

Lessons on petroleum benefits

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The prospect of renewed exploration for petroleum offshore New Zealand has generated plenty of interest amongst the general public, business interests and government. New Zealand has an offshore exploration history dating back to the 1960s, several producing fields, and petroleum exports worth \$1.5 billion annually, but we are a tiny player in the world petroleum market. Petroleum exploration and production involves risk and cost, as does almost every economic activity, and there are some recent examples of major environmental mishaps in production, and transport of oil and gas. But focusing solely on some well-publicised incidents or on carbon emissions and climate change impacts from fossil fuel provides a partial picture of the petroleum industry. We can observe how petroleum activities are managed in Norway, a mid-sized country with a similarly small population (5 million people) and a large offshore petroleum industry.

Exploration for oil and gas on the Norwegian continental shelf began in the 1960s and after the first success in the Cod field in 1968, production commenced in 1972, just one year after New Zealand began onshore petroleum production. In the subsequent 41 years Norway has developed a petroleum sector that has produced from 88 oilfields, rapidly become a world leader in undersea exploration and production, introduced effective policies to manage the risks, costs and benefits that oil and gas exploration and production bring. The Norwegian State has been a crucial player in the development of almost all aspects of the sector that is now the largest in Norway, is highly profitable, technologically sophisticated, and includes a 67 percent State owned firm Statoil that operates in over 35 countries.

Stortinget the Norwegian Parliament crafted ten oil commandments that have guided petroleum sector development since the 1960s. The oil commandments make clear that production of oil and gas off the Norwegian coast must provide broad benefits to Norwegian people. The State has many roles in the Norwegian petroleum sector: resource owner, legislator, regulator, exploration right allocator, State oil company owner, joint venture investor/producer, gas pipeline owner and operator, employee safety authority, environmental emergency agency, income tax and petroleum profits taxation collector, environmental tax and levy collector.

Critically, Parliament decides on the broad outlines of petroleum sector activity including the areas that are open for exploration. Exploration and production began in the southernmost part of the Norwegian continental shelf in the North Sea. New areas were later opened in the Norwegian Sea and more recently in the Barents Sea, but through the will of Parliament some areas remain closed to exploration and production including off the dramatic coast of Lofoten. Despite the wishes of the 2013 Minister of Petroleum and Energy, Stortinget declared that the fishing grounds and coastal scenery off Lofoten were too important to permit that area of continental shelf to be opened for petroleum exploration.

At a finer scale the powerful Norwegian Petroleum Directorate controls the spatial and temporal pattern of petroleum activities by awarding exploration rights, approving production and operation plans. Firms operating on the Norwegian continental shelf must comply with Norwegian health and safety and environmental regulations. Strict liability applies to all offshore petroleum activities. Norway has faced major challenges including the blowout on the Bravo field, listing of a large production platform, and loss of life during storms. If an oil spill occurs offshore, Norway has emergency cleanup equipment at five sites along the coast to ensure its 83,000 km long coast is not damaged. No oil spill has reached the Norwegian coastline since production commenced in 1972. Total acute discharges to the sea in 2012 totaled 13 cubic metres.

Production of oil and gas is itself an energy intensive activity and 29 percent of Norway's greenhouse gas emissions come from petroleum sector activities. Norway is cognisant of the

climate change implications of oil and gas production and has policies to reduce or offset those impacts. CO2 and NOx taxes have been in force in Norway since 1991 and 2007 respectively and payments by petroleum firms totaled NZ\$ 0.8 billion in 2011. Norway is very well endowed with hydropower, which is used to generate 97 percent of its electricity. Over 48 percent of gas production on the Norwegian shelf is powered by electricity reticulated to offshore platforms by cables. Norway is very wealthy and invests heavily in offset actions internationally.

Norway captures about 80 percent of the net benefits generated from the huge investments in the petroleum sector and has policies in place to ensure the benefits are widely distributed including across generations. As well as 27 percent company tax, petroleum sector profits incur a profits tax of 50 percent. The Norwegian State is a major investor in the petroleum sector and earns dividends annually. All State revenues from the petroleum sector, about NZ\$70 billion in 2012, are invested offshore in the Government Pension Fund Global. Since the first transfer into the fund in 1996 it has grown to be worth about NZ\$ 1 trillion today. Up to a maximum of 4 percent of the value of the fund can be used each year to support the Government budget. Norway has produced about 40 percent of the petroleum that it believes will be produced off its coastline and production and additions to the GPFG may continue for another sixty years.

Norway's experience suggests that having a clear vision of how the petroleum sector should be developed and sustained commitment to that vision, bold investments by the State and the private sector, astute well-informed State oversight of all aspects of the sector, and long-sighted policies to manage and share the risks costs and benefits has proved a highly successful formula when exploiting offshore oil and gas.

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