

## **An SDM Framework to assess the possibility of sustainable unconventional gas well development in Western, Newfoundland; Canada**

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The prospect of drilling in Green Point shale near the picturesque Gros Morne National Park has raised serious alarms about groundwater pollution and other negative environmental impacts of hydraulic fracturing. The decision considered in this project is how to facilitate sustainable unconventional gas well development in the Green Point Shale play in Western Newfoundland.

Hydraulic fracturing has been surrounded by huge controversies, leading to heightened tension among stakeholders making it difficult to clearly identify the consequences of the processes associated with fracking. To combat this, a Structured Decision Making (SDM) simulation was employed; a tool that is able to make allowances for uncertainties and create a series of alternatives within which stakeholders can negotiate and tradeoff toward a common ground. Using this method, stakeholder hats were worn to identify four alternatives; i) ban on fracking, ii) moratorium with no activity, iii) moratorium with activity and, iv) regulated development, to then evaluate using a value system. The five stakeholder hats appointed were; a conservation biologist, oil and gas geologist, a local non-governmental (NGO) or civil society member, an economist and a member of government.

The first stage of results presented values that displayed high polarization among stakeholders. This led to the development of a fifth alternative titled a "Revised Moratorium". This alternative suggests putting a moratorium on high volume fracturing with controlled activity. The value system showed a low positive impact with little to no polarization across stakeholder values. The major trade-offs aided in all stakeholders coming to a middle ground; allowing values by all to be encapsulated in this alternative.