



Andreas Østhagen

# Arctic oil and gas

## The role of regions

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## SUMMARY

Andreas Østhagen looks at oil and gas development across the North American Arctic coastal waters. How do the interests and positioning of elected regional governments in the Arctic contribute to the overall pace of natural resource development?

Popular discourse, alongside a multitude of research and policy documents, tends to describe recent developments in the Arctic through generalisations. Yet for the thousands of people inhabiting the Arctic Circle – indigenous and non-indigenous – different challenges and opportunities present themselves. They are caused by variations across the Arctic in terms of resource potential, climate and infrastructure. Additionally, the systemic political set-up in each country determines how local and regional levels interact and formulate their respective positions on the development taking place around them. This article examines at the role of the regions and their interests – an important subject given that natural resource development is set to take place in the regions themselves, and under their remit. Of particular interest is offshore petroleum development in North America given that this part of the Arctic has been opened up for exploratory drillings in coastal waters faster than anywhere else.

Initially, higher price levels for oil and gas, in addition to increased accessibility, set the context for increased commercial interests in the region. This, however, does not provide a complete picture. This is evidenced by the fact that the development of different parts of the North American Arctic has progressed at different speeds. Although they share many traits, the processes of developing Arctic oil and gas in the Northwest Territories, Alaska and Greenland are in fact remarkably diverse. It will be argued that decisions concerning how and when to open up new Arctic offshore areas for prospecting and exploratory drilling are as much a consequence of internal political factors arising from the interaction of national and regional levels of power, as to wider international trends. Since the final decision to allow exploratory drillings depends upon a competence struggle between federal and regional governments, understanding the role of regions in the process of opening-up new offshore leases is therefore crucial to understanding Arctic oil and gas development at large.

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## ARCTIC OIL AND GAS

### THE ROLE OF REGIONS

As more actors find themselves engaged in an ever widening debate on developments in the Arctic region, conflicting interests emerge between those intent on making use of the region's resources and those intent on securing its preservation. In this debate, the continued push for oil and gas exploration is proving increasingly contentious, comprising questions of climate change, energy security and the impact on indigenous and local communities.

Consequently, scholars in the fields of political science and economy have taken a particular interest in Arctic oil and gas development, attributing to it rising commodity prices, new technologies and increased accessibility. The depletion of southern oil and gas fields along with the vast resource potential of the Arctic, first famously stated in the 2000 U.S. Geological Survey report, provide additional motivation to explore the region's possibilities.

While these factors help explain some of the background to the increasing commercial presence in the region, they do not provide a complete picture. This is highlighted by the fact that the development of different areas of the Arctic has varied in pace and faced a variety of obstacles. Despite certain common traits, the process of developing Arctic oil and gas has proved diverse. It is therefore surprising that case-specific oil and gas developments have not attracted a greater focus within contemporary Arctic research.

This article is a study of one of the key dimensions influencing case-specific developments, namely the interests of those actually inhabiting the areas where offshore exploitation is being considered. The study asked what role these interests have in the process of developing oil and gas resources in the North American Arctic. Given the democratic governance of

these areas, regional governments are assumed to embody exactly these interests, as they are regularly held accountable by their respective Arctic constituencies. This study's primary task was therefore to analyse how the interests and positioning of elected regional governments in the Arctic contribute to the overall pace of natural resource development.

I will argue that while varying commercial viability can account for differences in petroleum development across the Arctic, regional interests are imperative to the trajectory of development itself. The active participation of regional governments, balanced between internal cohesion in their own regions and interests at the federal/national level, contributes to setting the pace of offshore petroleum development. In turn, the way competence and autonomy over offshore resource management has been distributed determines the systemic and political environment in which decisions to allow drilling can be made.

This article will further attempt to demonstrate how regional interests, through the regional governments operating along these lines, can account for some of the variances in petroleum development throughout the North American Arctic. Understanding how such interests are defined, how they interact with federal/national governments, and how they are restricted by the political framework in each case, is arguably key to understanding Arctic oil and gas development at large. As such, the role of the regions, as expressed in the mode of interaction between regional interests and federal/national policy makers, constitutes an integral factor that deserves to be incorporated in the discourse and study of Arctic oil and gas development.

Offshore development in North America is of particular interest given that this area of the Arc-

tic has seen the fastest expansion of exploratory drilling in coastal waters. Developments off the coast of the North American Arctic have only recently begun to generate results. It is therefore reasonable to expect, in a few years' time, numerous exploratory offshore drilling operations to have been conducted in all three North American Arctic territories. It is also possible that large, commercially viable fields will be discovered, which can only intensify the debate on how to balance economic interests against environmental concerns. All the North American Arctic territories are additionally part of larger democratic systems, making the role and interests of the regional governments comparable. Understanding the balance of the competing interests engaged in the matter – with a particular focus on the role of regions – can shed new light on how decisions concerning oil and gas development are made.

