

CSIS Energy program

Arctic Petroleum:

Alaskan Development and International Frameworks (working title)

Executive Summary

Due to rising energy demands worldwide, and improved accessibility to natural resources as Arctic ice melts, the Arctic region is receiving increased international attention. Arctic nations and companies alike are pushing for amplified Arctic petroleum exploration and exploitation. The littoral states, however, find themselves in a difficult position as they juggle between environmental, economic and political concerns. Further complicating the issues, external actors like the EU, China and environmental NGOs are also taking part in the Arctic oil and gas debate. Topics like sovereignty, regional impact and the need for common frameworks of cooperation have subsequently gained a lot of attention. Within the Arctic Council, members have started the process of developing a common instrument for oil spill preparedness while at the same time debating oil spill prevention. The relevance of this institution is consequently related to its ability to maintain momentum as the region develops further. In the American Arctic, questions concerning the lack of Coast Guard capabilities, diminishing throughput in the trans-Alaskan pipeline, and government permit coordination need to be resolved before any further progress is made. Altogether there is a need for greater company involvement in the Arctic debate, while at the same time recognizing the lack of public capacity which any oil and gas activity is subject to. These issues spur Arctic growth onwards, as international oil and gas development grows in importance and relevance at a staggering rate.

Following a Center for Strategic and International Studies conference on Arctic oil and gas in July 2011, this report will tackle explaining the current situation of oil and gas in the Arctic, with a special emphasis on Alaskan resource development. In addition, this report will portray and discuss the development of new frameworks for Arctic oil and gas cooperation. This aligns with the work done at the CSIS on both energy and the Arctic, as a region that is rapidly changing and increasingly put on both business and foreign policy agendas.

Contents

1. Introduction: New Arctic Interests	3
1.1. Resources	4
2. The U.S. Arctic	6
2.1. Significance	6
2.2. History of Development	8
2.3. Key issues of development: Arctic National Wildlife Refuge	11
2.4. Key issues of development: National Petroleum Reserve	12
2.5. Key Issues of Development: Beaufort & Chukchi Seas	12
2.6. Looking Forward: US energy security and Arctic Alaska energy development	14
Map: Oil and gas activities in the Arctic region	16
Classification	17
3. Oil and gas activities in the non-US Arctic	18
3.1. Russia	18
3.1.1. Shtokman	18
3.1.2. Yamal	19
3.1.3. Nenets	21
3.1.4. Prirazlomnoye and Dolginskoye (Pechora Sea)	22
3.1.5. Other topics of development	23
3.2. Canada	24
3.3. Norway	26
3.4. Greenland	29
4. Developing a framework for oil and gas in the Arctic	30
4.1. Environmental concerns and oil spills	30
4.2. International processes and alternatives	36
4.2.1. Arctic Council Offshore Oil and Gas Guidelines	36
4.2.2. Oil spill preparedness	37
4.2.3. Oil spill prevention	39
4.2.4. Alternative forums	40
4.2.5. Multinational companies and shipping	41
4.3. A regional concern?	44
5. Conclusion	47

1. Introduction: New Arctic interests

There is nowhere on earth where the effects of global warming are more apparent than in the Arctic. One fourth of the Arctic sea ice has disappeared since 1978, and the 2011 ice levels are some of the lowest ever recorded, as the ice is melting at a faster rate than predicted.¹ This has led to a surge in interests for the region, particularly driven by the prospects of access to a vast amount of natural resources. Due to open waters and technological advances, hydrocarbons that were previously considered to be unreachable are becoming accessible. At the same time, dwindling production rates of oil and gas elsewhere are forcing companies and states alike to push exploration and exploitation to new frontiers. Simultaneously, world markets for oil and gas are experiencing increased price levels and predictions of continued price rise as developing nations like China, Brazil and India demand more petroleum to fuel their expanding economies.²

Energy security concerns such as these, coupled with the changing Arctic climate, have driven petroleum exploration towards the Arctic, one of the last regions barely touched by oil and gas exploitation. Increasing price levels, in combination with melting ice and technological progress, spur a commercial development in the region that the Arctic is currently unprepared to deal with. Lack of infrastructure, technical knowledge, and preparedness capabilities are causing collective international concern. This is especially the case in the United States' Arctic, as most parts of Northern Alaska are sparsely populated and isolated. Nevertheless, the petroleum industry in the region is crucial for American energy security and for the Alaskan economy. With the recent oil and gas push northwards there is a tense U.S. debate on Shell's startup plans in the Chukchi and Beaufort Seas. Similar debates are found in all of the Arctic littoral states, where environmental concerns are weighed against economic and political benefits of petroleum activities.

Consequently, both oil companies and Arctic governments are trying to develop new frameworks to deal with such issues. In May 2011 the only intergovernmental forum that includes all relevant actors in the region, the Arctic Council, was mandated by the member states to start the development of an instrument on Arctic oil spill preparedness, and look into sharing best practices for oil spill prevention.³ Set in the broader context of regulation on general oil and gas activities, future developments in the Arctic hold relevance for an increasing number of actors. Therefore there are several new forums where common agreements could be debated, although responsibility to drive the process forward will lie with the Arctic littoral

¹ National Snow and Ice Data Center, "Arctic Sea Ice News and Analysis", August 3, 2011, <http://nsidc.org/arcticseaicenews/> (Accessed on July 15, 2011).

² U.S. Energy Information Administration, "Short-Term Energy Outlook", June 7, 2011, p. 1, http://www.eia.gov/steo/steo_full.pdf (Accessed on July 30, 2011).

³ Senior Arctic Officials (SAO), "Senior Arctic Officials Report to Ministers", May 2011, p. 6-7, http://arctic-council.org/filearchive/nuuk_SAO_report.pdf (Accessed on July 19, 2011).

states. This report will subsequently look at oil and gas development in the Arctic, covering a broad range of relevant topics.

1.1. Resources

The Arctic is defined as the territory above the Arctic Circle, encompassing the northern parts of Alaska (United States), Canada, Norway, Sweden, Finland, Iceland, Russia and Denmark through Greenland. The renewed interest in the Arctic mostly concerns the Arctic Ocean, where the Arctic Five (Canada, Norway, the US, Russia and Denmark - through Greenland -) have territorial rights. The often cited 2008 United State Geological Survey (USGS) predicts that 13 percent of the world's undiscovered recoverable oil resources and 30 percent of the undiscovered recoverable gas resources are located in 25 Arctic offshore basins.⁴

The USGS assessment of Arctic energy resources resulted in the estimate that the Alaskan Arctic region holds the largest undiscovered recoverable oil resources, with mean value estimates at one third of the oil in Alaska (30 billion barrels of a total 90 billion).⁵ The survey, which only counted undiscovered reserves and those that are accessible using current technology, reiterated the importance of Arctic resources when it found that 25% of the world's hydrocarbon resources lie beneath Arctic ice. The majority of the resources discovered are in undisputed territories that have been accepted as the property of one nation or another, contradicting the sometimes cited potential for disagreement related to ownership of the extended continental shelves.⁶

Exploring all areas north of the Arctic Circle, the USGS report conducted the Circum-Arctic Resource Appraisal (CARA) over an area that covered 25 provinces. The USGS' CARA indicates that the majority of the oil resources occur in five provinces (Arctic Alaska, Amerasia Basin, East Greenland Rift Basins, East Barents Basin, and the West Greenland-East Canada) and more than 70% of the undiscovered gas occurs in 3 provinces (West Siberian Basin, East Barents Basins, and Arctic Alaska), with 80% of these resources believed to occur offshore.⁷ Regardless of the importance of the reserves estimated to be recoverable, however, the majority of them will remain locked in place due to lack of pipeline and shipping infrastructure.

The United Nations Convention on the Law of the Sea (UNCLOS), established in 1982, governs the territorial claims to the Arctic seabed. While the five Arctic littoral states are limited to an Exclusive Economic Zone (EEZ) of 200 nautical miles from their coasts, the Convention allows them to extend their economic zone if they can prove that the Arctic seafloor's underwater

⁴ U.S. Geological Survey, "Circum-Arctic Resource Appraisal: Estimates of Undiscovered Oil and Gas North of the Arctic Circle", 2008, <http://pubs.usgs.gov/fs/2008/3049/fs2008-3049.pdf>, (Accessed on July 22, 2011).

⁵ U.S. Geological Survey, "Circum-Arctic Resource Appraisal: Estimates of Undiscovered Oil and Gas North of the Arctic Circle", 2008, pg. 1-4.

⁶ Tyler, Timothy J., "International Dispute Resolution", CSIS Arctic Oil and Gas Conference, 14th July, 2011.

⁷ US Geological Survey, "Circum-Arctic," pg. 3.

ridges are a geological extension of the country's own continental shelf. Within 10 years of ratifying the UNCLOS, countries must submit evidence to the UN Commission on the Limits of the Continental Shelf, the governing body created to deliberate these submissions, in order to make their case for an extended continental shelf.

Currently the USGS is teaming up with the US Coast Guard and Canadian Coast Guard on the 2011 US-Canada Extended Continental Shelf Survey, researching ocean conditions in the Arctic.⁸ The pending 2010 report will be published late 2011; the 2011 survey results are expected to be available sometime in 2012. As Congress still has to ratify the UNCLOS, the U.S. has no "seat at the table" when the other Arctic states are submitting their claims and carving up the continental sea shelves beyond their EEZ. Denmark, Russia and Canada all plan to submit their UNCLOS claims in the upcoming years, hoping to expand their economic zones towards the North Pole.

⁸ Lake County News, "US Geological Survey arctic cruise to explore changing ocean," *Lake County News*, August 14, 2011, <http://www.lakeconews.com/content/view/20993/919/>. (Accessed on July 15, 2011).

2. The US Arctic: Alaska

2.1. Significance

Many individuals have seen development of Arctic energy resources as an important avenue for addressing global energy security concerns. While the energy resources of the Arctic appear to be quite large and include areas like the Alaska North Slope that have been in production for a number of years, the financial, technical and environmental risks of operating in an Arctic environment create substantial challenges for future production in the region. To make a significant contribution to global energy supplies in the future, governments will need to put in place clear sets of rules regarding investment, operating requirements and other issues to help reduce the uncertainties facing companies who will undertake exploration and development activities in the Arctic. As Arctic development becomes more problematic, the energy resources located there become more central to the continued success of nations with a stake in Arctic development. Even with expansion of investment in Arctic development, however, the principal driver for global energy security will be the Middle East, which holds the largest share of recoverable petroleum resources.

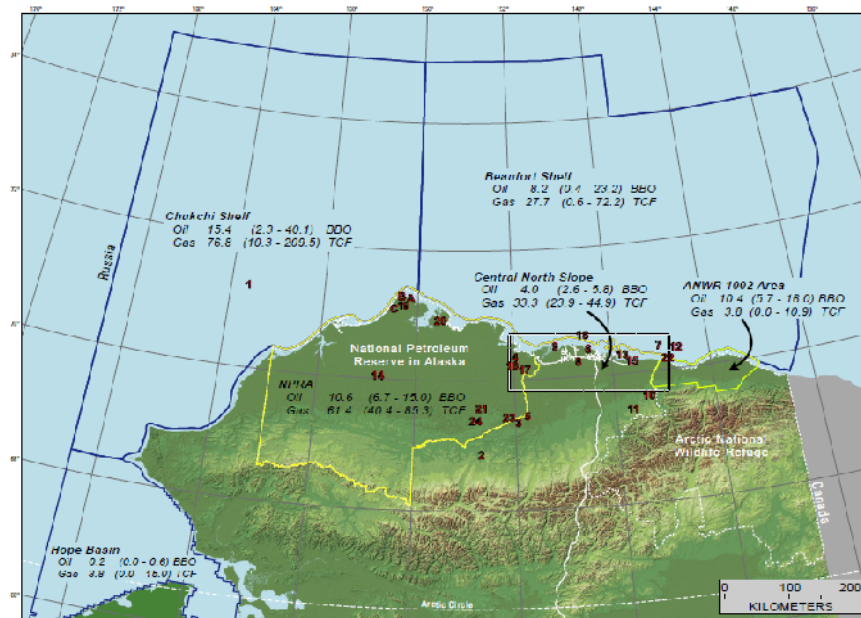
The United States has addressed energy security concerns through broad policy responses aimed at assuring reliability of energy supplies at a reasonable cost, while at the same time taking into account environmental concerns. For the most part, energy security in the US has been dominated by concerns about oil, with natural gas fears driven more by resource base and price concerns. The politically stated objective of US energy security policy has, in the past, been “energy independence;” recent policies, however, have progressively become more and more realistic, with diversity of international cooperation playing a key role in reaching the US’s energy security goals—assuring adequate investment in global production capacity (Figure 1) as well as to reshape demand by transforming the way in which Americans use energy.

The estimates of potentially recoverable quantities of oil and gas in the Alaskan Arctic are quite large. In the Alaskan Arctic there are four major areas to be explored for future oil and gas production; The Arctic national Wildlife Refuge (ANWR), the National Petroleum Reserve Area (NPR-A), and the Beaufort and Chukchi Seas. The 2008 USGS Circum-Arctic Resource Appraisal estimated that the Arctic Alaska region could contain about 30 billion barrels of recoverable oil, about one-third of the estimated total for the Arctic region. Perhaps the most controversial, the Arctic National Wildlife Refuge holds a mean value of 10.2 billion barrels of undiscovered, recoverable oil.⁹ Also on shore, the National Petroleum Reserve Area was in 2005 estimated to contain 10.6 billion barrels; however, after a review of drilling results the estimated recoverable reserves in this region have been downgraded to less than one billion barrels. Offshore, the

⁹ Treadwell, Mead, “Alaska: Critical to America’s Energy Security”, CSIS Arctic Oil and Gas Conference, 14th July, 2011.

Chukchi Sea, which has been estimated at 15.4 billion barrels, and the Beaufort Sea, estimated at 8.2 billion barrels, both remain the more likely areas to be developed.

Figure 1. Arctic Alaska Petroleum Basin



Source: USGS, *Oil and Gas Resources of the Arctic Alaska Petroleum Basin*, 2005

For natural gas the estimated mean value of recoverable gas is 221 Tcf about 13% of the total Arctic gas resources. The Alaskan North Slope is estimated to hold natural gas reserves of 35 trillion cubic feet. These large natural gas reserves have remained stranded, however, due to economic factors and political debates that have tied up further investment in a transportation scheme. The cost of infrastructure and environmental preservation has required special treatment in policy regulation and legislation, making Arctic development more than just an issue of working in severe climate.

The expectation that the Arctic contains significant oil and gas resources has stimulated intense interest in the development of these resources as a way to address energy security concerns and provide commercial opportunities for the United States and other Arctic nations. The oil resources of the Alaskan Arctic have for some time played a critical role in US energy security. The Alaska North Slope has been substantial source of oil since the 1970's; however, its current decline is problematic for US energy resources and further infrastructure development in the region.¹⁰

¹⁰ Ibid.

