National Office: The Secretary, Talamh, Knockvicar, Boyle, Co. Roscommon

Re: A7-0283/2012 ENVI (Sonic) REPORT

On the environmental impacts of shale gas and shale oil extraction activities

(2011/2308(INI))

Committee on the Environment, Public Health and Food Safety

12 November 2012

TALAMH COMMENTARY ON THE EXPLANATORY STATEMENT

Below we have recited the entire text of the Explanatory Statement with our interspersed comments in italics

"For the transformation of the energy system by helping to reduce emissions with existing technologies gas will be critical until at least 2030 or 2035."

TALAMH COMMENTARY – The writer produces no evidence to support this claim.This statement is not drawn from the Motion yet the external source is not reported. If GHG emissions from existing technologies decline and those resulting from the greater gas usage increase, overall emissions may not be reduced. The Committee for Development opinion at point 4 actually states, "Considers that increased shale gas exploration and production world-wide will lead to a considerable increase in fugitive methane emissions and that the overall greenhouse warming potential (GWP) of shale gas has not been evaluated;"

"Shale gas and other unconventional gas sources have become potential important new sources of supply in or around Europe. It has been recorded in the Commission's Energy Roadmap 2050 (Communication from the

Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - Energy Roadmap 2050, COM(2011)0885).

In that document, the Commission recognises that as conventional gas production declines. Europe will have to rely on significant gas imports in addition to domestic natural gas and potential indigenous shale gas, and that alongside internal market integration domestic shale gas will relax concerns about the EU's import dependency."

TALAMH COMMENTARY - It is nonsense to claim that the market is controlled by the EU. Private companies operating within member states are free to sell all of their gas outside of the EU.

"In recent years the extraction of 'unconventional' hydrocarbons, notably shale gas but also shale oil, has led to unprecedented and radical changes in global energy markets. In particular, shale gas has risen from 1.4 % of the US gas market in 2000 to some 17 % in 2011. Global gas prices and trade patterns are being re-shaped, with evident consequences for the EU."

TALAMH COMMENTARY - There is nothing "unprecedented"or "radical" about fluctuations in global energy markets. What 'evident' consequences does the writer show? What governs gas prices? The price of gas has slumped in the US. This slump has not been reflected in the price of gas in Europe?

"The 'shale gas revolution' is spreading worldwide at a relatively rapid pace. According to some estimates, total shale gas reserves in place in the EU exceed 56 thousand billion cubic metres (BCM) of which some 14 thousand BCM might be technically recoverable. This compares to Norway's conventional reserves of 2,215 BCM and annual production of some 104 BCM, and the EU's annual consumption of indigenous and imported conventional gas of about 522 BCM."

TALAMH COMMENTARY - The writer does not give a figure for current natural gas production in EU.He does not give a figure for conventional gas reserves for the whole of Europe. No reputable source provided for the data cited.

"While it is too early to conclude whether significant volumes might be extracted economically in the EU, a number of Member States have permitted shale gas exploration and are preparing for extraction if discoveries allow.

In addition to conventional vertical drilling and modern-computer-aided exploratory methods, two advanced technologies are key to sustainable production of shale gas and shale oil, horizontal drilling and hydraulic fracturing."

TALAMH COMMENTARY - Shale gas wells are known to be unreliable, with a rapid decline in produced gas. This cannot be described as "sustainable". Point 44 of the Motion specifically refers to "a sharp decline after the first two years".

"Horizontal drilling encompasses the drilling of vertical wells to a depth usually greater than two kilometres, with horizontal extensions then following along geological formations for up to three kilometres or more."

TALAMH COMMENTARY – Reports from Alberta and the Yukon state that horizontal extensions have been drilled and fractured at depths far shallower than two kilometres. There are complaints that this has caused serious damage to groundwater aquifers.

"Hydraulic fracturing is an extremely seasoned and tested technology used in over of 1.2 million wells since the 1947, principally in Canada and the USA and for 30 years in Europe (latterly in Germany, Sweden, Poland, Spain, Denmark and the UK), is used in conventional hydrocarbon extraction in the EU, and is used or planned to be used on a very wide scale in numerous countries worldwide including Argentina, China, the Ukraine and India."

TALAMH COMMENTARY – Paragraph E of the grounds for the Motion at page 5/27 states:

"whereas the two main techniques deployed in unleashing the UFF potential of shale gas and coal bed methane, horizontal drilling and hydraulic fracturing (fracking), have been used in combination for just a decade, and should not be confused with well stimulation techniques used for the extraction of conventional fossil fuels due to the combination of these two techniques and the scale of intervention involved;"

The Statement is doing precisiely what Paragraph E declares should not be done by confusing contemporary processes with well stimulation techniques used for the extraction of conventional fossil fuels and takes hydraulic fracturing in isolation and not in combination with horizontal drilling.