This article aspires to re-contextualise the debate about Arctic oil and gas by examining three on-going offshore oil and gas cases: (1) the Chukchi Sea off Alaska in the United States; (2) the Beaufort Sea off the Northwest Territories in Canada; and (3) the waters off Greenland as part of the realm of Denmark. These cases have all generated a certain amount of controversy, pitting environmental interests against commercial. They also serve as prime examples of how contemporary Arctic oil and gas development has unfolded, while providing an indication of how rapidly it is likely to expand in the future. It is therefore the intention of this article to contribute to a realignment in Arctic research – away from the sweeping generalisations that dominate much of the current discourse – to-

wards research that is primarily concerned with the different aspects of specific development. In turn, such research should aspire to be more broadly applicable, beyond the Arctic, providing new scholarly insights with a wider scope.

The Arctic is defined as everything above the Arctic Circle, at 66° 33' 44" north of the Equator. The North American Arctic encompasses Alaska in the United States; Yukon, the Northwest Territories and Nunavut in Canada; and Greenland, which is geographically North American, but politically part of the realm of Denmark. Drawing on a qualitative analysis of interviews, policy documents, and public and academic writings on the topic, this article is one of a growing number of publications to focus on developments in the Arctic. The study is part of a larger Arctic research programme, 'Geopolitics in the High North', the lead partner of which is the Norwegian Institute for Defence Studies (IFS).

The following sections will first explain the development of Arctic oil and gas in an international context, and discuss the factors that have contributed to increased interest amongst oil and gas companies in recent years. Second, the three cases of Arctic offshore petroleum development – (1) the Chukchi Sea off Alaska; (2) the Beaufort Sea off the Northwest Territories; and (3) the waters off Greenland – will be examined with a view to comparing their different developmental traits. This comparison will enable us in the third section to assess the role of the regions in economic petroleum development itself, and provide a fuller understanding of oil and gas activities in the Arctic.

## THE INTERNATIONAL CONTEXT

From a commercial point of view, petroleum development is initially dependent on two factors: (1) the cost of retrieving resources from their source; and (2) the price of these resources as they reach their markets. In the past cen-

tury, both factors have fluctuated a great deal, causing commercial interest in the Arctic to fluctuate as well. Low oil prices, a harsh climate and challenges related to transportation hindered the development of the region in the early

Twentieth century, and it was not until after World War II that some petroleum basins were exploited for export purposes. The growing demand for petroleum in the post-war period and national energy security concerns prompted the Canadian and American governments to offer incentives to companies to explore their respective Arctic regions (Emmerson 2010, 227).

At first, developments in Alaska and the Northwest Territories focused on onshore resources because they were easily recoverable; indeed, in some cases, oil was literally seeping out of the ground. When the first oil crisis, in 1973, caused prices to spike, the assumed potential of offshore operations in the Arctic attracted the interest of companies and governments alike. Lease sales were held for different parts of offshore Canada and the US, with the governments in Ottawa and Washington going so far as to offer subsidies to promote activity (Emmerson 2010, 227). The findings, however, did not warrant continued development of offshore drilling – especially as oil prices began to retreat in the mid-80s. Coupled with rising cost estimates on the infrastructure needed to transport the resources southwards, the offshore fields were abandoned. The resulting situation throughout the 70s and 80s was that onshore Alaska was the only part of the North American Arctic where oil and gas were produced in sufficient quantities to render export a feasible option. Yet the region was thought to contain a significant amount of undiscovered hydrocarbon resources.

### RENEWED INTEREST

At the turn of the millennium, the combination of new technology, sustained high commodity prices and decline in output from the traditional petroleum regions again made the Arctic an interesting place for companies looking for new opportunities. The increased focus on the Arctic since 2000, amongst media, industry, academia and policy makers alike, is arguably a consequence of the influx of such interested parties to this part of the world. The following three sections will highlight some of the factors behind this influx of oil companies.

### *Resource access and appraisal*

The accelerated melting of sea ice is not only creating concern about the results of a changing climate, it is providing opportunities for economic development. On September 18, 2012, the summer sea ice coverage reached an all-time low, breaking the 4.17 million square kilometre record of 2007, when it only covered 3.41 million square kilometres (Vidal 2012). The retreating ice sheet is not only causing alarm, it provides an opportunity to extend the summer drilling season. In 2000, the US Geological Survey (USGS) published a report on global oil and gas resources (USGS 2000). It was interpreted as claiming that 25 per cent of the world's remaining undiscovered resources were in the Arctic. The USGS, along with other agencies, has since updated its assessments. The new estimates were published in the 2008 Circum-Arctic Resource Appraisal (USGS 2008). The mean value for recoverable oil resources in the Arctic is stated as nearly 90 billion barrels of oil, 1,669 trillion cubic feet of natural gas and 44 billion barrels of natural gas liquids (*ibid.*). At the time of the report, the USGS estimated that these resources comprised about 13 per cent of the undiscovered recoverable conventional oil resources in the world and 30 per cent of the undiscovered recoverable conventional natural gas resources, with 80 per cent of the resources found offshore (*ibid.*, 3). The word “undiscovered” was somewhat neglected in the public discourse on the Arctic resources and their potential; observers were now saying that around a quarter of the remaining oil and gas in the world was to be found in the Arctic (Burkeman 2008; Klare 2012). Irrespective of the accuracy of these assessments, or the rhetoric surrounding the expected resource potential, they undoubtedly helped spark an interest in Arctic hydrocarbons amongst companies and politicians located both inside and beyond the Arctic Circle.