2.2. History of Development

The first significant Arctic discovery was made in the Prudhoe Bay Field in 1968, which became the largest oil field in the United States.¹¹ Transportation infrastructure from the Prudhoe Bay field to the rest of the United States was an immediate concern and major obstacle, leading to the establishment of a pipeline corridor. While the Prudhoe Bay field has continually produced and supplied oil to the United States, transported via the Trans-Alaska Pipeline System (TAPS) since 1977, it has not existed without both technical and political impediments.¹² Complications, such as opposition to pipeline construction on native lands and environmental objections, led to a long series of litigation and new legislation that still persists today. The 1973 Arab oil embargo added the final impetus to legislation that would remove legal barriers to the Trans-Alaska pipeline project, and further infrastructure development is being considered today. A March 2006 BP oil spill temporarily shut down the field while cleanup was addressed, leading to a stricter examination of US Arctic oil spill response.¹³

The greater Prudhoe Bay area averages at 98,000 barrels of oil equivalent per day (BOED), and is the largest oil field in North America.¹⁴ It is believed that Prudhoe Bay had a total original capacity of 25 billion barrels of oil, with total recoverable oil at 13 billion. Since first beginning production in 1977, Prudhoe Bay has produced 11 million barrels, with 2 billion barrels of oil remaining recoverable.¹⁵ Ownership of fields in the Prudhoe Bay is split up between ExxonMobil (36% ownership), ConocoPhillips Alaska Inc. (36% ownership), BP Exploration (26%; operator), and the remaining 2% owned by others.¹⁶ In addition other smaller fields in the area have been discovered and brought into production since Prudhoe came on line and the Alaska pipeline was built.

In 1988, at nearly 2 million barrels per day, North Slope oil production peaked. At that point in time North Slope oil represented 24% of US domestic crude oil production and 11% of total US petroleum consumption. Since 1988 peak oil production has declined significantly; in 2010 North Slope produced just 0.67 million barrels per day, falling to 13 % of domestic production and 3% total consumption. Currently the TAPS oil pipeline is nearing the lower limit on through put. The pace of offshore development may be too slow to keep the flow of oil up (this is due in part to the slow lease approval process as well as the long lead times for development).

¹¹ "Alaska's Oil and Gas Industry," *Resource Development Council for Alaska*, <http://www.akrdc.org/issues/oilgas/overview.html>.

¹² Tony Knowles & John T. Shively, "Historical and Projected Oil and Gas Consumption," Alaska Department of Oil and Gas Resources, State of Alaska, May 1999.

¹³ Roach, John, "Alaska Oil Spill Fuels Concerns Over Arctic Wildlife, Future Drilling," *National Geographic*, March 20, 2006, http://news.nationalgeographic.com/news/2006/03/0320_060320_alaska_oil.html.

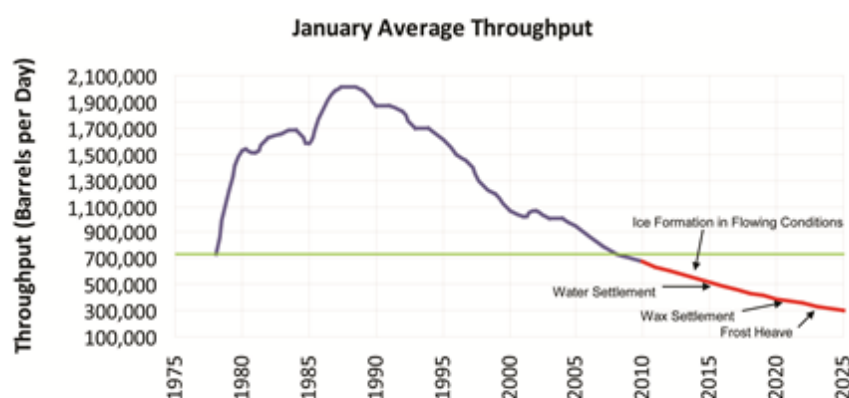
¹⁴ "Alaska's Oil and Gas," *Resource Development Council for Alaska*.

¹⁵ Phaedra Friend, "BP Plans to Pull Another 2 Billion Barrels of Oil from Alaska's Prudhoe Bay," August 12, 2011, http://www.rigzone.com/news/article.asp?a_id=57255.

¹⁶ "Prudhoe Bay: Fact Sheet," *BP*, August 2006, http://www.bp.com/liveassets/bp_internet/us/bp_us_english/STAGING/local_assets/downloads/a/A03_prudhoe_bay_fact_sheet.pdf.

Additional oil field development could be supported by excess capacity in the pipeline; however, if the flow rate continues to decline the Alaska oil pipeline will start encountering a growing number of technical problems that would threaten its continued viability¹⁷. The lower limits of flow rates for the pipeline are estimated to be in the 200-300 thousand barrel per day range.¹⁸ Without reaching at least the lower limit of flow rate, the Alaska Oil Pipeline is not economically viable for continued transportation use and is faces the threat of closure.

Figure 3. Declining Throughput in the Trans Alaska Oil Pipeline



Source: Aleyska Pipeline

The state of Alaska, in response, is offering development incentives in the hopes of providing volumes in the interim. If the pipeline were to go out of service the cost of a replacement would be very high – possibly in the range of \$30+ billion project.

Natural gas, compared to oil, faces similar issues; for natural gas the cost of a newly constructed pipeline to the lower 48 is estimated at \$30-\$40 billion.¹⁹ The delivered cost of this gas may not be able to compete with shale gas in the lower 48 states. Long thought to be unrealistic, and still far from materializing, access of gas to international markets may be critical given differential regional pricing. LNG exports from southern Alaska have occurred since the 1960's. The cost of building the infrastructure to pipe Alaskan gas to the south for export has not been thoroughly evaluated nor has the possibility of establishing liquefaction facilities in Alaskan Arctic region. Additionally the state of Alaska will have demand for natural gas that will need to be met.

¹⁷ Tom Barrett, "Arctic Oil and Gas Conference", Center for Strategic & International Studies, July 12, 2011.

¹⁸ Ibid.

¹⁹ Arctic Oil and Gas Conference, Center for Strategic & International Studies, July 12, 2011.

In 2007 the Alaska Gasline Inducement Act (AGIA) was passed by state legislature as a means to increase the speed of North Slope gas pipeline construction. AGIA encourages oil and gas leasing, shipping of natural gas, and infrastructure development, all with the promise of reimbursing companies involved and giving back to communities with a stake in pipeline development.²⁰ However, AGIA doesn't ensure that a pipeline is actually constructed, but it is able to aid in the permitting process. Sean Parnell, the current governor of Alaska, has reiterated the industry and government call for complete use of TAPs, vowing to keep the pipeline operational.²¹

The natural gas located in the Arctic has also been seen as a significant source of diversification of US energy supplies. Current estimates of proved reserves of 35 TCF are seen as an important addition to the US natural gas supply.²² Similar to the oil resource, the key element for accessing this natural gas has been the improvement of transportation infrastructure and development.²³ In 1977, Congress moved to expedite the construction of a gas pipeline with legislation, speeding up the selection and review process and putting in place special regulatory authorities.²⁴ Price decontrol in the 1980's significantly altered the domestic supply and demand situation, resulting in prices that could no longer support the Alaska gas pipeline.²⁵ Until the early 1990s the pipeline project laid dormant, with the pre-build section in Canada providing a major avenue for increased Canadian exports. In 2001 the National Energy Plan called for the project to be further expedited, with natural gas prices pushing government incentive. Three years later, in 2004, Congress passed legislation to provide up to \$18 billion in loan guarantees and to, once again, consolidate the regulatory process. In 2007 the Alaskan government passed a bill to provide \$500 million to a selected project. In the interim the estimated cost of the project has risen significantly to a level of an estimated \$40 billion total.²⁶ The emergence of shale gas and other unconventional gas has again changed the US gas market and driven prices to a level that will make completion of an Alaskan gas pipeline very challenging.

²⁰ Alaska Gasline Project, 2011, http://gasline.alaska.gov/background_info/background_information.html.

²¹ Erika Bolstad, "Alaska governor vows to accelerate state oil-drilling leases," *McClatchy Washington Bureau*, June 30, 2011.

²² Alaska Pipeline Project : An Unincorporated Joint Project, Looking to the Future, » *TransCanada*, 2011, <http://thealaskapipelineproject.com/future>.

²³ Treadwell "Alaska", 2011.

²⁴ Alaska Pipeline Project, « Looking to the Future, » 2011.

²⁵ Slaiby, Pete, « Development and Infrastructure Options in Alaska's Arctic and Market Challenges, » CSIS Arctic Oil and Gas Conference, June 2011.

²⁶ Ibid.

2.3. Key issues of development: Arctic National Wildlife Refuge

A majority of the key issues that stand in the way of Arctic energy development in the United States center on environmental protection, in particular the Arctic National Wildlife Refuge (ANWR). Environmental values have clashed with development goals for decades, in what has become a 30-year battle over whether to allow exploration and development in ANWR. The importance of the Refuge for both sides of this debate is apparent—it holds high oil resource potential in a relatively small area that is easily connected to an oil pipeline; it also boasts pristine wilderness, relatively untouched by man and one of the last undeveloped regions in the United States, with a large migratory caribou area.²⁷ First established as a reserve in 1980, a provision for oil exploration in the coastal plain was left open in case of approval by congress.²⁸ In a 1987 resource estimate the Department of the Interior estimated ANWR may contain 500 million barrels of oil.²⁹ The 1998 USGS Geological Survey increased the estimates or recoverable reserves to 10.4 billion barrels.³⁰ In 1996 legislation passed to allow drilling but was later vetoed.³¹ The battle has since continued, with the Bush Administration including drilling in the Refuge as part of the National Energy Plan and the Obama administration first opposing leases and then later approving them in October 2011.³²

Conflicts between the state and federal government further complicate the debate over ANWR drilling. The majority of resources discovered in ANWR are on Federal land. As a major owner of land that holds potential oil and gas, the federal government has an interest in revenue linked to production; however, this interest is also tied to national energy needs and the world market. State interests, on the other hand, are inexorably tied to production of oil and gas resources in Alaska.³³ Over 85% of the state of Alaska's budget comes from petroleum revenue, therefore the incentive to utilize natural resources is much higher, and has larger implications, than the federal incentive.³⁴ While ANWR may primarily be federal land, the Prudhoe Bay field, the largest oil resource in Alaska, is owned by the state, contributing to most of the state revenue. Drilling in Prudhoe has been widely accepted, while drilling on federal lands is, for the most part, still pending permit approval and political debate.³⁵

²⁷ "Political History," *Arctic National Wildlife Refuge*, 2005, http://www.anwr.org/archives/political_history.php.

²⁸ Ibid.

²⁹ "How Much Oil is in ANWR," *Arctic National Wildlife Refuge*, 2011, <http://www.anwr.org/Background/How-much-oil-is-in-ANWR.php>.

³⁰ "Arctic National Wildlife Refuge, 1002 Area, Petroleum Assessment, 1998, Including Economic Analysis," U.S. Geological Survey, 2008, <http://pubs.usgs.gov/fs/fs-0028-01/fs-0028-01.htm>.

³¹ "Political History," *Arctic National Wildlife Refuge*, 2005.

³² Tracy, Tennille, "Arctic Ocean Drilling Approved," *The Wall Street Journal*, October 4, 2011, <http://online.wsj.com/article/SB10001424052970203791904576609401721404510.html>.

³³ "Making the Case for ANWR Development," *Arctic National Wildlife Refuge*, January, 2005, <http://www.anwr.org/case.htm>.

³⁴ Ibid.

³⁵ Ibid.

2.4. Key issues of development: National Petroleum Reserve

Once known as the Naval Petroleum reserve, the National Petroleum Reserve of Alaska (NPR-A) is located on 23 million acres in Alaska's North Slope. Established in 1923 as an emergency reserve for the United State's Navy, the NPR-A is now administered by the BLM, who currently hold six lease tracts.³⁶ Development of the Reserves in these planning areas face some difficulty—the Obama Administration and Congress have agreed that oil exploration and development can proceed in this area, nonetheless so far only small to medium sized discoveries have been made; only a few of these appear to be economic to connect to the Alaska oil pipeline.

Similar to other areas of the Arctic, the NPR-A is home to unique wildlife, both onshore and off. Environmental affects of development have continually caused concerns for relevant NGOs. However, less effort has been put into preservation of NPR-A than other areas of the Alaskan Arctic, particularly because of lease areas within the reserve. In response to state calls for improved offshore exploration in the NPR-A the Obama administration announced in June of this year plans to extend leases affected by the recent offshore drilling moratorium in the wake of the BP Gulf of Mexico spill.³⁷ Each January the state of Alaska's Department of Natural Resources (DNR) releases its own 5 Year Oil and Gas Leasing Program with a schedule of proposed leases that will be put up for sale in the next year.³⁸

2.5. Key Issues of Development: Beaufort & Chukchi Seas

There are currently 87 leases covering 2.8 million acres issues in the Beaufort and Chukchi seas; applications for the first exploratory drilling are under review. However, concerns about the environmental impact—air quality, noise pollution, and potential damage to marine mammals—have dominated the discussions surrounding lease applications. Further, the Gulf oil spill heightened concerns about ability to control wells in the difficult arctic environment—prompting discussion on the adequacy of spill response measures, Coast Guard capabilities, and knowledge of the impact of oil in Arctic waters.

The Chukchi Sea in particular, home to a unique combination of minerals, culmination of ocean currents, and rare marine life, has an ecosystem that few scientists believe is ready to be disrupted with offshore oil and gas exploration.³⁹ The quickly changing ice landscape of the

³⁶ Bureau of Land Management, "The National Petroleum Reserve," July, 2011, http://www.blm.gov/ak/st/en/prog/energy/oil_gas/npra.html.

³⁷ Jennifer A. Dlouhy, "U.S. to extend offshore oil leases, will sell drilling rights in Alaska," June 16, 2011.

³⁸ "Leasing," Division of Oil and Gas, Alaska Department of Natural Resources, http://www.dog.dnr.alaska.gov/programs/leasing/leasing_main.html.

³⁹ Steven Mufson, "Proposed oil drilling off Alaska coast prompts studies of environmental impact," *The Washington Post*, August 22.

Chukchi Sea, along with its tough climate (tough even in comparison to other Arctic seas, such as those located in Northern Russia) has complicated the proposed exploration process. Exploration has repeatedly been delayed over concerns about oil spill containment and the effect on the marine environment. The Chukchi Sea possesses great lease issues, despite the sale of 437 leases, spanning 2.8 million acres being sold in 2008 to ConnocoPhillips, Shell and Statoil.⁴⁰ These leases, originally approved by the Bush administration, were contested in federal court in 2010 due to environmental concerns and then reapproved by BOEM in October 2011 under the Obama administration.⁴¹ Substantiated concerns about drilling disrupting ocean life have held up air permits for two years, resulting in Environmental Protection Agency (EPA) approval in September of 2011. Following the release of the air permits, Shell plans to begin the drilling of exploratory wells in both the Beaufort and Chukchi seas in 2012. In the Beaufort Sea, which sold 32 million acres of leases in 2010-2011, little drilling and production is currently taking place; similar concern about offshore spill response remains an issue for further development.

Beyond the permitting process in the Chukchi and Beaufort Sea, transportation remains a crucial factor; the weather is inhospitable for most pipelines and shipping routes, even those that run along the bottom of the sea floor.⁴² Further complicating the prospects of drilling in the Chukchi Sea is the question of ocean currents, and the movement of oil from a potential spill along the coast line and the Chukchi's Arctic waters. Some criticism of development in the Alaskan Arctic has also centered on the offshore leasing process in the Beaufort and Chukchi seas. Currently the US Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE) oversee the lease process, granting leases based on specific requests from the oil and gas industry during a designated time period.⁴³ A complicated review process and environmental opposition have dramatically slowed approvals; however, the success of the most recent coordinated review process may allow drilling to begin sooner than previously considered in both areas.

