bord Pleanála obliges the developer to put it at our disposition.

“A HazOp study identifies hazards and operability problems. The concept involves investigating how the plant might deviate from the design intent. If, in the process of identifying problems during a HazOp study, a solution becomes apparent, it is recorded as part of the HazOp result; however, care must be taken to avoid trying to find solutions which are not so apparent, because the prime objective for the HazOp is problem identification. Although the HazOp study was developed to supplement experience-based practices when a new design or technology is involved, its use has expanded to almost all phases of a plant's life. HazOp is based on the principle that several experts with different backgrounds can interact and identify more problems when working together than when working separately and combining their results. “

The risks we are especially interested in examining in closer detail include (but not limited to);

 - a) Static electricity and how to control it.
 - b) Catastrophic damage in the pressurisation process.
 - c) Catastrophic damage at the stage where odours are added to the gas with mercaptans.
 - d) Catastrophic damage at the stage where the glycol reheats the LNG
66. We object that no trucks should be travelling to or from the site for 5 minutes before and after a ferry boat lands because it has been noticed that the existing road network in Tarbert cannot take ferryboat traffic as it is at the moment.
67. We object that the full height of the storage tanks was lied about. The EIS (volume 1 page 4) clearly states: “The tanks will be a low-profile design and will be approximately 96m in diameter and approximately 50.5m high”. This is extremely misleading as this EIS volume 1 – the non-technical summary – was widely distributed to the general public. From the drawings submitted to An Bord Pleanála (see attachment 31) it can be clearly seen that only the top of the concrete is 50.5 metres in height; the top of the tank elevation is 60.5 metres and the top of the pressure relief valve vent stack elevation is 71.5 metres in height. This means that **the tanks are 40% higher than stated** in the non-technical summary. This is highly misleading to the general public and therefore this has surely to lead, on its own, to this application being declared invalid. To add to that, Figure 3.14 (EIS Volume 3 part a) states that the height of the dome of the LNG tank is 10 metres lower at 50.5 metres. Which is it?
68. A clear example of the misrepresentation on the safety and environmental risks of the

proposed LNG terminal that has taken place can be seen in the following wording in the brochure that was distributed by Shannon LNG in May 2006 which lead the general public to trust and believe (and because of no statements to the contrary from any of the statutory bodies) that this project was completely safe until now: (see attachment 26 page 7)

“Could the tankers leak?

In the unlikely event that there is a release from a tanker, the LNG will evaporate. That means the liquid will warm up and change back into a gas. This gas would quickly dissipate because it is lighter than air. Because the LNG is not transported under pressure any leak would evaporate more slowly and cover a much smaller area than a pressurised gas such as propane or butane. Compared to petrol or home heating oil, LNG is far less flammable and will not pollute the environment if it spilled”

Will there be an environmental impact?

Once it is in operation, the plant would have very few impacts – LNG import terminals are quiet, there is no smell, no smoke, no steam, and no noise that can be heard beyond the site boundary”

Such reassurance must be capable of objective verification. That is impossible as matters stand with this application. In addition the public concerned, of which we form part, have a legal and human right to participate effectively in any such verification process. We are being very effectively shut out from that process at present in all but name.

This is one of the first significant applications to come before the Bord under the Strategic Infrastructure Act. How the Bord deals with it can be expected to set a benchmark for the future. We ask the Bord to refuse the application.

69. The Flight path of flights from Shannon Airport and the dangers they pose have not been assessed at all in the risk assessment. We object that this has not been done because of the potential of disasters occurring from plane crashes – accidental or otherwise as was apparent in the tragic 9-11 disaster in New York. It should also be noted that Hess Corporation is an American company and therefore represents a possible future target given the current political situation in the world.

FUNDING

70. Finally, we wish once more to flag the issue of requiring funding to be provided for our further participation if the process continues beyond this point. Funding would be essential to enable us to retain the necessary expert assistance in order to defend our personal, family, property, and public participation rights.

