

Externalities for Fracking

Firstly we should establish what we mean by fracking, as there has been some confusion sown by the industry, who repeatedly say this has been around for more than 60 years. In fact we are referring to the process of hydraulic slick-water fracking as the method of extracting unconventional gas from tight rock formations. This technique has only been used since around 2000.

For more in depth information, including technical information we are leaving you with our two submissions to the scientific inquiry for hopefully your later opportunity to familiarize yourself about this important issue before it is taken to a vote in Parliament. You may note that there is ample peer reviewed independent scientific information contained in these and hundreds of other submissions to the inquiry. This contrasts with the industry promoted information of which much is not from independent sources! It is essential for our legislators to be fully appraised of all of the aspects of this complex and potentially dangerous industry. It is not enough to be persuaded by self- interested oil and gas corporations for short term gain, and long term costs to tax payers.

The purpose of this meeting is to share with you issues other than the technicalities, which are equally vitally important to the people of this state and which may not be considered by the inquiry's rather narrow terms of reference.

In general economic terms, externalities are the costs that are not incorporated in establishing the cost of a product or service, and that are therefore paid by society at large, i.e. the taxpayer. Examples of externalities are the water used for industrial processes for free; not completing mine-site rehabilitation, and polluting of air and waterways, to name a few.

Externalities may not be immediately obvious in the costing process by the gas companies, and may take decades or even centuries before the real costs become apparent. Therefore, it is paramount that these externalities are estimated and costed in beforehand so that this and future generations do not have to bear the economic burdens for the countries natural resources, which may have long since disappeared, which they have not benefited by. Also an assessment can be made if that project is a benefit to society.

The contribution to climate change is notable in this particular fossil fuel industry at all levels of upstream and downstream processes, through to burning. Climate change is the elephant in the room and is not included in the terms of reference for this inquiry.

The following are some of the externalities related to unconventional gas fracking. It is not an exhaustive list.

- High incidence of methane leaks due to faulty well seals, polluting both air and water.
- Toxic returned waste returned water evaporation ponds, which release the toxins into the atmosphere, leaving poisonous and radioactive sludge and pond linings which the industry has no safe means of disposing of. Meanwhile wildlife, including birds who try to drink at the ponds die excruciating deaths. Toxic waste ponds overflow into surrounding land and waterways. How large will the associated decontamination costs be?
- Flaring of gas which wastes the resource, unpaid for by the company (no royalties on flared gas), and produces amongst others CO₂ into the atmosphere, which then is a cost to the country in terms of global warming.
- A huge foot print of interconnecting roads and pipes, which dissect the landscape and farmland, and inhibit movement of livestock and farm workers, and also diminish wildlife corridors. Farmers

in difficult financial circumstances may be tempted into signing contracts which they find later costing them dearly. By the way gas companies never show aerial images of these gas fields.

- Repair costs to roads because of extremely heavy road haulage, far outstrips revenue from the industry.
- Traffic nuisance to local towns is continuous during operations. Accidents have caused havoc and danger especially when chemicals are involved.
- Aquifer and waterway pollution (this has been noted in Australia and overseas), as well as farm bore wells.
- Water depletion of wells and aquifers, especially during droughts as evidenced now across the world (massive amounts of water are necessary for fracking to occur).
- Rehabilitation of mine sites is often not completed, inadequately completed, or left undone all together. Well leaks will occur many years after the companies have left, and go unmonitored. The well infrastructure deteriorates over time and they will leave vertical pathways through aquifers deep in the earth, also unmonitored.
- Loss of jobs in other economic areas such as tourism, agriculture.
- Industrial noise in rural landscapes and exhaust fumes due to heavy machinery (40,000 horse power engines), venting flaring and compressor stations, road building etc. 24- hour light pollution. Noise and light pollution can affect the psychological as well as the physical health of individuals
- Health of people living nearby (and workers) have been shown to be adversely affected in many ways. The costs of health care are not factored in, but are very real for those affected. Many health issues are soon evident, but others may take many years to emerge (as with the asbestos and cigarette industries). In both of the latter, there was denial even though companies were later found to be fully aware of the consequences of their products. The same pattern is evident now with unconventional gas fracking.
- Loss of Aboriginal land which has both economic but more importantly irreplaceable cultural heritage value to our indigenous people.

Baseline studies are not done in the areas of drilling for water quality, air quality, health of nearby residents, wildlife depletion and more. These if imposed would be considered an economic threat to the companies concerned, and would be avoided with determination. Never the less they must be considered by those allowing the industry to go forward. These baseline studies are also important otherwise when problems occur later a response by companies is often that certain types of methane occurrences are natural.

Industry statement's such as "industry best practice", "minimal risk" or "sustainable practice" need to be quantified and explained. How many wells leak? How can deviated wells kilometres underground be guaranteed safe? These statements need to be fact checked by independent scientists and researchers such as Professor Ingraffea, who was an industry insider and is a geomechanical engineer. He is now Professor at Cornell University, New York. Professor Ingraffea has produced many papers and videos arguing against this industry. He is one of many speaking out, who are routinely ignored by an industry concerned only with the profit bottom line, as well as it appears that fracking inquiries ignore his concerns as well. The Barnett government Senate Inquiry into fracking, appears to have given very little weight to these concerns, backed up by facts not just emotional comments, by e.g. Prof Ingraffea. By the way, Ingraffea was keynote speaker at the "North American Wellbore Integrity Workshop" in Denver in Oct 2013, organised by the Petroleum Research Centre and sponsored by Schlumberger (a worldwide oil industry service company) where they discussed well leaks.

When reading a paper from an academic like Ingraffea the alarm bells should start ringing and would it then not be prudent to fully investigate his claims? Who provided the mitigating evidence that Ingraffea's concerns are not real, even though his concerns are backed up by facts provided by the gas industry and governments. The answers to the concerns he raises seem to have been dealt with in reports with phrases like "industry best practices" and "robust regulations". In reality regulations get tightened up only if "industry best practices" at a specific time did not prevent a disaster. The new regulations become best practices until the next disaster. And then the cycle starts again.

All of the listed externalities have direct and indirect economic and well-being costs associated with them. Some are quantifiable, others more difficult to quantify. How do we quantify human life, ecological deterioration? Never the less these factors must be seriously considered before decisions are made that will adversely affect them.

Water cannot be replicated. It is essential for all of life. It is the right of people to have access to clean water. Water must be costed just as it is for ratepayers. It must not be free.

The air we breathe is essential for life. Polluted air is a major consideration across the world. People are suffering and dying because of it. That is one reason that China is putting so much effort into renewables.

These two matters above are irrefutably human rights issues.

A possible way of determining risk factors, and hence monetary compensation to governments and individuals is for insurance companies to become involved. They would soon determine risk factors relating them to insurance premiums. This would give governments an idea as to whether to proceed or not, as well as the companies having to shoulder these premiums associated with the actual risks.

Governments must take into account the short and long-term costs in the interests of the people who elect them, and the interests of future generations. They must also demand that the companies pay adequate predetermined amounts of money to be held by governments for possible future costs including road repairs, mine-site, rehabilitation, safe radio-active waste disposal, restoration of the natural ecology, increased health care costs or compensation to farmers.

At least during the Lawrence Labor government WA used to have a "Social Impact Unit", to ensure that the social impacts of development proposals were included, like assessments by the EPA.

Given the serious economic risks the fracking industry poses and which is difficult to quantify though never the less become manifest, renewable sources of energy are the only sensible alternative for West Australia to pursue which would avoid these costs to the public purse.