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**Submission on the proposed Terms of Reference for EPA/DCENR/NIEA Research Programme on Environmental Impacts of Unconventional Gas Exploration & Extraction (UGEE)**

Our Ref: Submission 01

8<sup>th</sup> March 2013

On behalf of Good Energies Alliance Ireland (GEAI), I wish to make a submission regarding the following sections of the proposed Terms of Reference:

*P1 section1 "In the context of the proposed research outlined in this document, Unconventional Gas Exploration & Extraction (UGEE) refers to the use of high volume hydraulic fracturing (fracking) of previously impermeable rock to permit the extraction of natural gas on a commercial scale from unconventional sources such as shale gas deposits, coal seams and tight sandstones."*

**Observation:**

**The proposed research area is too narrow: Unconventional Gas Exploration & Extraction cannot be confined to "the use of high volume hydraulic fracturing". UGEE must refer to the entire process surrounding High Volume Hydraulic Fracturing (HVHF), including site preparation, drilling and casing, well completion, production, transportation, storage and disposal of wastewater and chemicals, and site remediation. Hydraulic fracturing is only a stage in the process. We will refer to the entire process as the "life cycle" of UGEE.**

*P1 section 2These 'options' are valid for a period of up to a maximum of 24 months and give the holder the first right, exercisable at any time during the period of the Option, to an Exploration Licence...*

**Observation**

**Alter "right" to "refusal". Statement is incorrect.**

*P1 section 2.. Additional consents are required before the company can drill the exploration well and any operations involving hydraulic fracturing would require an Environmental Impact Assessment which would consider potential cross-border (transnational) impacts.*

**Observation**

**Please clarify: We have been told by PAD that EIAs are required before issuing of Exploration Licences, not before operations involving hydraulic fracturing.**



*P2 section 3*

*Further research is required to fully understand the potential impacts on the environment from the use of this technology. The key questions this research needs to answer are:*

*1) Can this technology be used whilst also fully protecting the environment and human health?*

*If the answer is yes, then:*

*2) What is best environmental practice in using the technology?*

**Observation**

**This is the key to the proposed study and it is flawed. Questions that need to be asked are:**

**The Aberdeen study was a short desk study and did not claim to be a comprehensive overview of the environmental aspects of fracking. Indeed, some of its conclusions were based on a report that has since been discredited<sup>i</sup>. It had a narrow focus on technology and did not consider the wider aspects of fracking such as the cumulative effects of this industry on an area, on its population and the social and economic impacts.**

**There is no reason why this further study should be similarly focussed almost entirely on technology and have technology named in the key research question. We recommend that the key question be changed to:**

***Can Unconventional Gas Exploration and Extraction proceed through its life cycle whilst also fully protecting the environment and human health?***

**We also recommend deleting the second question – it pre-emptes the answer to the first question which is by no means a given. In addition, there is no “best environmental practice” in some of the stages involved in the life cycle of UGEE. The industry is too young and unregulated.**

**P2 S3**

*The question of whether the existing EU environmental regulatory framework is adequate for proper control of unconventional fossil fuels projects is also important.*

**Observation**

**Important EU studies are being carried out at present by both Parliament and Commission. They are expected to be published in 2014/2015. Previous studies confirm gaps in EU regulations<sup>ii, iii</sup>. Agree that it is important to consider the existing EU environmental regulatory framework. Delay of completion of this report until these reports are published and considered is therefore advised, as is consideration of the major EPA US final report on the Impacts of HVHF on Drinking Water, and the new report commissioned on the Health Impacts of HVHF by New York<sup>iv</sup>**



*P4 Project A1*

*The vulnerability of groundwater resources from both surface and subsurface UGEE activity related (including fracking) potential hazards and pathways.*

**This section is too narrow. Given that the target areas include many lakes, rivers and streams, as well as impermeable soil and high risk of flash flooding, the research issue should include surface water.**

