

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.

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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.

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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.