Proponents of stricter lease practices point to the fragile Arctic environment and the lack of adequate capability to deal with any accident or oil spill as a reason to delay development; opponents point to the need for energy resources, the acres of available land, and the economic incentive that exploration provides.⁴⁴ Provisions such as design and implementation of a "comprehensive, long-term scientific research and monitoring plan," conducting lease sales on a tract-by-tract basis as opposed to the current area-wide lease sales, and improved

⁴⁰ Bureau of Ocean Energy Management, "US agencies are committed to Alaska oil and gas lease sale," *Penn Energy*, October 4, 2011,

http://www.pennenergy.com/index/petroleum/display/0609998073/articles/pennenergy/petroleum/offshore/2011/10/us-agencies_reaffirm.html.

⁴¹ Mufson, Steve, "Chukchi Sea Oil Lease Sale Reaffirmed," *The Washington Post*, October 3, 2011,

http://www.washingtonpost.com/business/economy/2011/10/03/gIQAwi9eJL_story.html.

⁴² Mufson, "Proposed Oil Drilling," sec. 3.

⁴³ CSIS Arctic Oil and Gas Conference, June 2011.

⁴⁴ *Ibid.*

stakeholder participation in outer continental shelf (OCS) decision making;⁴⁵ broad range reforms and more specific, industry and environment conscious changes are being fought for at both a national and state level, all with the Alaskan-Arctic interests driving the arguments. On August 4, BOEMRE issued the first conditional approval of a permit to allow Shell oil to begin exploratory drilling during the 2012 drilling season. This is the first of multiple steps Shell has to go through to receive final permission.⁴⁶ Environmental opposition will certainly continue.

2.6. Looking Forward: US energy security and Arctic Alaska energy development

With abundant natural resources, a fragile ecosystem, and the fundamental role it plays in regulating the earth's climate, the Arctic has become a strategic interest for United States energy policy, national energy companies, and environmental activists.⁴⁷ Decisions regarding oil and gas activity in the region require a cautionary approach, but also fair consideration must be made for all interested parties. Government agencies must be willing to make accommodations based on the changing landscape, spill response, and responsible exploration; environmentalists must be willing to make accommodations based on the resources that are vital to a functioning, well run nation.

Currently, the energy security debate is driven by higher oil prices; all sides of the argument can agree on creating a comprehensive energy policy with a mix of demand and supply options. For domestic resource development, particularly the Alaskan Arctic, one of the more fragile environments on the earth, the Arctic holds just as many questions as it does answers—the key question being the definition of responsible development. How energy security concerns and environmental concerns will balance remains uncertain; these questions and more will become larger and larger issues as the Alaskan Arctic becomes more important in coming years. Problems with infrastructure development, seasonal work, and funding will only last for so long, and then the very real importance of the Alaskan Arctic will be made clear.

The debate over how to approach US energy security concerns will ultimately drive US actions in the Alaskan Arctic, which hinge on the success of overall energy policies. As the United States works to increase efficiency and alternative fuels use it has reduced projected growth in oil demand. The share of imported oil in the US is expected to decline, from 57% in 2008 to 45% in 2035. The need to develop domestic resources is still a central piece on all sides of the debate; on the other hand a key difference comes in defining “responsible development.” Also, the development of unconventional natural gas resources elsewhere in the United States may lessen the perceived need to develop a natural gas transportation system in the Alaskan Arctic,

⁴⁵ Ibid.

⁴⁶ In addition to drilling permits Shell must wait for noise permits, which may be the most difficult to get, as noise is believed to disrupt walrus communication and whale migration in the Chukchi waters.

⁴⁷ CSIS, “Arctic Oil and Gas Conference,” June 2011.

as shale gas becomes an increasing focus for future energy needs. If the energy security landscape continues to transform, the “energy security argument” may no longer be an effective tool to drive Alaskan Arctic oil and gas development.

While the potential for future activities in the Alaskan Arctic is high, the lack of US capabilities is equally large. Companies with an interest in exploratory drilling off the Alaskan coast, such as Shell, have capable icebreaking vessels as well as spill containment vessels, but the overall responsibility for human security lies with the Coast Guard.⁴⁸ On the other hand, the responsibility for spill response and preparedness lies with the operator of each specific field. Shell, for example, has a comprehensive response plan; with improvements made following the BP Macondo spill in the spring of 2010.⁴⁹ However, it is not just response plans that must be further developed—basic equipment needed to carry out the sort of exploration the United States government says, again and again, are vital to US energy security, must be purchased and the icebreaking capacity improved upon. Currently the United States Coast Guard has one functioning icebreaker and no place to moor boats or hangar aircraft in the US Arctic.⁵⁰ In fact, without improved coast guard capability, and company spill response, Arctic development will be severely hindered and further delayed.

⁴⁸ Associated Press, “Coast Guard: Arctic Response Lacking,” August 12, 2011, http://www.washingtonpost.com/national/environment/coast-guard-commandant-says-agency-lacks-response-capability-along-arctic-coast/2011/08/12/gIQAWUEyBJ_story.html. (Accessed on August 15, 2011).

⁴⁹ Interview, Shell, August 9, 2011.

⁵⁰ Associated Press, “Coast Guard.” 2011

Map: Oil and gas activities in the Arctic region



Classification

Red: Producing (P)

Blue: Developing (D)

Dark Green: On hold/future potential (O)

Norway:

1. Snøhvit (P)
2. Goliat (D)
3. Skrugard (D)
4. Norvarg (D)
5. Lofoten/Vesterålen (O)

Russia:

6. Shtokman (D)
7. Kara Sea (O)
8. Prirazlomnoye and Dolginskoye (D)
9. Nenets (P)
10. Yamal (P)
11. Yamal (P)

Greenland:

12. Salliit, Uummannarsuaq, Saqqamiut and Kingittoq (D)
13. Lady Franklin and Atammik (D)
14. Eqqua, Ingoraq, Sigguk, Napariaq and Pitu (D)

Canada:

15. Baffin Bay (O)
16. Arctic Islands (D)
17. Beaufort Sea (D)
18. Mackenzie Delta (P)

United States:

19. Beaufort Sea (D)
20. Arctic National Wildlife Refuge (O)
21. Prudhoe Bay (P)
22. North Slope (P)
23. National Petroleum Reserve (D)
24. Chukchi Sea (D)

3. Oil and gas activities in the non-US Arctic

3.1. Russia

Russia is by far the largest of the Arctic states, with territorial rights to almost half of the Arctic. Preliminary estimates of potential hydrocarbon resources in Russia's continental shelf (offshore Arctic) are 90 billion tons of coal equivalent, 60 tons of which are concentrated in the Barrents and Kara Seas.⁵¹ With an Arctic population of almost 2 million, the region is not just a frontier but an integral part of Russian resource industry and Russian access to the high seas.⁵² The *National Security Strategy of the Russian Federation until 2020* clearly identifies Russia's economic interests in the Arctic, aimed at establishing the Russian polar region as Russia's "top strategic resource base" by 2020. Russia has assertively pursued a build-up of military capability in the Arctic, developing its coastal defense infrastructure, enhancing its technological capabilities, and investing in eight new nuclear attack submarines.⁵³ The Russian government subsequently perceives the development of the Russian Arctic oil and gas as crucial for the continued growth of the Russian economy and the state at large.

3.1.1. Shtokman

The Shtokman field was discovered in 1988 and it is considered to be one of the largest natural gas fields in the world. As the field is located in difficult conditions 600 kilometers offshore in Arctic waters, the need for new technology and operating equipment has led to a lengthy development process. After many years of competition among international companies for the right of involvement in the project, in 2007 the French and Norwegian energy companies Total and Statoil signed agreements with the owner of the field, the Russian state owned company Gazprom. Together they formed Shtokman Development AG, which is in charge of constructing the infrastructure needed for the first phase of the field development.⁵⁴ Ironically, the ice melting that has led to new commercial opportunities in the region is causing problems for the Shtokman development, as more sea ice is drifting southwards.⁵⁵ To deal with the ice, in

⁵¹ Starinskaya, Galina, "Prirazlomnaya" to Launch a 'Drilling Campaign' on the Russian Arctic Shelf," *Oil and Gas Eurasia*, September 2011, <http://www.oilandgaseurasia.com/articles/p/146/article/1615/>, (Accessed 10/5/2011).

⁵² UNEP/GRID-Arendal, "Population distribution in the circumpolar Arctic, by country", 2008, accessed August 24, 2011, <http://maps.grida.no/go/graphic/population-distribution-in-the-circumpolar-arctic-by-country-including-indigenous-population1>. (Accessed on August 2, 2011).

⁵³ The Russian Federation, "The National Security Strategy of the Russian Federation until 2020", released May 13, 2009.

Trude Pettersen, BarentsObserver, "Russia to get 8 nuclear attack subs by 2020", August 11, 2011, <http://www.barentsobserver.com/russia-to-get-8-nuclear-attacks-subs-by-2020.4946857-116320.html>. (Accessed on August 8, 2011).

⁵⁴ Gazprom, "Shtokman", 2011, <http://gazprom.com/production/projects/deposits/shp/>. (Accessed on August 7, 2011).

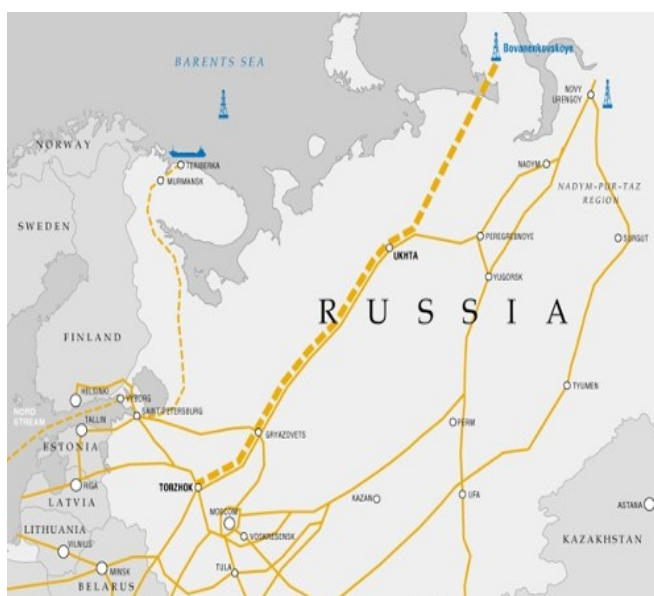
⁵⁵ Offshore-technology, "Shtokman Gas Condensate Deposit Barents Sea, Russia", accessed August 24, 2011, <http://www.offshore-technology.com/projects/shtokman/>. (Accessed on August 10, 2011).

addition to a depth of 330 meters (1080 feet) below sea level, the development plan revolves around a floating gas-extraction vessel and extended icebreaking abilities.⁵⁶

Teriberka, a small coastal village close to the larger city of Murmansk, is chosen as the location for a new LNG plant, and the Murmansk port will serve as the main shipping port. In addition the project would need at least 12 ice class LNG tankers.⁵⁷ Due to the difficulties in developing the field, the project has been postponed to 2016 for pipeline production and 2017 for LNG. The final investment decision between the three companies is expected in December 2011. Due to low market prices on LNG gas, there have recently been speculations that the production start will be pushed to 2018.⁵⁸ The Shtokman field has been touted as a flagship for Arctic gas development, challenging the art of engineering and at the same time proving the vast economic potential in the region. At the same time the delays and the conditions highlight the challenges that any Arctic oil and gas project face.

3.1.2. Yamal

The most prosperous area in the Russian Arctic is the Yamal peninsula, with its numerous oil and gas fields. Approximately 90 percent of Russia's total gas production comes from the fields in this region, which makes up 20 percent of the global production.⁵⁹ Proved estimates of gas resources in the Yamal peninsula are somewhere between 16-22 bcm.⁶⁰ Discovered reserves of natural gas make up the majority of Yamal's resources and 90 percent of Russia's total natural gas resources.⁶¹ In total 26 fields have been found.⁶² The Urengoy, the Yamburg and



⁵⁶ Shtokman Development AG, "Shtokman, Here lives the energy" 2011. <http://www.shtokman.ru/en/>. (Accessed on August 11, 2011).

⁵⁷ Atle Staalesen. BarentsObserver. "30 Arctic LNG tankers by year 2020" June 28, 2011. <http://www.barentsobserver.com/30-arctic-lng-tankers-by-year-2020.4938229.html>. (Accessed on August 2, 2011).

⁵⁸ Trude Pettersen. BarentsObserver "Shtokman start-up might be delayed" 17.06.2011. (Accessed on August 2, 2011). <http://www.barentsobserver.com/shtokman-start-up-might-be-delayed.4934319-16334.html>.

⁵⁹ Elena Zhuk, "Russia Updates National Standards and Picks Up Pace at ISO", October 2010, <http://www.oilandgaseurasia.com/articles/p/127/article/1330/>. (Accessed on August 2, 2011).

⁶⁰ "Yamal Megaproject," *Gazprom*, June 2011, <http://www.gazprom.com/production/projects/mega-yamal/> (Accessed on September 30, 2011).

⁶¹ Ponomarov, Vadim, "Ekspert," July 26, 2011, <http://expert.ru/expert/2011/38/dem-na-sever/>, (Accessed on October 5, 2011).

⁶² Baidashin, Vladimir, "Russia Petroleum Investor," Excerpt published on *Reuters: World Trade Executive*, January 2008, http://www.wtexecutive.com/cms/content.jsp?id=com.tms.cms.article.Article_insider_yamal, (Accessed October 5, 2011).

the Zapolyarnoye gas fields have been producing gas since 1978, 1986 and 2001, and along with the development of the Bovanenkovo field, which is expected to produce gas in 2012, these fields make out the backbone of the Russian gas export to Europe. To be able to maintain and increase supply from these fields Gazprom started the construction of the 1100 kilometer long Bovanenkovo-Ukhta gas pipeline in 2008. It is scheduled for commission in 2012. This pipeline is the first part of a larger connection (2400 kilometers altogether) to Torzhok in central Russia, which also will be part of the Nord-Stream pipeline project connecting Yamal and Shtokman directly to Germany via the Baltic Sea. Apart from Gazprom, the private Russian company Novatek is the largest license holder in Yamal.⁶³ In 2009 Total was included in the company Yamal LNG with Novatek, which is responsible for the development of what is to become the largest LNG-plant in Russia.⁶⁴ In July 2011 Total's final acquisition was approved by the Russian government, which also created a tax exemption for LNG production in Yamal.⁶⁵

Among other foreign companies, TNK-BP, BP's joint venture in Russia, is involved through the subsidiary company Rospan International which is developing two gas fields in Yamal.⁶⁶ The companies Enel and ENI are, with Gazprom and Novatek, part of the joint venture subsidiary company SeverEnergia. Production in one of the largest fields acquired by this company, the Samburskoye field, is expected to start in 2011.⁶⁷ BASF and E.ON Ruhrgas are also participating with Gazprom in the joint venture Severneftegazprom, to develop the Yuzhno-Russkoye gas field, and BASF is single partner with Gazprom in developing the Achimov deposits connected to the giant Urengoy oil and gas field.⁶⁸ Altogether there are numerous fields and companies involved in this region, which is of outmost importance to Russian oil and gas production. Even though many fields are already operating, the inclusion of a high number of foreign companies signifies the Russian need for foreign investment and capital to develop the Yamal's potential even further. In addition, the new infrastructure developments, with pipelines and LNG facilities, are of importance to Arctic oil and gas at large. The construction of the Yamal LNG plant will contribute to an increase of commercial shipping in the Arctic. Yamal LNG has signed extensive cooperation agreements with both Atomflot, the service base for Russian nuclear icebreakers, and Sovcomflot, Russia's largest private tanker company. These agreements are

⁶³ Gazprom, "Yamal megaproject", <http://www.gazprom.com/production/projects/mega-yamal/>. (Accessed on August 8, 2011).