*P5 Project A-2*

*“A review of historical and modern records of natural seismicity in Ireland. An assessment of the nature and magnitude of induced seismicity associated with hydraulic fracturing operations, with reference to North America and UK...”*

**Looking at the scope of this area of research, it seems to us that this area is only relevant in the context of application for permission for HVHF. We do not accept its relevance in the context of this research study. Such work can be carried out by the companies interested in such applications.**

**Recommendations:**

- 1. That these studies should be reduced in scope or omitted altogether.**

**P6 Project B**

*This project should comprise a detailed examination of the potential environmental impacts and successful mitigation measures, associated with fracking that have come to the fore worldwide using published reports and other sources.*

**Project B is the core research area in this research study. As such, it should have at least equal importance and resource as Project A. This is not the case.**

**Many international studies have focussed on hydraulic fracturing to the exclusion of the other stages of UGEE. This has been recently criticised by Professor Ingraffea, a renowned opponent of and expert on fracking. “People don’t think of everything that happens before and after (hydraulic fracturing). That’s much more risky to human health and the environment.” The proposed Terms of Reference make the same mistake.**

**In addition, the research areas proposed do not address the very real concerns of the citizens faced with the introduction to Ireland of an industry that is young, not researched adequately and is impacting on human and animal health as well as the environment and on climate change. The following is an extract from a Policy document by the American Public Health Association:**

**“HVHF poses potential risks to public health and the environment, including groundwater and surface water contamination, climate change, air pollution, and worker health. HVHF in many**



parts of the country represents a new industrial, environmental, and land use development pattern with significant potential for impacts on public health. The public health perspective has been inadequately represented in policy processes related to HVHF. Policies that anticipate potential public health threats, require greater transparency, use a precautionary approach in the face of uncertainty, and provide for monitoring and adaptation as understanding of risks increases may significantly reduce the negative public health impacts of this approach to natural gas extraction.”<sup>v</sup>

Dr Eilish Cleary, Chief Medical Officer, New Brunswick, said in a recent report<sup>vi</sup>. “Some of the key information gaps identified during this review include a lack of standard methods for preventing and mitigating social impacts, a lack of health status studies before and during gas development, and a lack of systematic health impact assessments. Information needed to assess toxicity risks may also be lacking, such as the toxicological characteristics of industry products and wastes, and accurate exposure data is usually not available. There is also a lack of knowledge about the extent, locations and rate of development which makes it very difficult to forecast local effects of specific projects and to assess the potential for cumulative effects over time.”

Her recommendations include:

- *The Province should develop and implement methods to link health status information to environmental monitoring data and socioeconomic status data.*
- *The Province should implement a requirement for submitting a Health Impact Assessment (HIA), prepared according to the specifications of Department of Health (DH), as part of the standard Project Registration process managed by Department of Environment and Local Government*
- *The Province should undertake a Strategic Health Impact Assessment (Strategic HIA) to estimate the long-term cumulative health and social benefits and costs.*

Recommendations:

1. That a Health Impact Assessment of the cumulative effects of the whole process of UGEE should be included in the Research Study. The scenario planned by Tamboran for the commercial development stage of UGEE in Fermanagh/Leitrim has been published and is freely available. It includes 120 7-acre pads, 3,000 wells and 100,000 acres impacted. Given this data, it is possible to carry out a Health Impact Assessment on this development that would include the three pillars of Public Health – Physical, Social and Economic environments.
2. That a senior official from the Department of Health be included in the Steering Committee specifically to coordinate the implementation of a Health Impact Assessment.
3. That the Health Impact Assessment be considered as a separate research project, to be completed within the timeframe of the entire study, i.e. 20 months.