### *Price rise*

Any commercial Arctic petroleum development is also inherently dependent on the profitability, which in turn depends on oil and gas price levels. Oil prices started to rise in 2000 due to unrest and uncertainty in parts of the oil-producing world. From an annual average of approximately USD12 per barrel of imported crude in 1998, prices rose to ap-

proximately USD50 in 2005 before peaking at an annual average of almost USD100 in 2008. Price levels in 2011 and 2012 remained high, breaching the USD100-barrier on several occasions. The International Energy Agency (IEA) also argues that the cost of Arctic oil production is very high, ranging between USD40 and USD100 per barrel (Diczfalusy 2012). A sustained high oil price is therefore one of the main determinants of the decision to invest in production of Arctic oil resources.

The Henry Hub natural gas spot price for the North American market has also seen a remarkable shift the last decade, albeit in the opposite direction of the oil price curve. Following relatively low levels at the end of the 1990s, at USD2.36 per MMBtu of natural gas in December 1999, prices rose and alternated between USD4.47 and USD13.42 from late 2002 to 2009 (EIA 2013). From 2010, however, after a rather sudden boom in domestic shale gas production, the United States embarked on a policy of self-sufficiency in gas. Price levels dropped accordingly. Between 2010 and 2011, prices lay around USD4, while in 2012 they hung between USD1.95 (April) and USD3.54 (December) (EIA 2013). This has led some to question the commercial viability of North American gas projects in the Arctic, where the cost of extraction and current low price levels will often make activity unfeasible.

### THREE CASES OF ARCTIC OFFSHORE DEVELOPMENT

The factors outlined above will set the tone for future Arctic oil and gas developments in North America. Increased interest in government and industry is a natural result of these factors, and is in line with the initial observation that any petroleum activity comes as a consequence of the cost of extraction and the market price of the commodity. However, Arctic oil and gas development is by no means uniform or coherent, as the differences in Arctic regions' approach to, and emphasis on, offshore petroleum industry show. The history and current status of three specific cases in the North American Arctic will now be briefly explored, providing this study with the em-

#### *Technological advancement*

Considerable technological advances have been made in the twenty odd years since the last offshore Arctic drilling boom took place. Oil companies' continued drive to expand operations and explore both the North Sea and the Gulf of Mexico has led to new equipment and knowledge that can be applied to Arctic drilling (Klare 2012, 44). The first Norwegian offshore gas production in the Arctic came at the Snøhvit field, which was the first operation to make use of subsea installations in Norway (Statoil 2009). Future offshore oil production at the Goliat field in Northern Norway, or the Prirazlomnoye field in North-West Russia, depend on state of the art drilling platforms able to withstand drifting sea ice throughout the year (Glæserud 2012). Shell has also been active at the Sakhalin oil field in sub-Arctic Russia, operating in Arctic conditions (Shell U.S. 2010). Technological advances and operating experience have enabled the oil companies to develop similar equipment for the North American Arctic, where sea ice constitutes one of the main challenges. Rising oil and gas prices also provide an incentive to invest in research and technological development, spurring companies onwards.

In sum, the expected increase in worldwide energy demand, Arctic resource appraisals, oil and gas price levels and new technology constitute the explanatory factors when assessing what hinders and drives Arctic petroleum development.

pirical data from which the role of regional interests can be identified and analysed. Each of the three cases will be outlined chronologically, with a view to highlighting the most engaged actors and interests.

#### UNITED STATES: ALASKA AND THE CHUKCHI SEA

##### *Historical petroleum development*

The first significant petroleum discovery in the Alaskan Arctic came onshore in 1968 at the North Slope, in what is now known as the Prudhoe Bay oil field. In combination with extensive onshore development on the North Slope in the 70s and rising



oil prices worldwide, the US government encouraged several exploratory drillings offshore in the Beaufort Sea in the 70s and 80s, to be followed in the Chukchi Sea in late 80s and early 90s. As the structural bed of the Chukchi Sea is similar to that of the North Slope, it is expected to contain a vast amount of oil reserves (USGS 2008). They could be connected to the Trans Alaskan Pipeline System (TAPS), which was completed in 1977 to transport oil from the North Slope down to the port of Valdez in the south of Alaska.

Lease sales for the area, specifically sales 106 and 126, were carried out in 1988 and 1991 respectively. Shell drilled four out of the five exploratory wells that came out of these lease sales, but the wells were capped and abandoned as prices fell in the early 90s and findings did not warrant commercial activity (Shell International 2012). Drilling in the area, however, is limited to a few months late in the summer when the sea ice has retreated sufficiently. The leases eventually expired, and Chukchi Sea petroleum development was put on hold. In 1989, the tanker Exxon Valdez grounded off the coast of Alaska on its way to California. The environmental consequences of that incident have frequently been cited by NGOs and others opposed to Arctic drilling to remind the American public of the risk of Arctic petroleum operations.

#### *New interest in the Chukchi Sea*

The decision to reopen the Chukchi Sea for lease sales was made during George W. Bush's first presidential term, over a decade after the previous unsuccessful drillings. For operations inside three nautical miles from land, the State of Alaska is in charge of opening up areas for petroleum activity and conducting lease sales. The Chukchi Sea, however, is located on the outer continental shelf, relatively far from Alaskan onshore territory. Chukchi oil and gas development therefore falls under the Department of Interior's (DoI) competence, as they are empowered under the Outer Continental Shelf Lands Act to manage petroleum resource development located on the shelf.