⁶⁴ RIA Novosti. "Russia's Novatek buys quarter of Yamal LNG project" March 24, 2011. <http://en.rian.ru/business/20110324/163185463.html>. (Accessed on August 8, 2011).

⁶⁵ Reuters. "Russia okays Total joining Arctic gas project" July 20, 2011. <http://www.reuters.com/article/2011/07/20/russia-total-idUSLDE76J0F720110720>. (Accessed on August 8, 2011).

⁶⁶ TNK-BP. "Rospan International" 2011, <http://www.tnk-bp.ru/en/production/enterprises/rospan/>. (Accessed on August 8, 2011).

⁶⁷ ENI. "Russian Federation. Eni's activities" June 14, 2011. http://www.eni.com/en_IT/eni-world/russian-federation/eni-business/eni-business.shtml. (Accessed on August 2, 2011).

⁶⁸ Gazprom. "Achimov deposits" 2011. <http://www.gazprom.com/production/projects/deposits/achimovskie-deposit/>. (Accessed on August 2, 2011).

made to facilitate construction of ice class LNG carriers and use of Atomsflot's icebreakers, as Yamal LNG is projected to need 12 LNG tankers by 2020.⁶⁹

3.1.3. Nenets

The Nenets region, and more specifically the Timan Pechora basin, has become more important for Russian oil and gas as numerous oil and gas fields have been discovered in recent decades. The Timan Pechora basin alone has 24 producing wells, one of which has 132 BCF of proven reserves.⁷⁰ The Russian companies Bashneft and Lukoil made a joint agreement for production on the giant Trebs and Titov oil fields in 2011, and are currently initiating development.⁷¹ Another large oil field, the Yuzhnoe-Khykchuyu, started operating in 2008 and is a joint project between LUKoil and ConocoPhillips. Additionally, Rosneft is very active in the fields through its many subsidiary companies.⁷² The Varandey offshore oil terminal, owned by LUKoil and located in the Barents Sea, will become the main mode of transportation for the oil that comes from some of the new Timan Pechora fields. Rosneft, Bashneft and ConocoPhillips have all signed agreements with LUKoil for use of the terminal, and are linking oil fields to the terminal through newly built pipelines.⁷³

An alternately important oil field is Kharyaga, where Total, Statoil, Zarubezhneft and the Nenets Oil Company have been producing oil since 1999. This field is not utilizing the Varandey terminal, but a newly built trunk pipeline linking the field to the larger Russian pipeline system.⁷⁴ Lastly, the companies CH-Invest and EvroSeverNeft plan to construct a LNG plant on the Nenets coast of Indiga, called Pechora LNG. The plant will be supplied by the the Kumzhinskoye and Korovinskoye gas and condensate fields, as they are expected to begin production in 2015.⁷⁵ The LNG plant would need at least six ice class tankers.⁷⁶ The different

⁶⁹ Atle Staalesen. BarentsObserver. "30 Arctic LNG tankers by year 2020" June 28, 2011.

<http://www.barentsobserver.com/30-arctic-lng-tankers-by-year-2020.4938229.html>. (Accessed on August 3, 2011).

⁷⁰ "June Production at Timan-Pechora Kochmesskoye Well Totals 25,200 Barrels Oil - Initial Production Averages 1,200 Barrels per Day," *PR Newswire*, June 8, 2011, <http://www.prnewswire.com/news-releases/primegen-energy--june-production-at-timan-pechora-kochmesskoye-well-totals-25200-barrels-oil--initial-production-averages-1200-barrels-per-day-62155447.html>, (Accessed on October 6, 2011).

⁷¹ RIA Novosti. "LUKoil, Bashneft to develop giant Trebs, Titov oilfields" April 15, 2011,

<http://en.rian.ru/business/20110415/163541017.html>. (Accessed on August 8, 2011).

⁷² Rosneft. "Severnaya Neft". http://www.rosneft.com/Upstream/ProductionAndDevelopment/timano-pechora/severnaya_neft/. (Accessed on July 22, 2011).

⁷³ Atle Staalesen, "Oil companies join efforts in Timan Pechora", BarentsObserver, June 1, 2011,

<http://www.barentsobserver.com/oil-companies-join-efforts-in-timan-pechora.4928292.html>. (Accessed on August 5, 2011).

⁷⁴ Statoil, "Kharyaga, Transportation and facilities", August 6, 2008,

<http://www.statoil.com/russia/en/OurOperations/Kharyaga/Pages/TransportationAndFacilities.aspx>. (Accessed on August 5, 2011).

⁷⁵ Bambulyak, A. and Frantzen, ., "Oil transport from the Russian part of the Barents Region. Status per January 2011," 2011, The Norwegian Barents Secretariat and Akvaplan-niva, Norway, p. 57

⁷⁶ Atle Staalesen. BarentsObserver, "30 Arctic LNG tankers by year 2020" June 28, 2011.

<http://www.barentsobserver.com/30-arctic-lng-tankers-by-year-2020.4938229.html>. (Accessed on August 5, 2011).

fields in the Nenets region symbolize the same trend as in the Yamal region, with increased activity from constellations of Russian and international companies. As more companies make use of the Varandey terminal, the amount of oil shipping in the Arctic will also increase.

3.1.4. Prirazlomnoye and Dolginskoye (Pechora Sea)

60 kilometers from the Varandey terminal, the Prirazlomnoye oil field was discovered in 1989. The field is located at 20-30 meters (65-100 feet) beneath the sea level, is owned by Gazprom, and contains an estimated 74.5 million tons of recoverable resources.⁷⁷ The production of this field, as with the Shtokman field, is putting a test to modern technology and the feasibility of operating in an Arctic offshore environment. In approximately two thirds of the year the sea is covered by ice. This requires a drilling platform able to withstand extreme temperatures and drifting sea ice. Produced by the largest Russian shipbuilding company, Sevmash in Severodvinsk, the oil platform will use sheer weight and size to keep steady in these conditions.⁷⁸ The project will be the first offshore production in the Russian Arctic, highlighting the importance of its success. In contrast to the Shtokman field, the platform will be grounded to the field and production is expected throughout the year. Currently the platform is being towed from the port of Murmansk to the field, and it is expected that production of oil will start in 2012.⁷⁹

Another offshore field in the Pechora Sea owned entirely by Gazprom, the Dolginskoye oil field, is projected to be three times as large as the Prirazlomnoye—235 million tons of proven reserves.⁸⁰ Development of these two fields goes hand in hand, as they are part of Gazprom's strategy for oil and gas production in the Arctic.⁸¹ The Dolginskoye field is, however, not expected to begin producing oil until 2015. In contrast to the developments onshore in Yamal and Nenets, foreign companies have mostly been kept out of these offshore projects, with Shtokman as an exception. Gazprom has, on the other hand, suggested the idea that foreign capital and expertise might need to be included at a later stage in the development processes.⁸² Both fields will also be dependent on transport ships with ice breaking assistance. The two 70

⁷⁷ Starinskaya, Galina, "Prirazlomnoye to Launch a 'Drilling Campaign on the Russian Arctic Shelf," *Oil & Gas Eurasia*, September 8, 2011, <http://www.oilandgaseurasia.com/articles/p/146/article/1615/>, (Accessed October 5, 2011).

⁷⁸ Dr. Alun Anderson, *The Culture and Conflict Review*, "Can We Keep Up With Arctic Change?" April 22, 2011, <http://www.nps.edu/Programs/CCS/WebJournal/Article.aspx?ArticleID=76>. (Accessed on August 5, 2011).

⁷⁹ Trude Pettersen, *BarentsObserver*, "Arctic oil rig ready for transportation", August 17, 2011, <http://www.barentsobserver.com/arctic-oil-rig-ready-for-transportation.4948939-116320.html>. (Accessed on August 17, 2011).

⁸⁰ Starinskaya, "Prirazlomnoye to Launch," 2011.

⁸¹ Gazprom, "Prirazlomnoye oil field", <http://www.gazprom.com/production/projects/deposits/pnm/>. (Accessed on July 15, 2011).

⁸² RBC, "Foreign companies may develop Barents Sea oilfield", December 9, 2008, <http://www.rbcnews.com/free/20081209105203.shtml>. (Accessed on July 15, 2011).

000 ton ice-class tankers, Mikhail Ulyanov and Kirill Lavrov, were delivered to Sovcomflot in 2010, and are expected to serve the Prirazlomnoye when it starts production in 2012.⁸³

3.1.5. Other topics of development

The last area increasingly in the spotlight is the South Kara Sea, located just off the coast of the Yamal region. According to the USGS, this region is one of the most prospective in terms of resources, as it might contain almost 39 percent of undiscovered Arctic gas.⁸⁴ Here the water is deeper and mostly ice covered, challenging any venture and requiring new methods of extraction. The granting of blocks in 2009 to Rosneft spurred the Arctic exploration deal between Rosneft and BP. This deal was eventually annulled, as BP's own joint venture in Russia, TNK-BP, went to court to ensure its primacy for BP's Russian engagement.⁸⁵ After this, Rosneft has opened up for other foreign companies to join them in the pursuit of the resources in the Kara Sea. In any likely scenario, however, offshore production will probably not commence until 2025-2030.⁸⁶

When assessing the development of the Russian Arctic the projections of future demand for LNG shipments is of particular relevance. Related to economic growth in countries like China and India, LNG is being promoted as an ecofriendly and relatively cheap energy source. The situation depicted in the previous sections highlight plans to develop three LNG plants in the Russian Arctic. Thirty new ice class tankers are also expected to be needed by 2020, as Sovcomflot has placed orders for new ships to be built in South Korea (ROK).⁸⁷ This will dramatically increase the amount of internal and long distance shipping and the importance of the Northern Sea Route.

Currently, however, LNG markets are subject to overproduction and low price levels. With shale gas developments in the US, and future shale gas exploitation in Poland, South Africa and China, what previously seemed like markets in dire need of LNG shipments may now turn out to become almost self-sufficient from domestic gas production.⁸⁸ At the same time, the global supply of LNG has increased by 58 percent the last five years.⁸⁹ Immediately after the Fukushima nuclear accident, and the subsequent shutdown of nuclear reactors in Japan, LNG

⁸³ Bambulyak, A. and Frantzen, B. "Oil transport from the Russian part of the Barents Region. Status per January 2011." 2011, The Norwegian Barents Secretariat and Akvaplan-niva, Norway

⁸⁴ U.S. Geological Survey, "Circum-Arctic Resource Appraisal: Estimates of Undiscovered Oil and Gas North of the Arctic Circle", 2008, <http://pubs.usgs.gov/fs/2008/3049/fs2008-3049.pdf>. (Accessed on July 15, 2011).

⁸⁵ Vladimir Soldatkin, Reuters "TNK-BP minorities win ruling on BP-Rosneft fiasco", Jul 20, 2011, <http://www.reuters.com/article/2011/07/20/us-tnk-bp-court-idUSTRE76J4P520110720>. (Accessed on July 20, 2011).

⁸⁶ Bambulyak, A. and Frantzen, B. "Oil transport from the Russian part of the Barents Region. Status per January 2011." 2011, The Norwegian Barents Secretariat and Akvaplan-niva, Norway, p. 24.

⁸⁷ Atle Staalesen. BarentsObserver. "30 Arctic LNG tankers by year 2020" June 28, 2011. <http://www.barentsobserver.com/30-arctic-lng-tankers-by-year-2020.4938229.html>. (Accessed on July 15, 2011).

⁸⁸ 23 percent of US natural gas comes from shale gas

⁸⁹ The Economist, "The future of natural gas: Coming soon to a terminal near you", August 6, 2011, <http://www.economist.com/node/21525381>. (Accessed on August 22, 2011).

demand rose. In the long term scenario, however, it is questionable if LNG price levels will support the building of costly gas facilities worldwide. Many of the oil and gas fields in the Russian Arctic are therefore not economically feasible, as they also require new expensive technology to deal with the extreme Arctic conditions.

The Russian government has, as a consequence, created tax exemption rules to promote continued development, expecting that demand will increase in the long term scenario.⁹⁰ This has been applied to the town of Teriberka, crucial to the Shtokman field, and for LNG production in Yamal. In contrast to the pessimistic long term LNG predictions, Russia has, through Gazprom, signed four memorandums with Indian companies for future LNG supplies.⁹¹ With promises to supply 2.5 million tons of LNG per year for 25 years, this will act as a catalyst for further exploitation.⁹² Altogether the future oil and gas developments in the Russian Arctic are quite uncertain from an economic perspective. They are, however, also related to Russian economic and security policy at large, and therefore need to be regarded with that larger context in mind. In any case Russia will continue to define much of Arctic oil and gas development.

3.2. Canada

The Canadian Arctic represents the last Canadian frontier, the majestic and distant northern border of the nation, the Mackenzie Valley region. The Mackenzie Delta and Canadian Beaufort Sea hold 1.5 billion barrels of proved oil reserves and 9 tcf of gas.⁹³ The Canadian government has repeatedly pledged infrastructure development for the extraction of these resources, but the majority of these promises have never materialized, and, similar to the United States, the Canadian Arctic remains mired in environmental debates. In 1996 the Canadian government created the Northern Strategy in order to address the complications surrounding Canada's lack of arctic exploration.⁹⁴ Canadian Prime Minister Stephen Harper is a staunch supporter of Arctic development, adamantly promoting offshore oil development. Harper and his administration have also supported the National Energy Board's safety measures, believing they are adequate

⁹⁰ Vladimir Soldatkin, Reuters, "Novatek shares jumps 6,3 pct on tax cancellation", July 21, 2011, <http://www.reuters.com/article/2011/07/21/russia-novatek-shares-idUSLDE76K1DO20110721>. (Accessed on August 22, 2011).

⁹¹ The Economic Times, India, "Gazprom signs another Indian gas supply deal", July 20, 2011, http://articles.economictimes.indiatimes.com/2011-07-20/news/29794935_1_gazprom-marketing-largest-gas-producer-trading-singapore. (Accessed on August 22, 2011).

⁹² LNG World News, "Gazprom LNG Deals with Indian Companies Enough to Secure Shtokman Project (Russia)", June 3, 2011, <http://www.lngworldnews.com/gazprom-lng-deals-with-indian-companies-enough-to-secure-shtokman-project-russia/>. (Accessed on August 22, 2011).

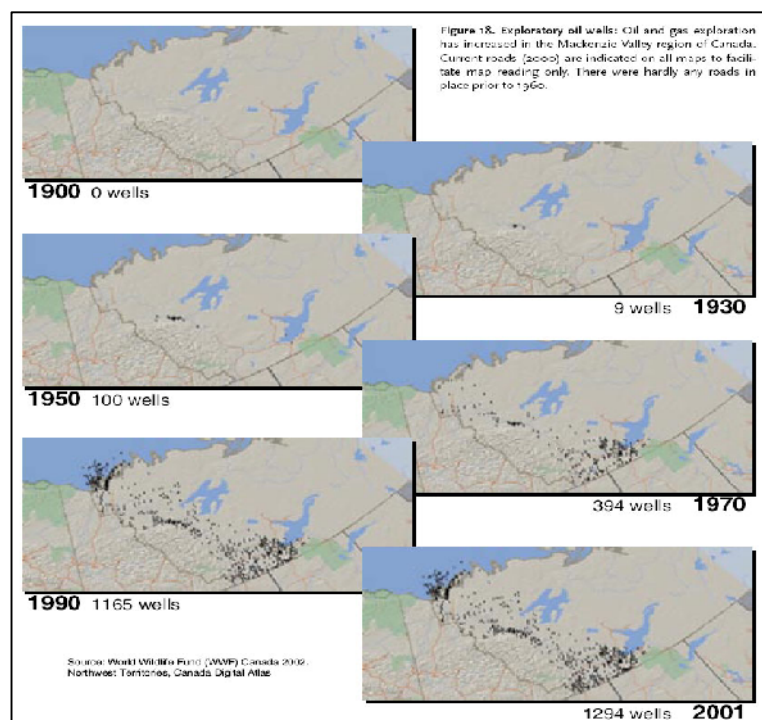
⁹³ "Natural Gas Potential of North Canada and Alaska," *Hydrocarbons-Technology*, 2011. http://www.hydrocarbons-technology.com/projects/natural_gas/, (Accessed September 29, 2011).