"Besides this background it is important to monitor worldwide regulatory regimes and practices, and to recognise and address concerns about the environmental effects of shale gas and shale oil extraction. Those focus on the potential consumption of large volumes of water, the potential chemical pollution of groundwater bodies especially of drinking water, on the treatment of waste water and risks to surface waters, on the storage of waste seismic drill cuttings, on site-specific impacts, on seismic effects, and the possible implications for greenhouse gas (GHG) emissions."

"It is important to note that no official or other reputable sources have demonstrated any systematic connexion between shale gas and shale oil extraction and human or animal health.

No official or other reputable sources worldwide have demonstrated any cases where hydraulic fracturing has led to contamination of drinking water."

TALAMH COMMENTARY - It is contrary to scientific methodology to claim that evidence does not exist. Evidence must be certain, i.e. it exists.There can not be evidence that a certain thing does not exist.

Rapporteur Catherine Greze in the SUGGESTIONS of THE COMMITTEE ON DEVELOPMENT (attached to and part of the motion) states at point 1

"numerous studies and experiences from the US, demonstrate that a number of serious risks to the environment and health are associated with shale gas"

The writer is also in conflict with the study published by the Directorate-General for Internal Policies, Policy Department A:Economic and Scientific Policy of the European Parliament in June 2011, Impacts of shale oil and shale gas extraction on the environment and on human health, where it states in the Conclusions and Recommendations:

> *'The technology of hydraulic fracturing has a significant impact in the USA, which at present is the only country with several decades of experience and long-term statistical records. The technology for shale gas development has characteristics which partly show unavoidable environmental impacts, partly have a high risk if the technology is not used adequately and partly have a possible high risk for environmental damages and hazards to human health even when applied properly.'*

It is recognised at Point 17 of the Motion that such evidence has been suppressed where it refers to "mutual non-disclosure agreements regarding damage to environmental, human and animal health, that have been practised between landowners in the vicinity of shale gas wells and shale gas operators in the US"

We list just three examples of reports known to Talamh, generally accepted as reputable that demonstrate a systematic connexion between shale gas and damage to human or animal health.

- *The Endocrine Disruption Exchange -TEDX are just one example of a reputable organization that have produced numerous reports regarding the effects of the unconventional gas extraction industry on human health.*

- *Risk assessment of groundwater contamination from hydraulic fracturing fluid spills in Pennsylvania*

by Sarah Marie Fletcher, Massachusetts Institute of Technology.

- *ExxonMobil commissioned a report in Germany. Ausschluss des Frackings an bestimmten Standorten und Gebieten und Vorrang für Trinkwasser- und Gewässerschutz vor der Energiegewinnung.*

"However, it should be emphasised that no human activity can be wholly risk-free. The aim of regulation must be to minimise environmental impact and strike a reasonable balance in the light of science, statistical data and of a full consideration of the risks and rewards (also encompassing the alternatives). Sadly, public discourse has included wilful suppression of some data and much extrapolation from hypothetical or individual incidents to the totality of shale gas and shale oil extraction."

TALAMH COMMENTARY - Nothing in the motion refers to "wilful suppression of some data" or "extrapolation from hypothetical or individual incidents"

"Accordingly, the Commission and the competent national authorities should continue to study the potential environmental effects but on a scientific and statistically-based footing, covering Member States and reputable sources worldwide. They should avoid reliance on ideologically-biased academic."

TALAMH COMMENTARY - What bona fides should be relied upon? Industry-supplied information is commercial information as the industry necessarily has a vested interest and so must be regarded with caution.

"The Commission and the competent national authorities should foster maximum transparency, and the provision of information to the public based both on proven science and statistics and on a context- and comparator-based assessment of the risks and benefits.

Regulation, Implementation, Monitoring and Co-operation

Under the Treaty on the Functioning of the European Union clearly states in Article 194 (2), that Member States have sovereign rights regarding choice of energy mix, and issuing licences and other approvals for the exploration and exploitation of hydrocarbon resources is a Member State prerogative.

Sovereign rights regarding choice of energy mix can be subject to EU approval, this was stated by a commissioner last year in correspondence to an Irish representative.

In the EU shale gas and shale oil extraction is governed by the same principles which apply to other types of extraction such as of coal, conventional gas and oil, of water and geothermal energy, and to underground activities such as injection of CO2 for gas and oil recovery, storage of gas and oil reserves and storage of CO2 for carbon capture and storage (CCS) purposes.

The Commission considers that unconventional hydrocarbon projects involving the combined use of advanced technological processes such as horizontal drilling and hydraulic fracturing are covered by EU environmental legislation from planning until cessation, 36 instruments being applicable and eight Directives being principally involved. The Commission has confirmed that existing EU and national legislation satisfactorily governs all aspects of shale gas and shale oil extraction."