For any area to be opened up for public lease sale, it has to be included in the running 'Five Year

Outer Continental Shelf (OCS) Oil and Gas Leasing Program', which sets out a strategy for the DoI's development of the natural resources of the US outer continental shelf (BOEM 2012b). When the Chukchi Sea received renewed interest the Minerals Management Service (MMS), a bureau under the DoI, was responsible for managing these resources and enacting the five-year programme. The decision to include the Chukchi Sea in the MMS five-year programme for 2002–2007, made by the Secretary of the Interior Gale A. Norton and the Bush administration, was seen by some to be a political decision to appease industry interests (McMillan, 2006; Wallsten & Hamburger 2006). It was announced in 2005, as the MMS "received broader industry interest in the Chukchi Sea planning area than expected" (Goll 2005).

Representing the regional interests of the State of Alaska, Governor Sarah Palin was vocal in 2008 and 2009, emphasising the unlocked resource potential in the Chukchi Sea. The succeeding consecutive regional governments have exhibited a strong interest in offshore development, acting as a supporter and facilitator of continued oil and gas exploration in the Arctic (Knudson 2012). This comes as a consequence of the State's dependence on revenues from the pipeline system and the companies operating in the region (ibid.). The TAPS pipeline from the North Slope to Valdez also constitutes a commercial interest in its own right, as declining throughput has caused the operator, Alyeska Pipeline, to announce that new oil fields in production will be essential to keep the pipeline running as it is reaching its lower threshold of operations (Bailey 2012). As the throughput of TAPS has declined, Alaskan Governors and Senators from both parties have argued for increased Arctic offshore development to sustain the pipeline operation (ibid.). Arguments concerning energy security and maintaining growth and employment in Alaska are consequently used to influence federal decision makers to open up more areas for lease sales.

At the US federal level, the motivation to open up for lease sales stemmed from a desire in the administration to decrease dependence on foreign oil imports as prices rose internationally (U.S. Gov-

ernment 2012). The Chukchi Sea lease sale was eventually postponed to 2008, to be included in the 2007–2012 programme, as additional environmental assessments were needed. The lease sale, termed 193, became the most profitable lease sale ever conducted in Alaska, providing a total revenue of over USD2.6 billion (DOE/NETL 2009). In particular Shell, but also Statoil and ConocoPhillips, acquired a large number of the available leases and started planning exploratory drillings. However, as soon as the leases were bought in 2008, different environmental NGOs and indigenous groups mobilised against the government claiming that there had not been enough environmental consideration, with a strong emphasis on the potential impact on marine life (Race 2011). A coalition of such interest groups appealed to the U.S. District Court of Alaska, which halted any subsequent exploratory drilling in the summer season of 2009.

#### *The Macondo accident and future prospects*

In the immediate aftermath of the explosion on the Deepwater Horizon rig in April 2010, the Obama administration imposed a six-month ban on any new offshore drilling in US waters. The oil spill in the Gulf of Mexico led to intense questioning of the industry's safety regulations and ability to operate in fragile environments (National Commission 2011). The Department of Interior, and in particular the MMS, received substantial criticism and underwent a restructure aimed at separating the different functions into new independent bureaus. Initially, the Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE) was created, before it later split into the Bureau of Ocean Energy Management (BOEM) and the Bureau of Safety and Environmental Enforcement (BSEE). Of these bureaus, BOEM is in charge of lease sales and opening up of new areas to offshore oil and gas development, while BSEE approves drilling plans and supervises the activities. However, the bureaus are still under the umbrella of the Department of Interior and closely linked with its political leadership (Lew 2012).

The ban on new offshore drilling consequently prevented any further development in the Chukchi Sea in the summer of 2010. BOEM decided to re-affirm

the lease sale with a new environmental supplemental study in 2011, prompting Shell to submit their exploratory drilling plans the same year (Race 2011). Shell went public moreover in 2011, demanding a clearer set of regulatory rules for developing their leases in the Chukchi Sea (Slaiby 2012). In response, the Obama administration decided to establish an inter-agency working group on coordination of domestic energy development and permitting in Alaska in July 2011, headed by US Deputy Secretary of the Interior David J. Hayes (The White House 2011). After being halted in the summer of 2011 due to missing governmental permits, Shell was set to go for the 2012 drilling season.

Although there were numerous delays and significant engagement amongst certain NGOs, Shell managed to acquire final approval from BSEE on August 30 and started drilling its first exploratory well in the Burger prospect on September 8, 2012 (Cavnar 2012). Shell in particular perceives there to be vast economic potential under the seabed, which is essentially a continuation of the North Slope in Alaska (USGS 2008). The company has undoubtedly developed a unique knowledge of the area, which can explain why it has spent more than USD5 billion acquiring and developing offshore leases from the 2008 lease sale (Chazan 2013). However, interrupted by technical damage, ice presence and local whaling, the drilling was ultimately postponed, and Shell has decided to not return to the area in 2013 (Bowers 2012; Broder 2013). ConocoPhillips and Statoil followed closely behind, seeing Shell's struggle for exploratory drilling approval as the litmus test for the region (U.S. Government 2012).