SIGTTO MEMBERS

71. SIGTTO members include (source <http://sigtto.reinvent.net/dnn/Members/tabid/70/Default.aspx>) :ABS Europe Ltd, Abu Dhabi Gas Industries Ltd, Abu Dhabi Gas Liquefaction Co Ltd, Adriatic LNG, Aegis Logistics Ltd, AES Andres, Alloecean Ltd, Anglo-Eastern Ship Management (Singapore) PTE Ltd, Antwerp Gas Terminal N.V., Atlantic LNG Co. of Trinidad & Tobago, Bahia de

Bizkaia Gas, S.L, Barber Ship Management AS, Bergesen Worldwide Gas ASA, BG Lng Services LLC, BGT Limited, BHP Billiton International Inc, Bibby Line Ltd, BP Group, Brunei LNG Sdn Bhd, Bureau Veritas, Calor Gas Limited, Carbofin Energia Trasporti S.p.A., Ceres Hellenic Shipping Enterprises Ltd, Chemikalien Seetransport GmbH, Cheniere LNG INC, Chevron Shipping Company LLC, China LNG Shipping (International) Company Ltd, Chinese Petroleum Corporation, Chubu Electric Power Co Inc, Chugoku Electric Power Co In, CLP Power Hong Kong Limited, Cometco Shipping Co, ConocoPhillips Marine, Depa Gas Corporation of Greece, Det Norske Veritas, Dominion Cove point LNG, Dorchester Maritime Ltd, Dorian (Hellas) S.A., Dragon LNG Ltd, Dynagas Ltd, Eagle Sun Company Ltd, ECO ELECTRICA, Egyptian LNG, Eitzen Gas A/S, El Paso Corporation, Empresa Naviera Elcano S.A., Energy Transportation Corporation, ESKOM Holdings Ltd, Excelerate Energy LP, Exmar N.V., Exxonmobil Development Company, Fleet Management Limited, Freeport LNG Development, L.P, Gaz de France, Gazocean Armement, Germanischer Lloyd AG, Golar LNG Limited, Grain LNG LTD, Guangdong Dapeng LNG Company Ltd, Hazira Port Private Limited, Hyundai Merchant Marine Co. Ltd, IINO Kaiun Kaisha Ltd, International Gas Transportation Co Ltd, Iwatani International Corporation, Kansai Electric Power Co Inc, Kawasaki Kisen Kaisha Ltd, Knutsen Oas Shipping, Korea Gas Corporation, Kuwait Oil Tanker Co S.A.K., Kyushu Electric Power Co Inc, Lauritzen Kosan A/S, Leif Höegh & Co ASA, Liquefied Natural Gas Limited, Lloyds Register, LNG Japan Corporation, Louis Dreyfus Armateurs S.N.C., Malaysia Int Shipping Corp Berhd, Malaysia LNG Sdn Bhd, Maran Gas Maritime Inc, Marine Service GmbH, Marubeni Corporation, Medway Ports, Milford Haven Port Authority, Mitsubishi Corporation, Mitsui & Co Ltd, Mitsui OSK Lines Ltd, Möller, A.P, Naftomar Shipping & Trading Co, National Gas Shipping Co. Ltd, Nigeria LNG Limited, NIPPON Oil Corporation, Norgas Carriers A/S, North Atlantic Pipeline Partners, L.P., Northern Marine Management Ltd, NYK Line (Nippon Yusen Kaisha), Oman Liquefied Natural Gas, Osaka Gas Co Ltd, OSG Ship Management Ltd, Pertamina Transportation LNG-JMG, Petredec Limited, Petrobras Transporte S.A. – Transpetro, Petronas Gas Berhad, Petronet LNG Limited, Phoenix Park Gas Processors LTD, Pronav Ship Management Inc, PT Arun NGL Co, PT Badak NGL Co, Qatar Gas Transport Company Limited, Qatar General Petroleum Corporation, Qatar Shipping Company Q.S.C., Qatargas Operating Company Limited, Ras Laffan Liquefied Gas Co. Ltd, Rompetrol Petrochemicals, Sakhalin Energy Investment Co Ltd, Santos Ltd, Saudi Arabian Oil Co (Saudi Aramco), Seariver Maritime Inc, Sempra Lng, Shell International Trading and Shipping Co Ltd, Shipping Corporation of India, Shizuoka Gas Co Ltd, Single Buoy Moorings Inc, SK Shipping, SNTM-HYPROC, South Hook LNG Terminal Co Ltd, Statoil A/S, Suez Global LNG Limited, Suez LNG NA LLC, Talisman Energy, Tamenefegas, Teekay Shipping, Terminal de LNG de Altamira S. de R.L. de C.V., Texaco Angola Natural Gas Inc, The Bahrain Petroleum Co B.S.C., The Egyptian Operating Company (elng), Thome Ship Management Pte. Ltd, Toho Gas Co Ltd, Tohoku Electric Power Co Inc, Tokyo Electric Power Co Inc, Tokyo Gas Co Ltd, Total Indonesie, Total S.A., Trunkline LNG Company, LLC, Unicom Management Services, United Gas Derivatives Company, V. Ships Limited, Varun Shipping Company Ltd, Weavers Cove Energy, Wesfarmers LPG Pty Ltd, Woodside Energy Ltd,