TALAMH COMMENTARY - When and in what document did the Commission make these confirmations?The writer does not cite an EU Commission document.

In this regard the Directorate-General for Internal Policies. POLICY DEPARTMENT A, stated in June 2011:

'Existing mining laws in Europe and related regulations affecting mining activities do not take care of the specific aspects of hydraulic fracturing.'

Also In the Executive Summary of the same report at paragraphs 1 and 2 it states:

'There is no comprehensive directive providing for a European mining law. A publicly available, comprehensive and detailed analysis of the European regulatory framework concerning shale gas and tight oil extraction is not available and should be developed.

'The current EU regulatory framework concerning hydraulic fracturing, which is the core element in shale gas and tight oil extraction, has a number of gaps. Most importantly, the threshold for Environmental Impact Assessments to be carried out on hydraulic fracturing activities in hydrocarbon extraction is set far above any potential industrial activities of this kind, and thus should be lowered substantially.'

Furthermore at p.12 (EU Regulatory Framework) it is stated,

'Due to the multitude of relevant legislation from various fields, the specific risks of hydraulic fracturing are not sufficiently covered. Nine major gaps were identified:

1. *lack of a mining framework Directive,*
2. *insufficient threshold in the Environmental Impact Assessment (EIA) Directive for natural gas extraction,*
3. *declaration of hazardous materials not mandatory,*
4. *approval of chemicals remaining in the ground not required,*
5. *no Best Available Technique Reference (BREF) on hydraulic fracturing,*
6. *The waste water treatment requirements are insufficiently defined, and the capacities of water processing facilities are probably insufficient if underground injection and disposal is to be banned,*
7. *insufficient public participation in decision-making at regional level,*
8. *effectiveness of water framework directive insufficient, and*
9. *LCA not mandatory.'*

From the same report Report at p.52 it states,

'The Directives are sorted by relevance within each table. Not all of these Directives are necessarily effective as of today due to possible delays in (correct) transposition into National law.'

Currently, extractive industries are facing problems due to insufficient legislation, as put by Tomas Chmal, Partner at White & Case, at the conference Shale Gas Eastern Europe 2011 in Warsaw, Poland:

"Poland is traditionally a gas country, but the Geologic and Mining Law does not say anything about hydraulic fracking or horizontal drilling. The new law being discussed doesn't cover these either." [NGE 2011]

The Motion itself seeks improvements to regulations at points 13, 21, 23, 30.

"Under the applicable EIA Directive (Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment) and Mining Waste Directives public opinion has the right to be consulted.

Once extraction commences, relevant EU instruments mandate reviews and, if needed, revisions of authorisations. The competent national authorities have monitoring obligations, and failing compliance, extraction can be prohibited. It is recognised that the effectiveness of EU and Member State legislation ultimately depends on the efficiency of the competent national authorities, so Member States must have regard to strengthening their regulatory, monitoring and enforcement resources in the light of prospects for the extraction of shale gas and shale oil.

Any new EU legislation will destabilise the current adequate network of EU and national regimes, moving them away from the existing safety case approach and giving rise to the risk both of gaps and of redundancies in regulatory cover. The Commission and the competent national authorities should monitor changes in technology worldwide with a view to assessing the adequacy and efficacy at all times of existing legislation and regulatory practice."

c The writer cannot predict what legislation would be brought in by the EU, and if any were it is HIGHLY unlikely it would move away from the Safety Case approach, which is internationally accepted as the norm. This statement is a groundless assumption and presumes the European Parliament would be incompetent.

"Information is already shared within the EU and globally by the Commission, by competent national authorities, and by industry groups. Stronger efforts to share best practices and regulatory experience, including the statistical monitoring of the use and impact of evolving technologies, can lead to significant mutual benefits.

The Commission and competent national authorities should have particular regard to the experience, covering many decades, of exemplary North American regulators such as the British Columbia Oil and Gas Commission and the Energy Resources Conservation Board of Alberta. Initiatives such as that of the Canadian Association of Petroleum Producers in defining best practice on hydraulic fracturing, and of the International Energy Agency to define best practice in shale gas and oil, are to be welcomed.

The competent national authorities should collate and share incident reporting, with due regard for commercial sensitivities, so that lessons can be promptly learned and conclusions drawn. The Commission should

assess the efficacy of the various existing information flows among the competent national authorities, with regard for the ensuing administrative burden.

Environmental Aspects of Hydraulic Fracturing

Water Resources

Water is the principal component of fracturing fluid, and the abstraction and consumption of large amounts of water resources might locally affect the ecological and quantitative status of surface and groundwater sources, and that reduction in water quantity and flow may affect water quality and the associated ecosystems.