To summarise, although the Chukchi Sea has been developed over a long time frame, it is clear that commercial interests stemming from both drilling companies, like Shell, and from interests locally onshore, are driving development in an area that is naturally difficult to operate in. The State of Alaska itself has been an active promoter of continued petroleum development in the area, having clear interests in these activities but not the decision-making authority to allow drilling in the Chukchi Sea.

## CANADA: NORTHWEST TERRITORIES AND BEAUFORT SEA

### *Historical petroleum development*

The development of Canadian Arctic oil and gas started even earlier than the Alaskan case following the discovery in 1920 of the Norman Wells field on the Mackenzie River in the Northwest Territories. Due to the high costs of extraction and transportation, production from the field was sporadic and at low volumes for local consumption until the Canol pipeline was built in collaboration with the US to supply oil to Alaska during the Second World War (Emmerson 2010, 175). When the pipeline was closed down in 1945, production from the field again became a local affair. The Prudhoe Bay discovery in Alaska intensified the search in Canada. Oil and gas fields onshore in the Mackenzie Delta in the Northwest Territories were discovered, while oil was found in the Bent Horn field on Cameron Island in 1974 in the territory of Nunavut. The latter field led to production from 1985 until 1996, shipping a total of 2.8 million barrels through the Northwest Passage for domestic consumption in Canada (Russum 2012).

In this period, offshore exploration in the Beaufort Sea also intensified. Altogether, 86 wells were drilled from 1972 to 1989; an impressive amount given the harsh conditions and uncertain commercial prospects of the area. These drillings were partly spurred by the lower tax rates for companies venturing up north (Matthews 2011). Transportation of any production became an issue, though the idea of a gas pipeline stretching down south from the Mackenzie Delta was ultimately rejected, as local concerns and limited commercial feasibility hindered the process (ibid.). Although several Canadian companies had been active in promoting the petroleum potential of the Beaufort Sea, the Arctic was mostly abandoned as prices fell in the mid-80s.

### *New interest in the Beaufort Sea*

As with the Chukchi Sea in Alaska, rising price levels, new technology and positive resource appraisals again made the Canadian Arctic interesting for oil and gas multinationals. The USGS expects the Canadian basin of the Beaufort Sea to contain up to 10 billion barrels of oil and 56,000 billion cubic

feet of natural gas (USGS 2008). While there are ongoing debates surrounding the transfer of regional governance to the Territories, the federal government currently remains in control of developments both onshore and offshore in the Canadian North (Ibbitson 2013). The Department for Aboriginal Affairs and Northern Development Canada (AANDC) is in charge of conducting outer continental shelf lease sales in this region. The department subsequently manages any lease sale on the continental shelf stretching out from the Northwest Territories. In addition, the AAND is empowered with the management of onshore petroleum development in the Canadian Arctic.

Lease sales are conducted on an annual basis, if sufficient interest is declared by the relevant companies, and therefore not subject to the same five-year planning as in the US. Any subsequent approval of exploratory drilling plans is to be made by the semi-independent National Energy Board (NEB), which covers the Arctic and a small portion of western Canada. The Board's final recommendation is subject to the nationwide body National Resources Canada, which is the governmental branch responsible for managing Canada's natural resources at the federal level. The NEB estimates that 'approximately 35% of Canada's remaining marketable resources of natural gas and 37% of remaining recoverable crude oil is in Northern Canada' (AANDC 2012b).

However, at the regional level, the Northwest Territories' interests in offshore development of the Beaufort Sea do not constitute a particularly strong driver in themselves. The region is not heavily dependent on revenue from oil and gas given that current production levels remain low and mainly geared to local consumption (Government of the Northwest Territories 2012). Additionally, local communities in the region have focused extensively on developing mineral deposits instead of oil and gas (Northwest Territories 2012). With the success of the diamond mines in the Northwest Territories, sentiment tends to favour mineral extraction, which is perceived to provide greater direct benefits in terms of revenue and labour (Chenier 2012). The federal government in Ottawa has also seemed somewhat reluctant in promoting its Arctic offshore resource potential,

given its uncertainty and growing production levels elsewhere in Canada (ibid.).

Pretty much driven by a rising commercial interest, the first lease sale rounds in the Beaufort Sea area after the millennium were conducted in 2002 and 2004. In 2007, Imperial Oil won the bid for a large lease with a project proposal of CAD585 million. BP did the same in 2008, and Chevron followed suit in 2010. During this time, Chevron, Imperial and MGM conducted exploratory drillings onshore in the area, although the results mainly consisted of relatively small gas fields (AANDC 2012a).

#### *Arctic Offshore Review and future prospects*

As the incident in the Gulf of Mexico progressed, Canadian authorities imposed a halt on all further Arctic drilling until the NEB had conducted an Arctic offshore drilling review; no drilling would take place until at least 2014 (ibid.). After intensive studies the Board released its review in December 2011, concluding that although it would be possible to commence drilling in the Arctic, any company would have to prove to have adequate safety measures with inclusion of the same season relief well policy (NEB 2012). Although no offshore exploratory drilling has commenced since the NEB put forward its new filing requirements, both the Board and the AAND expect submissions of exploration plans from the companies that acquired leases in 2008 and onwards (Chenier 2012). As the Canadian Beaufort Sea is expected to contain mainly natural gas deposits, any development would also depend on finding viable options for transportation, since Canada never built a pipeline equivalent to the TAPS in Alaska (O'Malley 2011). Canada's Mackenzie Valley Pipeline project faces political challenges and acts as barrier to investments in production. In an echo of other Arctic projects, permits are still pending and LNG facilities onshore have been mentioned as an alternative.