⁹⁴ Government of Canada, Canada's Northern Strategy, August 1, 2011, <http://www.northernstrategy.ca/index-eng.asp>.

for the prevention of oil spills and quick response. Currently BP holds exploration licenses and plans for exploration to begin in 2014; Chevron has also applied for exploration licenses.⁹⁵

Prior drilling in Canada was not entirely successful, however. Drilling in the Canadian Arctic has previously proven dangerous, similar to other Arctic regions, but also extremely expensive and difficult. The region primarily holds gas, has a unique geological structure, and limited infrastructure for exploration and extraction. In the 1970s and 1980s over 176 exploratory wells were drilled in the Canadian Arctic, revealing 1.0 billion barrels of oil and 19.8 Tcf of gas, an amount not justified for production at the billions of dollars it would cost. The most recent US Geological Survey, however, turned

exploration around; numerous companies, both Canadian and foreign, have bought leases and are waiting for approval by the Canadian government. BP's Macondo oil spill, however, did result in a temporary moratorium on offshore oil exploration.



Pipeline transportation in Canada has also seen troubles, beginning and ending with the Mackenzie Valley Pipeline.⁹⁶ Stretching from the Northwest Territories of Canada to North American gas fields and markets, the proposed Mackenzie Valley Pipeline covers roughly 743 miles of Canadian territory. First proposed in the 1970s, the Mackenzie Valley Pipeline was then abandoned due to considerations that the pipeline would disrupt indigenous peoples, and then rediscovered in 2004 to be a politically viable option. The proposed project, estimated to cost upwards of \$16 billion and span over 750 miles, is still underway, with estimates at transporting 18.5 billion cubic meters per year. Imperial Oil of Canada is slated to administer the project, with Imperial Oil, Exxon Mobil, and ConocoPhillips holding rights to the gas fields that will supply the pipeline.⁹⁷ Shell Oil dropped out of the project, drawing the operation into question by making it appear unstable, due not just to the fluctuating price of gas and question of

⁹⁵ Ora Morison and Samia Madwar, "Canadian election results a boost for Arctic sovereignty and offshore oil," *Barents Observer*, May 3, 2011, <http://www.barentsobserver.com/canadian-election-results-a-boost-for-arctic-sovereignty-and-offshore-oil.4916127-131162.html>. (Accessed on August 22, 2011).

⁹⁶ McLeod, Robert R., "Arctic Gas," CSIS, June 23, 2011.

⁹⁷ *Mackenzie Gas Project*, "Project Description," 2011, <http://www.mackenziegasproject.com/theProject/projectDescription/naturalGasFields/Taglu/Taglu.html>.

whether or not the pipeline would pay for itself, but also because of the long wait time associated with the project.⁹⁸ Once again, similar to other Arctic projects, permits are still pending.⁹⁹ ConocoPhillips is one of the leading gas producers in the Canadian Arctic, with majority operating rights in 2 of the 3 gas fields in the Mackenzie Delta and Beaufort Sea areas, with co-venture rights in the third. None of these fields are currently operating, but exploratory wells have been drilled, and, pending approval of the Mackenzie Gas Project anchor fields would be produced and infrastructure developed.¹⁰⁰ Currently the only active, offshore, Canadian Arctic fields are found in the Chukchi Sea. In total Canada produced 15,000 b/d in 2010, 15,000 of which were from the Northwest Territories.

Korea Gas Corporation (KOGAS), the world's largest importer of liquefied natural gas (LNG), recently bought a 20 percent stake in a Mackenzie Delta gas field, further committing another \$10 million if the gas resources become commercialized.¹⁰¹ This new Canadian-Korean relationship has serious implications for Russia as well: first, geographically speaking, Canada is closer to Korea than the Russian Arctic, so proximity may play a role in future business deals, particularly if KOGAS' plan to build an LNG terminal on the Canadian west coast goes through. Secondly, it is believed that negotiations and contracts will be more transparent with Canada than with Russia, driving the ROK political argument for increased Canadian business. Third, Korea's ties with Arctic countries is rapidly increasing, due in part to both its superior ship building technology and its oil stockpiling facilities, which are leased to not only MENA and non-OPEC countries, but Norway and Azerbaijan as well. The Canadian-Korean relationship can only grow stronger, as both states have much to gain from improved business ventures.

3.3. Norway

The Norwegian Arctic is comprised of a considerable area, divided between the northern parts of the mainland and the Svalbard Archipelago. Estimated to have 6.7 billion barrels of proven oil reserves and 2.3 tcm of estimated proven natural gas reserves, Norway currently has only one producing field, Snøhvit (Snow White). Started in 2007, the Snøhvit field does not have any surface installations, as everything is located on the sea floor, with natural gas brought onshore for treatment at the LNG plant on the island of Melkøya.¹⁰² Statoil is the sole operator, on behalf of the six companies that own the licenses. It was also the first LNG plant in Europe. The field is often touted by Statoil as a prime example of modern and safe Arctic gas extraction,

⁹⁸ Slaiby, "Development and Infrastructure Options," 2011.

⁹⁹ McLeod, "Arctic Gas," 2011.

¹⁰⁰ ConocoPhillips, "Canada," <http://www.conocophillips.com/EN/about/worldwide_ops/country/north_america/pages/canada.aspx> (Accessed August 18, 2011).

¹⁰¹ Gary Park, "Korea Eyes Arctic Gas," *Petroleum News*, May 1, 2011, <<http://www.petroleumnews.com/pntruncate/444291361.shtml>> (accessed August 18, 2011).

¹⁰² Statoil, "Snøhvit", March 9, 2011, <http://www.statoil.com/en/ouoperations/explorationprod/ncs/snoehvit/pages/default.aspx> (Accessed on August 22, 2011).

proving that it is possible to operate offshore under difficult Arctic conditions.¹⁰³ On the other hand, the Norwegian Arctic is not ice-covered to the same extent as the rest of the Arctic region, and the Snøhvit field is in ice-free waters throughout the year.



Snøhvit field, source: Statoil.com

As Norway is projected to reach its peak oil and gas production by 2020, companies and the government are interested in opening up the Norwegian Arctic for further exploration and extraction.¹⁰⁴ However, in the Barents Sea, where parts have been open for drilling since 1980, there have been few findings of great commercial value. To date, the largest is the Goliat oil field, discovered in 2000. The Goliat license is owned by ENI and Statoil, and production is expected in late 2013, with estimated oil resources at 82 million barrels and gas resources estimated at 40 billion cubic meters.¹⁰⁵ A floating production facility will be used, while the oil will be transported by shuttle tankers.¹⁰⁶ There has been a surge in exploration in the Norwegian Barents Sea in the years following the Goliat discovery. Some findings have been made, as with the Skrugard oil field discovered in 2011, where Statoil, ENI and Petoro are the license holders. Further, Total recently discovered the Norvarg gas field in the Barents Sea, a finding that could help expand the Snøhvit LNG project.

Most of the other exploratory drillings in Norway have been, however, of non-commercial value, and the oil and gas industry has increasingly looked towards the Lofoten and Vesterålen regions further south in the Norwegian Arctic. This region is regarded as the future of the industry in Norway because it is the most prosperous part of the Norwegian continental shelf. At the same time, Lofoten and Vesterålen are some of the most treasured parts of Norwegian

¹⁰³ Ibid.

¹⁰⁴ Olje og Energidepartementet, "Fakta, Norsk Petroleumsverksemd 2011", June 2011, p. 25.

¹⁰⁵ "Gjøa Field, North Sea Northern," *Offshore Technology*, <http://www.offshore-technology.com/projects/gjoa/>, (Accessed on October 6, 2011).

¹⁰⁶ Statoil, "Goliat", February 2, 2011, <http://www.statoil.com/en/ouoperations/explorationprod/partneroperatedfields/pages/goliatpoa.aspx> (Accessed on August 22, 2011).

nature and heritage, with stunning scenery that attracts several hundred thousand visitors every year.¹⁰⁷ The domestic political debate in Norway has therefore been heated, with organizations, youth movements and political parties in favor of environmental preservation campaigning against the interests of oil companies. Internal disagreement between the government's coalition partners led to a preliminary decision to not conduct an impact assessment of oil and gas during the current parliamentary term (2009-2013).

In the future, it is also expected that the basins that stretch across the Norwegian-Russian border will be found to contain considerable amounts of proved oil and gas reserves.¹⁰⁸ The swift resolution of the maritime boundary dispute between Norway and Russia symbolizes how potential oil and gas extraction in the region is becoming a priority on both sides. Both governments have initiated seismic exploration to uncover the potential of the newly acquired territory.¹⁰⁹ As stressed by the Norwegian Prime Minister right before the signing of the agreement: *"We will start the survey of petroleum resources in the earlier disputed area from day one when the agreement between Norway and Russia enters force."*¹¹⁰ Any production would still be years into the future, as leases will only be handed out after the seismic exploration are completed. Lastly, the Norwegian oil and energy ministry has opened up for drillings in the waters around the unpopulated Arctic island Jan Mayen, but the prospects are rather dim and there has not been much interest from the industry.

Norway has for many years been touted as the prime example of how to regulate and benefit from the activities of oil and gas companies, with extensive operations in the North Sea since the 1970s. The venture into the Arctic, with increased cooperation with its Russian counterparts to jointly develop the prosperous Barents Sea, will require new solutions and involve greater risk than before. In addition it has sparked a domestic debate on how far Norway should be willing to stretch, and for what price, in order to maintain its role as one of the world's largest oil and gas exporting countries. The September 2011 Aldous/Avaldsnes oil discovery in the North Sea might also lead to less urgency in the Arctic development, as the fields are expected to account for nearly half of Norway's oil supply by 2027.¹¹¹ As North Sea drilling experiences a second spring, expensive and difficult Arctic resources might not be as desirable to develop in the near future.

¹⁰⁷ Kari Skeie and Sigurd Steinum, NRK, "Rekordturisme til Lofoten", August 7, 2010, <http://www.nrk.no/nyheter/distrikt/nordland/1.7239378> (Accessed on August 1, 2011).

¹⁰⁸ Store Norske Leksikon, "Barentshavet", June 8, 2011, <http://snl.no/Barentshavet>. (Accessed on August 15, 2011).

¹⁰⁹ Atle Staalesen, Barentsobserver, "Barents border treaty in force now", 07.07.2011, <http://www.barentsobserver.com/barents-border-treaty-in-force-now.4940796-116320.html>. (Accessed on August 2, 2011).

¹¹⁰ Ibid.

¹¹¹ McQuaile, Margaret, "Aldous/Avaldsnes Could be 20% of Norway Oil Output," *Platt's Oilgram News*, Volume 89, Number 197: October 6, 2011.

3.4. Greenland

Greenland, as part of the Royal Kingdom of Denmark, might be the region in the Arctic most intent on developing an oil and gas industry. Greenland has gradually gained autonomy from Denmark throughout the years; self-government in judicial affairs, policing and natural resources was transferred in 2009. In 1981 the Greenlanders also voted to leave the European Union (then the European Community). With a population of 57,000, that is largely dependent on transfers from Denmark, the prospect of finding oil and gas has sparked thoughts of economic autonomy and, eventually, complete independence. There has previously been exploratory drilling in the waters around Greenland in the 1970s, but none that resulted in any exploitation. The USGS Survey from 2008, however, predicts that some of the most prosperous basins in the Arctic are the two basins on the east and west coast of Greenland.¹¹² The USGS report estimates the mean proved reserves to be roughly 30 bboe of oil, gas, and natural gas liquids.¹¹³

In 2006 the Greenlandic government opened up for drilling once again, with a licensing round for the coast of West Greenland after seismic surveys had been conducted in 2005,¹¹⁴ with companies like ExxonMobil, Chevron, Husky, Cairn Energy and DONG participating. Cairn Energy has been the most active, drilling several exploratory wells in 2010 and 2011. Even though Cairn has not had a breakthrough discovery yet, they are highly confident that the blocks will contain considerable amounts of resources.¹¹⁵ Different environmental organizations have been engaged in halting the oil and gas exploration in Greenland, but the Government and the representative for the indigenous Inuit community defends the activities and relishes the chance to have economic activities dictated by local needs.¹¹⁶ With annual transfers from Denmark at almost \$ 10,000 per capita, and shrimp fishing as the only other source of revenue, oil and gas production will undoubtedly be crucial for the outspoken ambitions of gaining independence from Denmark.¹¹⁷

¹¹² U.S. Geological Survey, "Circum-Arctic Resource Appraisal: Estimates of Undiscovered Oil and Gas North of the Arctic Circle", 2008, <http://pubs.usgs.gov/fs/2008/3049/fs2008-3049.pdf>. (Accessed on August 9, 2011).

¹¹³ U.S. Geological Survey, "Circum-Arctic Resource Appraisal," 2008.

¹¹⁴ Government of Greenland, Bureau of Minerals and Petroleum, "Licensing Round 2006 Phase 1", <http://www.bmp.gl/petroleum/exploration-a-exploitation/previous-licensing-rounds/licensing-round-2006-phase-1>. (Accessed on August 9, 2011).

¹¹⁵ Cairn Energy, "Greenland", 2011, <http://www.cairnenergy.com/operations/greenland/>. (Accessed on August 9, 2011).

¹¹⁶ Gloria Galloway, The Globe and Mail, "Greenland Inuit Premier defends oil and gas drilling", February 23, 2011, <http://www.theglobeandmail.com/news/politics/greenlands-inuit-premier-defends-oil-and-gas-drilling/article1918276/>. (Accessed on August 9, 2011).

¹¹⁷ Doug Sanders, The Globe and Mail, "Oil find fuels hopes for independence in Greenland", September 30, 2010, <http://www.theglobeandmail.com/news/world/europe/oil-find-fuels-hopes-for-independence-in-greenland/article1736461/page1/>. (Accessed on August 9, 2011).

4. Developing a framework for oil and gas in the Arctic

When governments and companies alike are investing in the Arctic, they need to develop holistic approaches to deal with an environment that is different from most other places where oil and gas is being extracted. There is an extensive debate, particularly in the Arctic states, but also in international politics in general, on the need for new regulation on offshore drilling. The Deepwater Horizon accident from 2010 has pushed this debate forward as well as given it a new dimension. As portrayed, the discussions in Alaska are heavily influenced by the lack of capabilities in a region that is vulnerable to human activity, but also dependent upon it. Although the European regions of the Arctic are more developed, in terms of both capabilities and activities, the situation is by no means less precarious. Consequently, the general Arctic oil and gas debate is politically sensitive and engulfs a wide range of issues. Arctic conditions are indeed extreme compared to most other parts of the world, with low temperatures, high winds and almost constant darkness throughout the winter. Even though the ice is melting in parts of the Arctic Ocean, the conditions are by no means becoming more suitable for human activity. These concerns have fostered a debate amongst three different interest groups inside and outside of the Arctic, namely environmental organizations, different national and international legislative/regulating bodies, and the specific company and/or state interests pushing exploration and exploitation onwards. Together they drive the debate and constitute the political environment where Arctic oil and gas activities are taking place. The new found interest in developing a common regional framework for oil and gas in the Arctic is subsequently a consequence of this political environment, which will be elaborated in the following sections.

