

Members of the Review Panel:

Impacts on Land

Resource development of any kind, be it forestry, mining, or oil and gas development, has certain impacts on the land. The important questions are about how to minimize the impact and whether the socio-economic benefits are worth the impact.

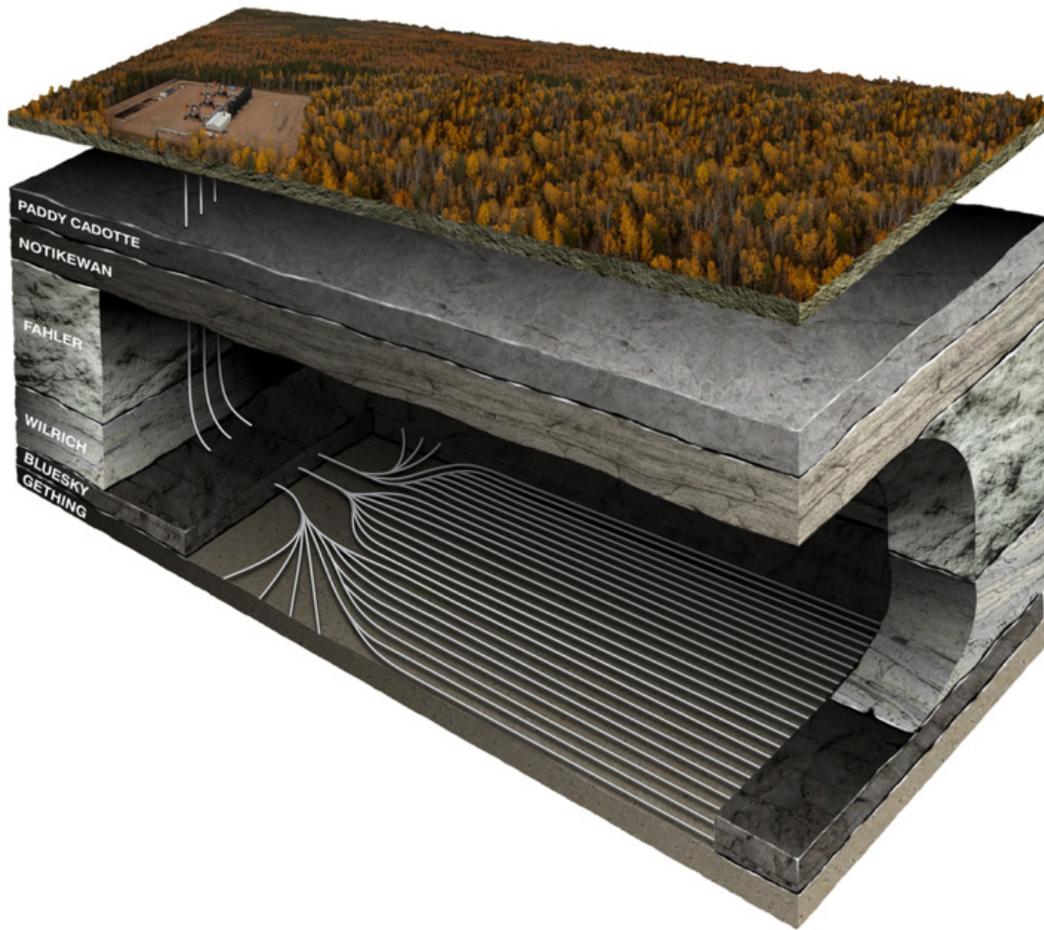
Directional drilling, which includes horizontal drilling, has made it possible to extract the maximum benefits of oil and gas resources with the smallest possible surface impact. From one drilling pad, it is now possible to drill multiple wells. The surface footprint is minimized, economics are improved and there are other environmental benefits, which we discuss below.

The old way:



Oil wells in Los Angeles, 1905. Photo: born1945 on Flickr, CC BY-SA 2.0

The new way:



The process of hydraulic fracturing involves specialized pump trucks used to pump water and sand under pressure to fracture tight formations 1 to 3 kilometers beneath the surface. There is industrial activity during the process but once development is complete, what is left is a site that quietly generates wealth for years to come.



Waste Management

Another advantage of drilling multiple wells from a single pad is that it is possible to reuse the flowback frac water in the next well. The flowback water is processed in tanks on site and then used in the next well without ever being transported off site. This minimizes the impact of waste water disposal and also improves well economics, as the following analysis from Schlumberger shows:

Single-Well Lifecycle Water Costs

	Marcellus	
	Disposal Case	Reuse Case
Fresh Water Supply	\$18,000	\$13,500
Fresh Water Transportation	24,000	18,000
Treatment	0	30,000 ¹
Reuse Transportation	0	12,000
Disposal Transportation	600,000 ²	0
Disposal	30,000	0
Total	\$672,000	\$73,500

(1) 25% flowback, \$1/bbl

(2) 30,000 bbl x \$0.04/bbl/mi x 500 mi

Slutz, SPE 157532 (2012)

Environmental impacts are minimized and \$600,000 in costs are saved per well. Economic and environmental interests are aligned.

Water sources and additives:

On the question of sourcing water for use in hydraulic fracturing, we see no reason why sea water cannot be used. Supply will clearly not be constrained and issues about competition for local fresh water supplies will be mitigated.

Regarding additives to the frac water, we support full disclosure of any additives used in the frac fluid and would work closely with the regulators in optimizing our additives regime.

We will be submitting a number of articles and studies on the topic of minimizing surface disturbance, re-use of frac fluid and new developments in the composition of additives.

Respectfully yours,

M. Jarvis
CEO
Shoal Point Energy

<http://www.capp.ca/publications-and-statistics/publications/218130>

<http://www.google.ca/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CCIQFjAA&url=http%3A%2F%2Fwww.capp.ca%2F~%2Fmedia%2Fcapp%2Fcustomer-portal%2Fpublications%2F218146.pdf&ei=hjGEVaGNNMiz-AHxpoDwCQ&usg=AFQjCNEcpUEHLviYdB-sZh0ZHw28AnOTSg&bvm=bv.96042044,d.cWw>

<http://nlhfrp.ca/wp-content/uploads/2015/01/Developing-Effective-and-Environmentally-Suitable-Fracturing-Fluids-Using-Hydraulic-Fracturing-Flowback-Waters-1.pdf>

<http://www.blm.gov/style/medialib/blm/wy/information/NEPA/pfodocs/npl.Par.40081.File.dat/P OD.pdf>

http://www.halliburton.com/public/common/Case_Histories/H09138.pdf

http://www.api.org/~media/files/policy/hydraulic_fracturing/hf-comments-by-us-officials.pdf

<https://www.encana.com/pdf/operations/usa/npl-fact-sheet.pdf>

http://cce.cornell.edu/EnergyClimateChange/NaturalGasDev/Documents/PDFs/Policy_Brief_Sept11-draft02.pdf

<http://nlhfrp.ca/wp-content/uploads/2015/01/Modern-Well-Development-Technology-Produces-Big-Time-Environmental-Benefits-for-Michigan.pdf>

<http://energyindepth.org/wp-content/uploads/2014/02/Experts-Tout-Safety-HF.pdf>