To summarise, while commercial petroleum interests undoubtedly exist in the region, there are uncertainties related to governmental approval and the political framework in which the activities will proceed. In the near future, however, exploratory drilling plans are expected to be submitted by companies

holding leases. The development of the region thereafter will depend largely on the commercial viability of the wells, on infrastructure and on public permits. This is especially amplified by the lack of regional and/or federal interests pushing for offshore development, as the perceived gains of petroleum development seem few and far between.

## GREENLAND AND DENMARK

### *Historical petroleum development*

Greenland, as a part of the Kingdom of Denmark, was initially thought to have petroleum resources in the waters surrounding the island after seismic studies were conducted in the early 70s. As with Canada and the US, the sudden rise in prices in 1973 sparked an interest in the region's offshore petroleum potential. Leases were offered in 1975 to companies like Mobil, Amoco, Chevron and Total (Hammeken-Holm 2012b). Drilling commenced in 1976 and 1977, with a total of five wells, all deemed dry. Later studies undertaken by the Geological Survey of Denmark and Greenland in 1997 discovered that these wells had been abandoned prematurely without complete knowledge of the resource potential (Pulvertaft 1997). In 2000, however, a sixth well drilled by Statoil also proved dry (Christiansen et al. 2001).

### *New interest in offshore Greenland*

After acquiring Home Rule in 1979, and leaving the European Union (the then European Community - EC) in 1985, natural resources in Greenland remained a policy field managed by the Danish government in Copenhagen. The Greenlandic self-government also maintained ties with the EU, with the status as Overseas Territory (European Commission 2012). However, as both petroleum and mineral resources gained attention in the 90s, the Bureau of Minerals and Petroleum (BMP) was established in the Greenlandic capital of Nuuk. In the USGS's appraisal of 2008, the Greenlandic basin is estimated to contain approximately 17 billion barrels of oil and 138,000 billion cubic feet of natural gas (USGS 2008). This area also includes, however, parts of East Canadian waters and is only a rough estimate.

The Greenlandic self-government, in collaboration with Copenhagen, offered up parts of the sea west of Greenland for petroleum exploration in 2002 and 2004, resulting in only minor bids by small companies. In 2006, on the other hand, the oil and gas industry had developed an interest in the region and the two lease sales that year resulted in a total of seven licences awarded to companies such as Statoil, DONG, Husky, Chevron, ExxonMobil and Cairn Energy (BMP 2012). Cairn was also granted licences in an open door lease sale in 2008. In addition, the hundred per cent Greenlandic state-owned company NUNAOIL has a natural right to 12.5 per cent of every lease granted, ensuring local Greenlandic participation in every project (ibid.).

The Greenlandic self-government also acts as one of the key drivers in the development and management of offshore lease sales. At present, Greenland depends heavily on funding from Denmark, amounting to over DKK2,800 million every year, with an additional DKK320 million acquired from an annual European Union grant for fishing rights (Rasmussen 2008). The Greenlandic government has consequently been very active in promoting the hydrocarbon potential in its region with a view to increased economic independence from Denmark (Hammeken-Holm 2012b). It has also wanted to attract international companies that could supplement the local NUNAOIL and provide capital and experience. Initially, the multinational energy companies were reluctant and sceptical, perceiving the risks to be too high, though this changed with the lease sale rounds in 2006 (ibid.).

#### *Self-governance and future prospects*

In a 2008 referendum, the Greenlandic people favoured increased independence from Denmark. The result was greater self-government, awarded to Greenland on June 21, 2009. This included the management of natural resources, enabling the self-government and the BMP to manage their petroleum resources independently of Denmark (Hammeken-Holm 2012a). Simultaneously, licenses were offered in the Baffin Bay area, in waters bordering Canada. By 2010, 17 applications had been received and seven licenses awarded to many of the same com-

panies listed earlier, in addition to others like Shell and ConocoPhillips. Based on the earlier acquired licences, Scottish Cairn Energy conducted a total of eight exploratory drillings at several sites in the summers of 2010 and 2011 off the coast of Greenland.

Although Cairn's drillings did not find significant deposits, both the Greenlandic government and other heavily invested oil companies like Shell, Husky, Dong, and Statoil are intent on commencing further exploratory drillings based on seismic studies further north along the west coast (ibid.). In contrast to the other two regions in this study, Greenland has not had extensive experience with oil and gas production. As such, companies willing to take the initial risk, like Cairn Energy, undoubtedly play a crucial role in leading the way for further petroleum activity along the coast. Also, where oil findings seems the most likely to be developed, there is currently no form of oil or gas transportation infrastructure, and any product would need to be exported to the international market for sale.

In contrast to the Arctic parts of Canada and Alaska, on the other hand, Greenland's location provides easy access to North American and/or European markets for shipments of oil. There are signs, however, that offshore petroleum activity might not constitute the economic boom one expects in Greenland, with regional focus shifting increasingly towards the minerals sector (Acher & Fraende 2012). The self-government has also been forced to manage the interests of external actors like Greenpeace and the European Parliament, which criticise Greenland for recklessly allowing Arctic offshore drilling.