Shale gas is among the most water-efficient sources of energy. Contrary to some broadcast impressions, the volumes of water required for extraction are minimal compared to other requirements. Authoritative estimates of water needed in the UK to produce 9 BCM of shale gas annually (some 10% of the UK's current annual gas consumption) are 1.25-1.65 million m3, this being 0.14-0.18 % of current annual abstraction for industry (905 million m3, excluding electricity generation)."

TALAMH COMMENTARY – This is an irrelevant comparison. Industry is generally a consumer of energy and not a producer.

"Nevertheless, the Commission and the competent national authorities should monitor the potential use of water resources for extraction in their respective national economies, in the context of other and alternative usages. Producers ought further to reduce water use in fracturing, to continue the search for solutions avoiding the use of fresh water, and to maximise re-usage.

The competent national authorities should continue to have regard in regulatory practice to the effects on the availability and quality of water resources.

Possible hazardous substances

There is a need to address some concerns in the EU regarding any potential leakages of hydrocarbons, fracturing fluids and other substances into aquifers and into the atmosphere.

Hydraulic fracturing takes place at depths of some two kilometres …"

TALAMH COMMENTARY – This is not true, hydraulic fracturing can take place at any depth.

"… and the upward migration of hydrocarbons and fracturing fluids from such levels is practically impossible."

TALAMH COMMENTARY – Shale rock naturally occurs with other sedimentary carboniferous rocks which are not impermeable, limestone for example. Given this fact, it would seem inevitable that some upward migration of hydrocarbons and fracturing fluids will occur.

"Again, no official or other reputable sources worldwide have demonstrated any cases where hydraulic fracturing has led to contamination of drinking water.

The chemicals which are some 0.5 % of fracturing fluids in current practice are made up of additives found in households, …"

TALAMH COMMENTARY – This reference to "additives found in households" is regularly used by the industry in public relations exercises. We can find no reference to "additives found in households" in the Motion.

"and there is a tendency among individual producers and industry groups voluntarily to propose, and for authorities to mandate, full disclosure of the composition of fracturing fluids. Operators are adopting the elimination of any potentially hazardous additives."

TALAMH COMMENTARY – This is another "public relations exercise" that has no relevance to an explanation of the motion.

"Nevertheless, effective water management and ultimate disposal is clearly critical, notably of the flow back water which can contain high concentrations of salts."

"Competent national authorities should carefully monitor the application of regulatory practices on the casing and cementing of wells.

The Commission should propose best practices, and the competent national authorities should mandate, elimination of potentially hazardous components and full disclosure via publicly-accessible electronic means of fracturing fluid compositions and volumes used."

"Public participation and local conditions

Extraction may give rise to a variety of impacts over time, such as the in early phases by diesel- or natural gas-fuelled engines powering drilling equipment and pumps, and in extraction by pumps and compressors. For instance, an 8-well pad may require some 4-6 thousand truck trips over some six months pre-extraction. A typical multi-outlet retail complex generates 15-25 thousand truck trips per annum indefinitely."

TALAMH COMMENTARY – This is likely a gross underestimate. There would more likely be 24 to 36 wells on each pad.

"As with other environmental effects, the context and comparators must be borne in mind.

Disturbances are reduced to a minimum once extraction commences, a producing well's surface equipment covering a few square metres and production being silent."

TALAMH COMMENTARY – One pad could cover several hectares, flow back pits alone are bigger than civic swimming pools. Access roads are extensive. Point 44 of the motion "notes that the storage tanks, compressor stations and pipeline infrastructure further add to the land use impact of shale gas activities."

Each well is classified as a Major Accident Hazard which can not therefore be described as a minimum disturbance. This is a major disturbance to local populations.

"In contrast to most other extractive and industrial processes decommissioned shale gas and shale oil wells typically leave no trace on the surface landscape Such potential disturbances are to be considered by the competent national authorities in their regulatory activities and specifically in the application of the EIA Directive."

TALAMH COMMENTARY – Contrary to this statement the experience from Ireland is that the safety, monitoring and post decommissioning pollution control of the site is a burden on the local community after the private operators are long gone.

"Public participation should be provided by information campaigns before exploration and public consultation on the early stages before exploitation. It is necessary to take greater outreach and public education in unconventional fossil fuels activities to enable public understanding, acceptance and confidence of these activities It is important to stress that extraction of UFF can be also a great opportunity to strengthen economy, increase employment and development in certain EU regions."

TALAMH COMMENTARY – This final paragraph does nothing more than support and recommend the industry - this is ENTIRELY BEYOND THE REMIT OF THIS EXPLANATORY STATEMENT. The purpose of the Explanatory Statement is to advise the Parliament on what precautions should be taken, in the spirit and intention of the Motion to protect the Environment, Public Health and Food Safety, NOT to promote the industry. The writer further omits in the Statement any mention of the regulation of European-based companies operating outside of the EU.