4.1. Environmental concerns and oil spills

The Arctic, with its unique climate and environment, has always been a region of particular interest to scientists. When political and economic interests in the Arctic were diminishing or absent, scientists were still active in the region. With the expansion of climate change as a worldwide phenomenon, the Arctic has gained particular attention as being one of the most vulnerable places to be influenced by increasing temperatures and changing conditions.¹¹⁸ The fragility of the Arctic environment, should an incident occur, has been a driver of scientific work as the human activity in the region has increased. Several reports have been published studying the development of the Arctic environment and assessing the impact of such activities. Particularly, the “Arctic Climate Impact Assessment,” which is a comprehensive international study of climate change in the Arctic, has been influential in defining both environmental work in the Arctic Council and the assessment of the Arctic region as a whole.¹¹⁹ The Arctic

¹¹⁸ National Science Foundation, “IARPC”, 26.01.2011, <http://www.nsf.gov/od/opp/arctic/iarpc/start.jsp>

¹¹⁹ Susan Joy Hassol, “Arctic Climate Impact Assessment”, 2004, Cambridge University Press

Monitoring and Assessment Programme (AMAP), as one of the five working groups in the Arctic Council, similarly provides surveillance and information on threats to the Arctic environment. In addition there are several institutions, institutes and universities conducting detailed research on Arctic climate issues.

Most of these reports emphasize that the region is extremely fragile and vulnerable to human activity.¹²⁰ In particular, the issue of how oil and gas activities influence marine life is crucial for the continuation of license permitting in the Arctic. Principally in the American Arctic, there has been concern over the effects of noise pollution on marine mammals; sources of noise include seismic surveying, drilling, construction and the use of ice-breakers.¹²¹ Federal research has been conducted, along with efforts made by oil and gas companies, to map the consequences of such activities. The conclusions, however, have been ambiguous, as one cannot agree to what extent noise pollution negatively influences the marine environment.¹²² That it does influence, on the other hand, is proven and continuously used as an argument against further petroleum activities.

In the European Arctic, comprehensive studies have exposed how the Barents Sea is increasingly becoming polluted due to industrial activities stemming from onshore industries, fishing vessels and oil and gas activity. In addition, the vulnerability of the different organisms and species in the Arctic Sea is higher than in more southern waters, while expected temperature variation and Ph-alterations is stronger.¹²³ However, the US Geological Survey's Report on the "Science Needs for Developing Oil and Gas in the Arctic", conclude that there are severe gaps in knowledge about the region.¹²⁴ In everything from sea-ice movements to a comprehension of animal/marine patterns, there is a need for more studies.

Due to the lack of scientific evidence and consensus it is therefore unclear how increased oil and gas activity will influence the Arctic environment.¹²⁵ Several of the research reports highlight that cold climate is a negative factor, as there are fewer organisms in the water to dissolve possible oil leaks. The lack of oil spill capacity and search and rescue equipment is also highlighted. The Exxon Valdez tanker oil spill from 1989 in Alaska is frequently brought up as a symbol of the devastating consequence of human error in the pursuit of hydrocarbons in the Arctic. The 2010 Deepwater Horizon oil spill in the Gulf of Mexico has in addition led to questions concerning the industry's safety regulations and its ability to operate in such a fragile environment. The magnitude of the Macondo well blowout, releasing 4.9 million barrels of crude oil before the well was capped, has encouraged both the US Congress and the Obama

¹²⁰ Ibid.

¹²¹ Pew Environment Group, "Noise", Oceans North U.S., <http://oceansnorth.org/noise>,

¹²² National Research Council, Cumulative Environmental Effects of Oil and Gas Activities on Alaska's North Slope 2003, The National Academies Press, Washington, D.C.

¹²³ AMAP, "Arctic Pollution", Arctic Monitoring and Assessment Programme (AMAP), 2011, Oslo.

¹²⁴ Leslie Holland-Bartels and Brenda Pierce, eds., "An evaluation of the science needs to inform decisions on Outer Continental Shelf energy development in the Chukchi and Beaufort Seas, Alaska", 2011, U.S. Geological Survey, Circular 1370.

¹²⁵ Ibid.

Administration into revision of the whole US offshore regulatory regime.¹²⁶ President Obama subsequently established the ‘National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling’ by executive order in May 2010, in order to both investigate and explain the causes for the oil spill. The final report also draws up some key challenges for the future of American offshore drilling, with special emphasis on the Arctic territories:

*“(...) detailed geological and environmental information does not exist for the Arctic exploration areas of greatest interest for energy exploration—and industry and support infrastructures are least developed, or absent, there. In the near term, the Alaskan frontier is likely to attract the greatest attention, and to require the closest scrutiny, given the potential energy resources and the physical and environmental challenges of pursuing them safely.”*¹²⁷

The political effects of the Deepwater Horizon incident have not, however, been limited to the US, as several other oil and gas producing nations have started to review their own policies in response to the BP oil spill. The Arctic nations Norway and Canada have launched their own investigations, with the Norwegian Petroleum Safety Authority’s report released in June 2011, and the Canadian National Energy Board’s ‘Arctic Offshore Drilling Review’ expected in 2012.¹²⁸ As stated by the director of the Norwegian Petroleum Safety Authority; *“This disaster affects all types of activity and all players in the national and international petroleum sector. And it must lead to improvements in the industry as a whole.”*¹²⁹ As an immediate reaction to the Deepwater Horizon, energy



BP Deepwater Horizon. Source: National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling, Final Report.

commissioner in the EU, Günther H. Oettinger, proposed an immediate moratorium on offshore drilling in European waters. The proposal was quickly rebuffed, however, with the United Kingdom as the most vocal opponent. The work on trying to establish a more common ground

¹²⁶ Maureen Hoch, “New Estimate Puts Gulf Oil Leak at 205 Million Gallons”, PBS Newshour, August 2, 2010, <http://www.pbs.org/newshour/rundown/2010/08/new-estimate-puts-oil-leak-at-49-million-barrels.html>

¹²⁷ National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling, “Report to the President: Deep Water – The Gulf Oil Disaster and the Future of Offshore Drilling”, January 2011, p. 301

¹²⁸ National Energy Board Canada, “Arctic Offshore Drilling Review”, <http://www.neb-one.gc.ca/clf-nsi/rthnb/pplctnsbfrthnb/rctcffshrdrlIngrvw/rctcffshrdrlIngrvw-eng.html>. (Accessed on September 8, 2011). & Petroleum Safety Authority Norway, “Assessment and Recommendations After Deepwater Horizon”, June 15, 2011, http://www.ptil.no/news/assessments-and-recommendations-after-deepwater-horizon-article7890-79.html?lang=en_US

¹²⁹ Petroleum Safety Authority Norway, “Whole Industry Must Learn From Accidents”, October 4, 2011, http://www.ptil.no/news/whole-industry-must-learn-from-accidents-article8116-79.html?lang=en_US

for European offshore drilling has, nonetheless, continued in the European Commission, the European Parliament and among the member states. Respecting the sovereignty of the states' licensing, exploration and exploitation activity, the eventual outcome will probably not revolutionize the European petroleum industry. It does, however, put the spotlight on some precarious issues, where the Arctic region is particularly highlighted due to its fragile environment.¹³⁰

In addition, there have recently been minor incidents in both the North Sea and Canada, which have led to further questions concerning the industry's ability to operate safely in the Arctic. In the summer of 2011 the Shell-operated Gannet Alpha platform, located off the coast of Aberdeen in UK territory of the North Sea, had the worst North Sea oil spill for a decade. Even though the spill was small compared to the Deepwater Horizon, it has been used by some as an argument for Shell's unpreparedness when starting its Arctic endeavors in the Chukchi and Beaufort Seas.¹³¹ The pipeline leak in early 2011 in Alberta, Canada, was also small compared to the Gulf of Mexico in 2010, but still amplified the domestic debate on safety regulations for oil and gas extraction and transportation in remote regions.¹³²

Based on the combination of Arctic fragility and diminishing trust in oil companies, non-governmental environmental organizations, like Greenpeace and Bellona, have actively promoted an Arctic region free of petroleum activity. This has been done through political engagement and legal and illegal protests, highlighting what they perceive to be exploitation of a pristine environment by oil companies only seeking profits. As Scottish Cairn Energy conducted exploratory drillings off the coast of Greenland in 2010 and 2011, Greenpeace staged extensive protests and occupied an oil rig to emphasize the dangers of drilling in Arctic waters.¹³³ Different environmental organizations and private individuals have also used litigation as a way to halt the oil and gas development in Alaska. In Norway the proposal to open up the Lofoten and Vesterålen regions caused internal conflict in the coalition government, while at the same time triggering a national oil and gas debate.

At large, there is a part of the population in not only the Arctic nations, but also globally, that perceives the petroleum drive towards the Arctic as an unnecessary move that will prolong the unsustainable age of fossil fuels. The EU's directly elected politicians, the European Parliament, did, for example, emphasize in 2008 that environmental concerns need to have primacy in the

¹³⁰ European Parliament, "European Parliament resolution of 13 September 2011 on facing the challenges of the safety of offshore oil and gas activities", September 13, 2011, Strasbourg.

¹³¹ Will Race, "Shell Fails to Contain North Sea Spill", Oceana, August 15, 2011, <http://na.oceana.org/en/news-media/press-center/press-releases/shell-fails-to-contain-north-sea-spill>

¹³² Dina O'Meara, "Rainbow oil pipeline leak largest in 36 years", Calgary Herald, May 3, 2011, <http://www.calgaryherald.com/news/Rainbow+pipeline+leak+largest+years/4720888/story.html>

¹³³ CBS News, "Greenpeace activists arrested on Greenland oil rig", June 2, 2011, <http://www.cbc.ca/news/business/story/2011/06/02/cairn-greenpeace-activists-arrested.html>

region, while also proposing a moratorium on resource extraction.¹³⁴ The issue of seal and whale hunting has also been particularly sensitive in the EU's Arctic involvement, as local and indigenous traditions clash with the normative perceptions of politicians situated outside of the Arctic region. This symbolizes some of the trends in the Arctic debate, as it is often dominated by clashes between the interests of those that are located outside of the Arctic region and those that are located on the inside.

The Arctic states in particular perceive the development of Arctic resources as integral to their own economies. Russia is dependent on huge oil and gas exports to sustain its economic growth. These exports will dwindle if new Arctic fields are not put into production. The same is the case for Norway, albeit to a lesser extent. Norway relies on its petroleum exports, but the Arctic is not the only region of production, and neither is the oil and gas percentage of the GDP as high as in Russia.¹³⁵ Greenland is currently dependent on economic transfers from Denmark, and hopes to develop economic independence through petroleum activities.¹³⁶ The Alaskan state government and the Canadian Prime Minister Harper's government are also pushing for oil and gas companies to invest in national Arctic projects, boosting sluggish regional economies. Altogether the littoral states are in a position where exploiting Arctic resources is a part of achieving both economic and political goals. At the same time the Arctic Five have continued to emphasize that each state is completely sovereign in their decision to exploit natural resources in their territories.¹³⁷ The states do, however, have to balance between preservation and exploitation, with both domestic and international pressure coming from NGOs, multinational companies, electorates and national economic needs.

The oil and gas companies themselves are naturally interested in the opening of new leases and access to the Arctic resources. On the other hand, there seems to be a clear understanding among the companies that any incident of size will be devastating for future resource extraction in the region. Seeing the consequences of the Deepwater Horizon spill, all of the involved companies have produced a considerable amount of safety reports and assurances that Arctic operations are done with the outmost focus on safety. To be able to operate in the Arctic environment considerable initial investments are also needed in the form of pipelines, technology, and transport- and production equipment, thereby also excluding all but the largest and most experienced oil and gas companies. The companies are additionally allying themselves with positive local politicians, which perceive there to be future benefits resulting from petroleum activities in their region. Indigenous communities are more skeptical, however, but this also varies among societies, cultures and nations. Lastly, fishermen in all the Arctic

¹³⁴ European Parliament, "European Parliament Resolution of 9th of October 2008 on Arctic Governance", 09.10.2008, <http://www.europarl.europa.eu/sides/getDoc.do?type=TA&language=EN&reference=P6-TA-2008-0474>. (Accessed on August 9, 2011).

¹³⁵ Oil and gas production accounted for 30 percent of Russia's GDP and 22 percent of Norway's GDP in 2010, while 60 percent of Russia's exports, and approximately 50 percent of Norway's exports. Source: <http://www.ssb.no/regnskap/> & <http://www.thomaswhite.com/explore-the-world/bric-spotlight/2010/russia-oil-and-gas.aspx>

¹³⁶ Denmark transfers approximately 3 billion Danish Kroner (DKK) to Greenland annually (2010)

¹³⁷ Arctic Ocean Conference, "The Ilulissat Declaration", 2008.

states have raised doubts on the influence of exploration and exploitation on fish stocks and other marine life. This constitutes one of the most pressing problems, apart from a lack of popular legitimacy, and both companies and Arctic states are investing in research programs to map and study the influence of oil and gas drilling on marine life.

To ignore or dismiss this wide range of environmental concerns would be foolish, as it does entail a particular aspect of Arctic oil and gas development. As portrayed earlier, the regional and local populations are divided on the issue of how much activity should be allowed; following the Deepwater Horizon incident, the general fear of a similar accident in the Arctic has become increasingly present. These concerns need to be addressed sufficiently, through both political vigor and corporate responsibility. The balance between the different interests is a challenging task for Arctic states that often have multiple, competing agendas. The exploratory drilling outside of Greenland serves as a fitting example; with an economy completely dependent on annual transfers from Denmark, the chance to develop their own resource-based economy will be crucial for the Greenlanders' aspirations of eventually acquiring independence. At the same time, indigenous interests as well as the disastrous consequence of any oil spill need to be considered. As an illustration of Arctic petroleum development, this indicates that there are numerous factors influencing the decision to explore and exploit natural resources in the region.

This decision has, however, already been taken in most parts of the Arctic. As in the case of Alaska, or Russia, several oil and mining companies have been active for decades, providing invaluable growth to the region. As long as there are commercial opportunities in the Arctic, local communities, governments and companies will take advantage of them. The question of relevance is subsequently not *if* oil and gas activity will take place, but rather *how* it will take place. As Shell has proven with their extended efforts in Alaska, providing extensive measures for preparedness and response, the oil and gas companies can play a vital role in addressing the lack of public capacity to deal with these issues in the Arctic. At the same time, economics of scale can be applied; to build new frameworks among states to deal with common concerns related to increased oil and gas exploitation in all the Arctic nations.

On the other hand, whether it has been as a resource moratorium or an Arctic Treaty, calls for new frameworks of governance have not been well received by any of the five Arctic littoral states.¹³⁸ They have, however, recognized that any new commercial activity in the region will be subject to a lack of sufficient capacity and infrastructure. An international debate on common frameworks to deal with the Arctic deficiencies has subsequently developed as a consequence of the Arctic states' desire to legitimize the increasing push for petroleum activity. Oil and gas companies benefit from these discussions, as long as their interests are safeguarded. In addition, the environmental concerns from both the Arctic populations and the NGO's are seemingly addressed through the development of such frameworks. Since these discussions

¹³⁸ Jonas Gahr Støre, Speech, "Arctic Governance in a global world: is it time for an Arctic Charter?" May 7, 2008, http://www.regjeringen.no/en/dep/ud/Whats-new/Speechesandarticles/speeches_foreign/2008/arctic_charter.html?id=511991. (Accessed on August 1, 2011).

most often are based on the presumption of future development, and are a product of a very recent (3-4 years) spike in international interest, they have not yet transformed into concrete policy. Regardless, it is of particular interest to understand the shape of the discussions and future projections for any common Arctic framework for oil and gas activity. The following section will therefore look at different processes going on in and around the Arctic Council, while also debating other issues that might hold relevance to oil and gas production in the Arctic.