To summarise, in Greenland, where exploratory drillings have already been conducted, multiple companies are engaged to exploit the expected offshore potential on both the east and the west coast. The regional interests stemming from the Greenlandic self-government, in terms of aspiring towards economic independence, also drive the government further than one has observed in Alaska or the Northwest Territories. However, the end goal is economic independence, not necessarily petroleum development per se.

### THREE CASES – SUMMARY TABLE

The table beneath summarises the main characteristics of the three cases outlined above. The chronological study of the cases has helped to identify: (1) historic offshore activity in the area; (2) what constitutes the regional and federal levels; (3) where the locus of decision-making capacity for lease sales in the respective area is located; (4) what interests the regions themselves have in this development; (5) and the current status of development in each case.

The first thing to note is that commercial interests are present in each case – a constant factor determining the comparability of the cases. Offshore development across the North American Arctic also faces many of the same technological and climatic

challenges. However, as highlighted in table 1, these three cases of Arctic offshore development are marked by a relatively varied set of characteristics. In particular, the systemic set-up differs greatly across each case. Drawing on the distinctions summarised in the table above, we can now turn to an analysis of the role of regional interests, as represented by the regional governments themselves. The central role played by these interests in developing offshore oil and gas in their respective Arctic territories will be outlined in the following sections. This in turn will help us conceptualise and explain why the three cases vary to the extent they do, while also allowing us to gain a deeper understanding of the different factors that influence development processes, and therefore Arctic oil and gas developments at large.

### THE REGIONAL INTEREST DIMENSION

As demonstrated by the three cases development reviewed in this study, commercial prospects are a given for any exploratory drilling discussion to occur.

The level of interest, in combination with commercial viability, is a strong determinant of the development pace. However, although commercial factors

TABLE 1: OVERVIEW OF THE THREE CASES

	CHUKCHI SEA, US	BEAUFORT SEA, CANADA	OFFSHORE GREENLAND, DENMARK
1 - Historic activity	1980s: 5 wells	1970-1980s: 86 wells	1970s & 2000: 5 + 1 wells
2 - Regional/federal level	State of Alaska/ United States	The Northwest Territories/ Canada	Greenland/ Denmark/ European Union
3 - Locus of Decision-Making	Department of Interior (DoI), Federal Government	Aboriginal Affairs and Northern Development Canada (AANDC), Federal Government	Bureau of Minerals and Petroleum (BMP), Self-Government (of Greenland)
4 - Regional interests	Strong interest in development.  High dependency on petroleum activity/ income.	Weak interest in development.  Low dependency rate.	Strong interests in development.  Low dependency rate, but great need for economic activities to provide regional income.
5 - Current status	Pre-exploratory drillings.	Awaiting applications for exploratory drillings.	Exploratory drillings commenced.

determine much of the development trajectory in all of the respective cases, they do not provide a complete picture, as the next sections will attempt to outline. Looking at the cases in question, it appears that commercial viability, resource potential and cost of extraction cannot adequately explain why offshore development has progressed as it has.

The basic motivation for all the regional governments studied here is a desire to promote economic development. Whether the goal is economic independence or sustaining high levels of tax revenue, the end result is the same, namely that in all three cases the regional governments are in favour of oil and gas activity. How strongly these interests are defined, however, and how the regions promote their interests in interaction with the federal/national governments – which are not always as pro-development as they are themselves – arguably determine a great portion of the actual pace of oil and gas development in the North American Arctic. In sum, the regions must first form an interest before facing varying degrees of constraint on their ability to influence decisions and policies in their favour. Based on the three cases in this study, the relationship between regional interests and their respective systemic constraints can help us understand this important dimension of Arctic oil and gas development.

### DEFINING A REGIONAL INTEREST

First, the regions themselves need to have a clearly defined interest which they promote and act on as developments proceed. The regions' preferences are naturally a product of their own dependence on oil and gas revenue to support local and regional economies. Perceived future gains from such activities inevitably also come into consideration. Internal cohesion, however, is often lacking, and although all these regions favour oil and gas activities, their commitment and/or ability to promote this activity is a variable quantity.

The Alaskan State government is undoubtedly interested in developing any commercially viable fields that can feed into a shrinking petro-economy, with declining levels of onshore production (Knudson 2012). The threat of losing jobs as the supply indus-

try and onshore operators scale down their activities serves as another incentive for regional governments intent on re-election. In addition, the operator of the Trans-Alaskan Pipeline System (TAPS), Alyeska, has, together with Shell, actively supported the efforts of the State government in their campaign to convince the federal government of the need for Arctic offshore development.

In the Northwest Territories, regional interests are less clearly defined than those of their American counterpart to the west. Given the smaller population and somewhat less developed infrastructure for petroleum activity, the promotion of regional interests is also at a very different level than in Alaska. Also, due to few petroleum producing activities, the regional economy does not depend as much on maintaining high production levels. Consecutive regional governments have nevertheless been strong supporters of increased exploration activity in the Mackenzie delta and the Beaufort Sea, albeit without having the appropriate tools and ability to enforce progress, a point to which we will return in the following sections (Northwest Territories 2012).