*P7 Project C.2*

*“This work package should examine the best practice in relation to UGEE operations including but not limited to: water resources management, risk management/minimisation and treatment, avoidance or mitigation of detrimental seismic events, use of chemicals, well-head construction, residuals management and air emissions management.”*

**Again too narrow. All references to best practice must specify the inclusion of all stages in the life cycle of UGEE.**

**The reference to human health is buried in the middle of a sentence (described as “inter alia”) and should form the central focus of this study.**

*P8 Section 6*

*Projects B and C are planned to take 9 months until final report.*

**The work planned for this research programme is skewed in favour of the physical sciences, in particular geology and seismology, rather than other vital environmental impacts of UGEE. Reading the proposed Terms of Reference, it appears that the Petroleum Affairs Division and the Geological Survey mainly influenced the content. Accordingly, the study lacks balance and, as written, would not satisfy the criterion of a “comprehensive study” of UGEE.**

**In particular, the focus of the study on hydraulic fracturing rather than the life cycle of UGEE indicates a lack of understanding of the intensive industrialisation of large areas of land resulting from this industry; the impacts on land, air and water; the impact on communities, cultural heritage, and human and animal health.**

**In addition, a comprehensive study of the effects of UGEE should include an independent study of its impacts on employment and on existing industries such as agriculture and tourism.**

**Recommendations**

- 1. Widen the Terms of Reference to include the Life Cycle of UGEE**
- 2. Include Health Impact Assessment to include the cumulative impact of commercial development of shale gas as in the Tamboran scenario for Fermanagh/Leitrim**
- 3. Divide the resources more evenly in favour of a more comprehensive study of environmental impacts, which should need more resources and time.**
- 4. Do not publish final reports before the important reports being developed by US EPA and the EU Commission are published. The Irish report should be informed by them.**



**5. Commission a separate report on the study of the impact of UGEE on employment and on existing industries such as agriculture and tourism.**

**Finally, there are a number of questions that GEAI would like to put to the EPA:**

- How will the EPA respond to submissions?
- Will groups and individuals who make submissions get an opportunity to discuss their submissions with the EPA (as was given during the CER public consultation)?
- How will the EPA communicate with the public regarding their response to submissions?
- Will the public have an opportunity to comment on this report before it is published?
- Will this report undergo peer review?
- How frequently will EPA update the public on the progress of the research?
- How will the results of this study be used?

**Terms of Reference**

- How has EPA engaged stakeholders as the Terms of Reference have been developed?
- What is the status of EPA's work?
- What topics fall outside of this study's scope?

**Case Studies**

- Why is the EPA doing case studies as part of the overall study?
- How will citizens know if their property is included in the study?
- Will EPA provide a schedule for the work to be done at each of the case study locations?
- What if citizens want to volunteer a site/property for inclusion in the study?
- What will be measured at the case study sites, and what do those measurements tell us?

**Quality Assurance Process**

- How will EPA ensure that the study design and the results are not biased in any way?
- Are quality assurance project plans available for all parts of the study?
- What is EPA's review process for QAPPs?
- Will EPA provide its QAPPs for the research study to the public?
- How will EPA ensure unbiased results from the data analysis?



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<sup>i</sup> University of Texas, 2012.

[http://www.energy.utexas.edu/index.php?option=com\\_content&view=article&id=151:shale-gas-regulation&catid=1:features&Itemid=146](http://www.energy.utexas.edu/index.php?option=com_content&view=article&id=151:shale-gas-regulation&catid=1:features&Itemid=146).

<sup>ii</sup> [Potential Risks for the Environment and Human Health Arising from Hydrocarbons Operations Involving Hydraulic Fracturing in Europe, September 2012](#)

<sup>iii</sup> [European Parliament, Directorate General for Internal Policies: Policy Department A: Economic and Scientific Policy. Impacts of shale gas and shale oil extraction on the environment and on human health \(June 2011\)](#)

<sup>iv</sup> New York State Commissioner of Health, Health Impact Study (not completed) (2013)

<sup>v</sup> American Public Health Association (2012) **The Environmental and Occupational Health Impacts of High-Volume Hydraulic Fracturing of Unconventional Gas Reserves**

<http://www.apha.org/advocacy/policy/policysearch/default.htm?id439>

<sup>vi</sup> Chief Medical Officer of Health's Recommendations Concerning Shale Gas Development in New Brunswick (2012)