4.2. International processes and alternatives

4.2.1. Arctic Council Offshore Oil and Gas Guidelines

To date, any oil and gas activity in the five Arctic coastal states is regulated by the individual states' authoritative bodies. The practices vary from nation to nation, and are often spread amongst several governmental institutions and agencies. As the Arctic warrants specific attention due to environmental concerns and climatic conditions, there are calls for creating a common framework that tackles these issues to a greater extent than what current national regimes do. The main effort, thus far, has come from the Arctic Council. This forum was first established to serve environmental issues, as societies realized in the late 1980s and early 1990s that human activity can influence the environment in the Arctic more severely than elsewhere. The Arctic Council eventually developed into a *“high level intergovernmental forum to provide a means for promoting cooperation, coordination and interaction among the Arctic States,”* while also including representations from the indigenous population.¹³⁹

In 2009 the Arctic Council's Protection of the Marine Environment working group (PAME) published a comprehensive document titled *“The Arctic Offshore Oil and Gas Guidelines.”* This document is not legally binding, but it does serve as a recommendation for best practices, providing advice on how to develop further when the Arctic is becoming increasingly populated with oil and gas companies. The guidelines are at the same time *“intended to encourage the highest standards currently available. They are not intended to prevent States from setting equivalent or stricter standards, where appropriate.”*¹⁴⁰ Altogether this 98-page document is broad and general enough to allow each country to have its own set of rules, adapted to specific national circumstances. This, however, combined with the lack of any legally binding measures, dilutes the guidelines from being much more than a statement of good intentions. The principles are highly normative and are subject to the interpretation of the member states. In 2011, the Vermont Law School Institute published several white papers where they reviewed the implementation of the guidelines in Canada, the US, Russia and Greenland, respectively.¹⁴¹

¹³⁹ Arctic Council, “About Arctic Council”, 22.10.2011, <http://arctic-council.org/article/about>. (Accessed on August 1, 2011).

¹⁴⁰ Arctic Council, Protection of the Arctic Marine Environment Working Group, “Arctic Offshore Oil and Gas Guidelines”, April 29, 2009.

¹⁴¹ Vermont Law School, Institute for Energy & the Environment, “Implementing the Arctic Offshore Oil and Gas Guidelines in the United States and Canada”, July 27, 2010,

After reviewing the different national policies, the study concluded that although most of the countries seem to have many of the aspects incorporated into their policies, Greenland is the only nation that specifically mentions them as a source of best practice and conduct.¹⁴²

4.2.2. Oil spill preparedness

The Arctic Council Ministerial meeting at Nuuk, Greenland in May 2011 symbolized new vigor for cooperation amongst the Arctic states. The United States sent, for the first time, the Secretary of State, Hillary Clinton, and the Secretary of the Interior, Ken Salazar. By taking an active role in the meetings at Nuuk, and by promoting increased collaboration in the working groups, the American delegation highlighted US acknowledgement of the need for active participation in Arctic matters. At Nuuk the historic Search and Rescue agreement (SAR) was signed, where each country was designated a specific territory of responsibility and committed to further cooperation should the need arise. The idea that an oil spill preparedness agreement could follow along the same lines was suggested at the meeting. Preparedness basically revolves around precautionary measures and response procedures and equipment. Such a proposal makes sense given the developments in the Arctic, but search and rescue is arguably less sensitive than a proposal dealing with the countries' oil and gas sectors.

As with the SAR agreement, however, each country would be in charge of a specific area related to their territorial boundaries in the Arctic, and thereby not forgoing their own sovereignty. The declaration from the ministers after the Nuuk meeting established a specific task force, organized outside of the working groups, which will “develop an international instrument on Arctic marine oil pollution preparedness and response”.¹⁴³ It is scheduled to produce the results at the next Ministerial Arctic Council meeting in Kiruna, Sweden, in 2013. It is of interest to note that Norway proposed the establishment of such an oil spill preparedness instrument in 2009, with no success, as the U.S. specifically opposed the idea. However, in the aftermath of the Deepwater Horizon accident, the US acted as the initiator on the project and has decided to take the lead on the task force, co-chairing it with Russia.¹⁴⁴

From an American perspective, it seems clear that any agreement on oil spill preparedness and response would be of benefit to its Arctic interests. The U.S. Coast Guard has repeatedly highlighted how the US is severely lacking the capabilities necessary to support operations in its Arctic region.¹⁴⁵ By placing emphasis on the development of a framework for international assistance, the US can rely to a greater extent on Canadian or Russian support should an

http://www.vermontlaw.edu/Documents/IEE/07272010_IntroLetterBetsyBakerWhitePapers_IEENews.pdf. (Accessed on August 1, 2011).

¹⁴² Ibid.

¹⁴³ Arctic Council, “Nuuk Declaration – On the occasion of the Seventh Ministerial Meeting of the Arctic Council,” May 12, 2011, p. 4.

¹⁴⁴ Interview, US Official, United States Department of State, August 2, 2011, Interviewer: Andreas Østhagen.

¹⁴⁵ Renee Schoof, The Seattle Times, “NOAA: US unprepared for changes in Arctic ice”, 20.06.2011, http://seattletimes.nwsourc.com/html/traveloutdoors/2015379098_webarctic21.html. (Accessed on August 1, 2011).

incident occur. During the Deepwater Horizon spill, one of the most pressing problems was how to deal with international cooperation in practical manners of language, terminology, equipment compatibility and working methodology.¹⁴⁶ Developing a comprehensive system for such cooperation *before* it is needed would be vital to improving capacities in the Arctic Ocean. Responding to critics reasoning that such an oil spill agreement would not be comprehensive enough to deal with the actual problems, the argument has been that it is better than the current situation, where nothing exists at all.

Russia, as the co-chair along with the US, has also shown great interest in developing the oil spill preparedness cooperation in the Arctic. Being the Arctic state with the most territory (almost half of the Arctic), and having had extensive operations and activities in the region for centuries, proving Russian capabilities is a motivational factor. Russia is certainly the most “Arctic” of all the states, and having shown annoyance with non-Arctic actors questioning its capabilities, it is of interest to the Russian Government to showcase how they set the standard for producing ice-breakers, search and rescue vessels and operating equipment for the region.¹⁴⁷

The question is how such an instrument will be developed, as it does not necessarily need to be a binding treaty similar to the SAR-agreement. A specific timeline, as well as producing results, appear as important as to create a legally binding agreement. That is also why the task force is focused specifically on preparedness and response, and excluding prevention. Prevention deals to a greater extent with the regulatory frameworks for licensing and operation, and this would add a lengthy and complicated dimension to task force’s work. There are differences, however, in the view on the balance between producing something in a reasonable amount of time (by 2013) and producing something that is comprehensive enough. Especially the Nordic countries, headed by Norway, were pushing for a regime that also tackles prevention, as Norway already has a very strict regulatory regime for its own Arctic region.¹⁴⁸ Any definite decision on the scope of this oil spill preparedness task force is currently not taken, as it reconvenes in Oslo in the autumn of 2011.

A common agreement, regardless of its scope, will provide a new piece to the development of an international framework for petroleum activities in the Arctic. By starting with a fairly simple agreement, the Arctic Council can continue to create operational frameworks for the Arctic and thereby also maintain its own primacy in Arctic collaboration. It can also use this framework for future add-ons, as oil and gas production expands and Arctic state interests converge. With growing international interest in the region, several new applications for observer status to the Council and lacking regional capabilities, the creation of such agreements are vital for the Arctic Council’s relevance as an inter-governmental forum.

¹⁴⁶ Interview, US Official, United States Department of State, August 2, 2011, Interviewer: Andreas Østhagen

¹⁴⁷ Ibid.

¹⁴⁸ Ibid.

The decision to establish a permanent secretariat to be located in Tromsø was the first move to step up to the new challenges that the Council is faced with. This decision was partly due to the US preference that the Arctic Council should be prioritized as the arena for Arctic inter-state cooperation. While Russia has flirted with the Arctic Five constellation, and the Nordic countries are either talking about the European Union or developing the Arctic Council into a formal international organization, the US is placed along the middle.¹⁴⁹ With the success of the Russia-US cooperation in the Arctic Council, and the general American fear of developing unnecessary organizations and secretariats that draw sovereignty away from the national level, there is a willingness to develop the Council inside of its already established mandates.¹⁵⁰ Symbolic, even though the US pushed for the establishment of a secretariat, it reached an agreement of allocating only one million USD annually to its operation, highlighting the delegation's fear that the secretariat would eventually grow beyond its original mandate.¹⁵¹

4.2.3. Oil spill prevention

As the decision to create a task force for oil spill preparedness was made without including the difficult aspect of prevention, the ministers at the Nuuk meeting mandated the Emergency Prevention, Preparedness and Response (EPPR) working group to “develop recommendations and/or best practices in the prevention of marine oil pollution”.¹⁵² Oil spill prevention was thereby separated out into a working group project on its own. The mandate is subsequently less clear than that of the task force, but it is also expected to present results at the next Ministerial meeting in 2013. The Russian delegation to the Arctic Council has emphasized that the oil spill preparedness instrument and the prevention recommendations need to occur simultaneously and cannot be separated into two different processes. The EPPR working group therefore met with the oil spill preparedness task force in June 2011, in Whitehorse, Canada, to discuss how to coordinate the work amongst the two of them.¹⁵³ In October 2011, the task force and the working group are meeting in Oslo to develop the scope of both projects, trying to define the outcome of the mandate given by the ministers at Nuuk.

Having been working with the PAME group on the Arctic Offshore Oil and Gas Guidelines from 2009, the EPPR will not start completely from scratch. However, the topic is very broad and difficult to reach a common agreement on, as prevention practices differ among all of the five littoral states. As previously highlighted, the work from 2009 was very broad and generic; not dealing with the specifics of the different systems among the Arctic nations. In addition, the whole decision-making system in the Arctic Council is based on consensus, making any decision

¹⁴⁹ Finland has been the most pro-active in stating the need for EU participation. See the Finnish Arctic Strategy from 2010.

¹⁵⁰ Andrew Willis, “Clinton: Arctic Council enters new era”, euobserver.com, May 13, 2011, <http://euobserver.com/885/32325>, (Accessed on August 27, 2011).

¹⁵¹ Interview, US Official, United States Department of State, August 2, 2011, Interviewer: Andreas Østhagen

¹⁵² Arctic Council, “Nuuk Declaration – On the occasion of the Seventh Ministerial Meeting of the Arctic Council,” May 12, 2011, p. 4.

¹⁵³ Allison Saunders, Arctic Council, “EPPR Meets in Canada’s Yukon Territory”, June 24, 2011, <http://arctic-council.org/eppr-meets-in-canada-E28099s-yukon-territory>. (Accessed on August 1, 2011).

subject to the lowest common denominator. The work done in the group will lead to a result, but what or how binding remains to be seen as oil and gas activities progress in the next years. Nevertheless, there seems to be a general understanding amongst the Arctic Council that a common framework for oil and gas in the Arctic will arise eventually. The scope of it on the other hand, and what it will cover, is still unclear.

4.2.4. Alternative forums

If oil and gas activity is not sufficiently dealt with in the Arctic Council, what would be the appropriate forum? This is a question of relevance, as not everyone has faith in the recent refurbishing of the Arctic Council. Due to the fact that Arctic oil and gas development is a very recent topic of discussion, there has not been much applicable progress in other forums or organizations. It might therefore be of more relevance to elaborate on *possible* alternatives where a development outside of the Arctic Council could take place.

There are only five states which have territorial rights in the Arctic Ocean. This is the logic that has repeatedly been used by Russian officials, who do not necessarily see any need to include more actors in Arctic deliberations.¹⁵⁴ In 2008 these five littoral states met in Greenland to discuss exactly such topics, and produced a document that highlighted the well-functioning cooperation amongst themselves.¹⁵⁵ The increased focus on the Arctic Five has on the other hand not been well received by the US Secretary of State, which prefers to use the Arctic Council.¹⁵⁶ Russia is not adamant to this, but collaboration amongst the Arctic five is still a possibility, as decisions on any further intra-regional development is mainly done by these five states in any case. Also, as the Arctic Council is not mandated to deal with the issue of military security, the Arctic five could turn into something more tangible, tackling both security and oil and gas. However, as the current environment does not seem to promote any immediate change, any chance of the A5 transcending the Arctic Council would most likely be dependent on the Arctic Council's ability to maintain its momentum as regional issues progress further.

Another option is extensive cooperation amongst the Arctic agencies that regulate national offshore drilling. At the moment nine countries (of the Arctic states: Norway, the US and Canada) participate with their offshore upstream oil and gas industry regulators in the International Regulators' Forum (IRF).¹⁵⁷ This forum has stated objectives to promote common safety regimes, but it does not have the appropriate means to enforce or enact any new regional or international framework. The forum is organizing an extraordinary conference in

¹⁵⁴ Chizhov, Vladimir, "EU-Russia summit to focus on 'hard security'". May 14, 2009, 2010, <http://www.euractiv.com/en/priorities/eu-russia-summit-focus-hardsecurity/article-182320>. (Accessed on June 28, 2011).

¹⁵⁵ Arctic Ocean Conference, "The Ilulissat Declaration", 2008.

¹⁵⁶ VOA News, "Clinton Critical of Canada Regarding Arctic Meeting", 30.05.2010, <http://www.voanews.com/english/news/usa/Clinton-Critical-of-Canada-Regarding-Arctic-Meeting-89519132.html>. (Accessed on July 3, 2011).

¹⁵⁷ International Regulators' Forum, "About IRF, Global Offshore Safety", 2010, <http://www.irfoffshoresafety.com/about/>. (Accessed on August 4, 2011).

Norway to tackle the recent crisis that has struck the offshore petroleum industry,¹⁵⁸ but the direct impact on the development of any common Arctic framework is still minimal. At the same time this forum lacks two out of five Arctic littoral states, with special emphasis on Russia. Leaving Russia out of any common framework in the Arctic would naturally reduce its scope dramatically, as Russia has territorial rights to almost half of it. From the previous part on oil and gas activities in this report, it is also apparent that Russia is the largest petroleum producer and has the largest amount of unexploited resources in the Arctic. It therefore dilutes the value of any framework that circumpasses any one of the Arctic littoral states, and especially the largest and most active of them.

4.2.5. Multinational companies and shipping

Another issue of increasing relevance for Arctic regulatory framework is the inclusion of multinational oil and gas companies. These companies operate and drive most of the processes in the remote and often unpopulated areas where exploration or production is, or will be taking place. What is of particular interest is the lack of inclusion of these companies in the Arctic regional discussions. As the Arctic Council is shaping up to be the primary forum for handling non-military Arctic issues, and it produces declarations mandating work on oil spill prevention and preparedness, there is clearly a lack of company presence. Neither Shell, nor Statoil, nor any other company can participate individually in the Arctic Council; and the organization representing them, the International Association for Oil and Gas Producers (OGP), has not yet been granted observer status.

This highlights how the companies are kept out of the debate, even though they are the main drivers of development, the main actors held responsible in the case of an incident, and the main providers of equipment for both oil prevention and oil preparedness. Nowhere is this more apparent than in Alaska. As previously portrayed, the US Coast Guard is not able to sustain any prolonged presence in the Arctic for more than a few days. It neither has any operating bases or sufficient ice-breaking capabilities for the Alaskan Arctic. Shell, as a part of its development of the Chukchi and Beaufort Sea leases, has on the other hand provided extensive capabilities with several new vessels and new technology to be used specifically for oil spill response and preparedness in Arctic conditions. These include the ice-class spill response vessel 'Nanuq' and the 'Arctic Endeavor', an ice strengthened oil spill response barge.¹⁵⁹ Compared to the lack of public investment for oil spill preparedness in the region, the efforts made by the industry seem to warrant at least a seat at the table when Arctic discussions on oil and gas are held.

If the Arctic states are not able to provide sufficient capabilities in the Arctic, or they demand extra measures from the companies to be allowed to operate in the region, the consequence is

¹⁵⁸ Ibid.

¹⁵⁹ Shell.com, "Shell Camden Bay and Chukchi Sea Program Update", March 2011, http://www-static.shell.com/static/usa/downloads/2010/alaska/2011_community_meetings.pdf. (Accessed on August 8, 2011).

that the companies constitute an integral part of any oil spill debate. Also on a larger level, with the idea of developing any common framework, companies that actually deal with the five different regulatory systems should become included in the process. Due to the high costs of operating in the Arctic, most of the companies that are heavily involved in the region are large multinational companies. Developing technology and operational procedures for one Arctic field also prompts involvement in others, as seen with companies like Shell, ConocoPhillips, Statoil and BP, among others. Also Russian companies are venturing out to other Arctic states, with LUKoil applying to operate on Norwegian fields.¹⁶⁰ These companies subsequently operate in almost all the different parts of the Arctic, undoubtedly influencing the development of oil and gas in the Arctic at large.

Related, in 2008 the International Association for Oil and Gas Producers (OGP) formed an Arctic Co-ordination Task Force (ACTF) to deal with industry related issues in the Arctic.¹⁶¹ The goal is to act as a “focal point for technical and advocacy matters related to sustainable development of activities in the Arctic and sub-Arctic environments.”¹⁶² As argued by the industry itself, it is often more effective and profitable to develop one set of company procedures that transcends country borders, instead of having as many operational standards as you have countries to operate in. These regimes then surpass the national regimes and the work done individually in every government, making the industry an indirect driver of a common framework, albeit with profit as their motivational factor. However, common frameworks suited the preferences of the oil and gas industry will only go so far, are not necessarily suited to deal with all the aspects of petroleum activity in the Arctic.

Shipping and maritime transport is another topic closely connected to the development of Arctic oil and gas. Russia has already acquired new ice-capable tankers and Sovcomflot is ordering both LNG-tankers and new icebreakers to be used in the Arctic. Regional and trans-regional shipping will increase in the Arctic as a consequence of increased oil and gas activity. One of the most recognized works of the Arctic Council has in addition been the PAME’s Arctic Marine Shipping Assessment Report from 2009.¹⁶³ It produced far ranging and detailed recommendations for Arctic shipping as a guide for the Arctic Council’s member states. Even though the report is not binding, it provides a holistic view with an in-depth analysis, and it is recognized as a valuable part of the common framework in the Arctic.

Similarly related, any binding regulation on shipping will also influence the regulatory regime for petroleum activity in the Arctic. In 1990 the International Maritime Organization (IMO)

¹⁶⁰ Atle Staalesen, “Lukoil ready for Norwegian shelf”, August 19, 2011, <http://www.barentsobserver.com/lukoil-ready-for-norwegian-shelf.4949769-116321.html>. (Accessed on August 26, 2011).

¹⁶¹ International Organisation of Oil and Gas Producers, “...Arctic oil and gas – some basic facts, <http://www.ogp.org.uk/FactSheets/Resources.pdf>. (Accessed on August 26, 2011).

¹⁶² Royal Dutch Shell, “Shell in the Arctic”, April 2011, http://www-static.shell.com/static/innovation/downloads/arctic/shell_in_the_arctic.pdf. (Accessed on August 26, 2011).

¹⁶³ Arctic Portal, “Arctic Marine Shipping Assessment – AMSA 2009”, <http://www.arcticportal.org/2009amsa/arctic-marine-shipment-assessment-amsa-2009>. (Accessed on August 15, 2011).

adopted the International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC), which entered into force in 1995. The parties to the OPRC are “*required to establish measures for dealing with pollution incidents, either nationally or in co-operation with other countries.*”¹⁶⁴ The Convention is binding, but only provides a very broad set of requirements to its members. In subsequent years the IMO has been active on this topic, establishing regional centers of expertise, funding research and development, and providing comprehensive prescriptions of how to prepare for oil spills.

After the Exxon Valdez accident in 1989, the IMO initiated the work on a code for shipping in polar waters, which eventually led to the IMO Guidelines for ships operating in Arctic ice-covered waters. The Guidelines are, however, not binding, and certain sections are vague and lack concrete application value.¹⁶⁵ Recently there has been work done to turn these Guidelines into a mandatory Polar Code for the Arctic.¹⁶⁶ This work was set to be completed in 2012, but delays have postponed the process further. Such prospects are of relevance to the greater Arctic regulatory regime, but do not constitute any step towards specifically dealing with regulation for Arctic oil and gas. However, should the Arctic states eventually agree on extensive binding regulation for shipping related to oil and gas through the Polar Codes, the IMO-umbrella might be of as much relevance as the Arctic Council.

Large parts of production will be dependent on shipping, making regulation in one part interlinked with the other. There is also the question of how to define new operating equipment in the region, as the development plans on for example the Shtokman field is based on the use of a floating gas-extraction vessel. If such equipment would be defined under the IMO’s Polar Codes, it would give it increasing leverage to control Arctic oil and gas development. The IMO at large might also become a more natural place to develop such measures, as the Polar Codes could be used for further common regulatory developments. On the other hand, the IMO suffers from the same weakness as the Arctic Council, namely the need for unanimous agreement and a tendency to produce non-binding vague recommendations.

¹⁶⁴ International Maritime Organization, “International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC)”, 2011, [http://www.imo.org/about/conventions/listofconventions/pages/international-convention-on-oil-pollution-preparedness,-response-and-co-operation-\(oprc\).aspx](http://www.imo.org/about/conventions/listofconventions/pages/international-convention-on-oil-pollution-preparedness,-response-and-co-operation-(oprc).aspx)[http://www.imo.org/about/conventions/listofconventions/pages/international-convention-on-oil-pollution-preparedness,-response-and-co-operation-\(oprc\).aspx](http://www.imo.org/about/conventions/listofconventions/pages/international-convention-on-oil-pollution-preparedness,-response-and-co-operation-(oprc).aspx). (Accessed on August 4, 2011).

¹⁶⁵ Øystein Jensen, FNI, “The IMO Guidelines for Ships Operating in Arctic Ice-covered Waters”, FNI Report 2/2007, p. 23.

¹⁶⁶ Erik J. Molenaar and Robert Corell, Arctic Transform, “Maritime Shipping”, 2009, <http://arctic-transform.org/download/ShipSum.pdf>. (Accessed on August 26, 2011).

4.3. A regional concern?

As the Arctic is experiencing an influx of commercial interests, the collaboration and cooperation amongst Arctic and non-Arctic states and oil and gas companies is not going to decrease. This section has also repeatedly highlighted how Arctic petroleum activity is becoming scrutinized due to environmental concerns among governments, the general population and the international community. Developing common frameworks for both preparedness and prevention will bring benefits to companies, in the form of regulatory certainty, and for governments in the form of capacity building and legitimization. As mentioned, the general sentiment among the Arctic littoral states is that such a framework will come together eventually; it is just a question of when, through what, and how.

The debate on which a framework is best suited for such cooperation brings up the question of how to define the Arctic and its issues related to petroleum. The use of the IMO also brings up the question of how to define relevant participants for an Arctic regulatory debate, as the IMO involves a wider set of actors compared to the Arctic Council. The Arctic littoral states have kept emphasizing that the Arctic is a regional concern, where they have sovereignty and jurisdiction. In contrast to Antarctica, the Arctic is highly populated and developed, with clearly defined national boundaries and agreements governing its usage. Non-Arctic actors, on the other hand, like China and the European Union in particular, portray the Arctic as a global concern, in need of international collaboration beyond just the Arctic states. That the Arctic climate is influenced by activities outside of the Arctic and that commercial interests in the Arctic originates outside of the Arctic, are arguments being used to legitimize why external actors need to be included in the decision-making processes in the Arctic.

China and the EU, along with Japan, South Korea and Italy, have subsequently applied for observer status to the Arctic Council. Especially Russia and Canada have been skeptical of opening up the Council to too many external interests, and the process is on hold until at least 2013. China currently has the world's largest non-nuclear ice-breaker, the XueLong (Snow Dragon), and has put in an order for another to be built.¹⁶⁷ The Chinese ice-breaker capacity as a non-Arctic state is soon exceeding that of the United States, highlighting how the commercial potential in the region spurs external interest. The European Union is also developing its own Arctic Policy, where the European Commission has been stressing the EU's status as a legitimate Arctic actor. The European Parliament, on the other hand, has been flirting with the idea of a moratorium on resource extraction, while the EU member states are ranging from indifferent to opportunistic.¹⁶⁸

¹⁶⁷ Joseph Spears, AsiaTimes "A Snow Dragon in the Arctic", 08.02.2011, <http://www.atimes.com/atimes/China/MB08Ad01.html>. (Accessed on August 2, 2011).

¹⁶⁸ Countries like Cyprus and Malta has, naturally enough, shown little interest in Arctic matters, while Finland has stated the need to align a European Arctic Policy with its own regional policy interests.

Whatever the stance taken amongst interested actors, the prospects of petroleum activity have spurred interests that lie beyond the Arctic states, and have raised the question of whether the Arctic is a regional or a global concern. Is the Arctic of international significance, and should it subsequently be subject to the international community at large? Such a debate holds relevance for any oil and gas framework in the region, as more interests have to be taken into account. The larger the amount of participating actors, the more difficult it can become to reach any form of agreement related to petroleum activity. In addition, more international focus from actors that do not necessarily understand the complexity of the region, can lead to unexpected results. The EU's ban on seal products from 2009, which completely disregarded the Greenlandic local communities' dependence on such activities, serves as a fitting example.¹⁶⁹

On the international scene the Arctic littoral states seem to be content with the current situation, where they have retained the primacy of Arctic discussions through the use of the Arctic Council. When and how to incorporate new observers that might threaten the interests of the existing members, is a question that has caused some dispute, and will likely continue to do so towards the next Ministerial meeting in 2013. The different Arctic territories are still, nevertheless, under the sovereignty of each state, and subject to the decisions made by that state. With regards to the short term perspective, it seems that any framework for oil and gas prevention has to follow the non-binding line already in place by both the Arctic Council and the IMO. Producing recommendations and best practices does arguably have less effect than binding agreements, but can still serve a distinct purpose, triggering a process of harmonization amongst the Arctic states.

In the long term perspective a few factors may impact the development of a framework for Arctic oil and gas. First, any major incident related to oil and gas activity might spur development into another gear. As highlighted, the US position on Arctic petroleum engagement changed with the Deepwater Horizon accident. Throughout history similar incidents have, sadly enough, caused regulatory frameworks and new procedures to be put in place only *after* the harm has been done. Should something happen in the Arctic, due to lack of safety procedures or comprehensive regulation, the drive for new agreements would probably follow suit. A framework for the region might also develop independently of what is produced between the states in intergovernmental decision-making. With increased regional shipping, and the oil and gas industry developing their individual safety requirements, frameworks of cooperation have the potential to develop outside of the littoral states' domain. Much of the

¹⁶⁹ In 2009 the European Parliament voted to ban imports of seal products to the European Union. The decision caused an uproar in especially Greenland (and Denmark) and Canada, as the most prominent exporters of seal products. Also Norway criticized the EU for this decision. The main point of critique was that the EU (the European Parliament) did not comprehend the importance of seal hunting for the indigenous communities, and because of this lack of comprehension, was able to assert negative influence on economic activity far beyond the borders of the EU. The ban was brought up for the World Trade Organization, where the ruling judged in disfavor of the EU and created an exemption from the ban for Greenlanders, as the import ban violated the rights of the indigenous communities. In addition, it was used as an argument by Canada for vetoing the EU's application to observer status to the Arctic Council in 2009, as an example of how the EU did not have enough understanding of Arctic matters.

projected development is dependent on capacity-building that the governments do not necessarily have the funding or the short term incentives to invest in. This has particularly been the case in Alaska, leading to a situation where multinational companies have a lot of influence as providers of not only petroleum equipment, but also capacities to serve the regional needs in general. The Arctic is generally dominated by a few large oil and gas companies, and how much these are included in the region building will subsequently determine much of the future trajectory of the Arctic.

Whether the emphasis is on environment or on petroleum, it should be clear that the regional capacities need to be improved. A holistic and comprehensive approach needs to be adopted, that includes states, regions, companies and indigenous communities alike. Especially companies seem to have been neglected recently. Although the activities in the Arctic has expanded to a whole new level in the latest years, one can arguably say that compared to most of the other petroleum locations in the world, the Arctic is still a long term project. Cooperation among all the different actors, across horizontal and vertical layers, is nonetheless of outmost importance to both the environment and the people of the Arctic, if Arctic oil and gas activity is to reach the potential and the safety standards so frequently boasted by companies and governments alike.

5. Conclusion

Due to several changing conditions, governments and companies alike are showing an interest in increasing oil and gas activities in the Arctic. With special emphasis on the developments in the US, and on the regional and international debate around a common framework for Arctic oil and gas, the report adds another dimension to an already active Arctic debate.

With regards to Alaska, it is clear that responsibility for the future of oil and gas development lies with the U.S. Government and the state of Alaska. Leasing and approval processes must be streamlined, infrastructure must be developed, and oil spill response plans coordinated between industry and government. Further, multiple parties must be accommodated—government, state, interest groups, locals, and indigenous groups. Both state and federal interests must be weighed, as current processes pit one against the other, particularly in the case of the economic incentives that promote the state of Alaska's natural resource development yet pose environmental concerns for one of the U.S.'s most pristine landscapes. Maintenance of the current TAPS pipeline requires investment and development in order to not only maintain current output, but also accommodate increasing U.S. energy consumption. Investment in U.S. icebreaker capabilities must be improved upon before further offshore drilling or exploration can proceed at a significant level. The U.S., however, must also ratify UNCLOS in order to take part in further Arctic development at the scale it aspires to. For the Arctic at large, this report has highlighted how all of the five littoral states have multiple future development plans for oil and gas. The increase of LNG and shipping, along with leasing conflicts, environmental barriers and pipeline infrastructure, are important aspects found in all of the Arctic littoral states.

The development of an international framework is subsequently dependent on the realization among the Arctic littoral states that the current state of affairs is not suitable for any rapid increase in petroleum activities, without consequently increasing cooperation to deal with the lack of oil spill- and search- and rescue capacities. Such an understanding seems to have dawned through the intensified work in the Arctic Council, with expected progress in the upcoming years under the Swedish Presidency. However, some specific issues need to be resolved in the future, with the question of observer status applicants and the inclusion of multinational companies as the most pressing. External engagement from actors such as China and the EU, along with the relevance of other institutions beyond the Arctic Council, should also prove to be topics of interest as the region progresses. In any scenario, it should be of preference not only to the littoral states, but also to engaged companies and organizations, to further advance frameworks for Arctic regional cooperation.