In Greenland, on the other hand, interests in oil and gas development are directly linked to the regional aspirations for wider economic independence from Denmark. As already mentioned, economic dependency through transfers from both the EU and Copenhagen has sparked a quest to find new livelihoods that can help Greenland deal with its steadily increasing public expenses. Some have also argued that further gains in self-determination should eventually lead complete independence. Its interest in oil and gas activity is therefore a natural consequence of the self-government's economic aspirations and wish to make Greenland more assertive as the Arctic becomes an increasingly urgent topic on the international agenda.

### STRUGGLING WITH INTERNAL COHESION AND PUBLIC OPINION

In addition to the regional interests described above, each of the three cases reveal a particular set of challenges that can serve to hinder the development of any oil and gas fields. Of particular importance are

the dynamics between NGOs and the public and private actors, in addition to the role of indigenous communities, both locally and nationally. These dynamics define the respective environments in which regional interests must operate to promote their policies.

#### *The State of Alaska*

Alaskan development is arguably the most contentious in this study. Popular engagement through litigation, which has halted the process of allowing exploratory drilling licences, has been intense in the State of Alaska after the Chukchi Sea lease sale in 2008. As the multiple lawsuits filed by local indigenous groups and NGOs show, there is by no means consensus in the State itself. People's resentment stems to a large degree from a lack of cohesion amongst the indigenous population inhabiting the northern parts of Alaska (ibid.). There are almost as many viewpoints about offshore development as there are communities, with the most negative interest groups joining forces with NGOs to contend government decisions that favour oil companies (Shell International 2012; U.S. Government 2012).

National popular opinion in the United States is no easier to deal with. A lawsuit in May 2012 against the federal government managed to attract 1 million signatories across the US. Daily news coverage from different interest groups has continuously criticised the federal government's decision to uphold the lease sale and award Shell the permits it needed to commence drilling in 2012 (Greenpeace 2012). Altogether, the civic environment is highly active, but also highly divergent. This has led to a situation in which the State itself, through successive regional governments, has lobbied the federal government proactively to go along with offshore development, while regional environmental groups and local communities attempt to stem these efforts through litigation and mass protests.

#### *The Northwest Territories*

In Canada, the popular environment has so far proved less volatile than in the US. Continuous dialogue with the Northwest Territory, indigenous peoples and federal government has led, according to

the Canadian government, to less tension and greater consensus (Chenier 2012). But the lower level of tension could arguably also be a natural consequence of a slower development pace. A more geographically divided and less politicised governmental structure is another contributing factor. Conducting lease sales only when there is stated interest, and using a broad call for opinion amongst local and regional populations, arguably make the process less volatile (Northwest Territories 2012). Popular resentment against Arctic drilling certainly exists, but only the future will indicate whether awarding companies final drilling permits will be as controversial as in the US. Another factor of importance when considering Arctic industrial development in Canada is the role of the Arctic in society at large. Whereas the Arctic in the US is perceived as somewhat removed and distant from the lower 48, the Arctic is a powerful factor in defining national identity in Canada (Williams 2011).

#### *Greenland*

In contrast to the other two regions, the indigenous peoples of Greenland, the Inuit, comprise the majority of the population in the region (Hammeken-Holm 2012a). As such, the government effectively represents the interests of the majority of the indigenous population (ibid.). With the regional government also deciding whether to open up for oil and gas development, Greenland succeeds in bypassing some of the internal disputes in the other two cases, although tension has been felt between some of the smaller traditional communities and the capital Nuuk. Concern about petroleum developments has additionally been raised by the Inuit Circumpolar Council (ICC), representing the Inuit population living in Canada, Alaska, Russia and Greenland (ICC 2012). The ICC has not been directly critical of oil and gas developments in Greenland, but requested broader engagement with every layer of society and a more balanced approach towards the environment (ibid.).

In sum, all the regional governments have a stated interest in offshore petroleum activity in their region – as long as it provides economic benefits to the region itself. Internal cohesion, however, when exter-



nalising these interests, varies amongst these three parts of the North American Arctic. Such constraints on the political environment consequently influence how easily regional interests can be transformed into corresponding policies. The second influential factor is the systemic constraints, in terms of shared decision-making between the regional and the federal levels, and the interests of the federal level itself.

### SYSTEMIC CONSTRAINTS AND FEDERAL/NATIONAL INTERESTS

The impact of regional interests is a function of how strongly these interests are enforced in the process of opening up areas for oil and gas activity. This relates to the unique and systemic context in which the regional governments operate – a context that in turn determines how regional interests are allowed to influence the decision-making process. First, the devolved decision-making powers and degrees of autonomy vary considerably throughout the regions in question. Second, in all three cases, regional interests are balanced against federal/national approval of Arctic drilling. Federal interests come into play at this point, linked with the formulation of national energy policies. Local preferences, however, are not always aligned with those at the national level, and as a result, regional competence and decision-making powers have a considerable impact on the scope and pace of petroleum development. The systemic relationship between the regional and the federal/national governments therefore determines much of the region's ability to transform interests into action.

#### *United States and Washington D.C.*

Owing to the federal system in the US, the State of Alaska is a relatively autonomous entity, despite the management of the Chukchi Sea falling outside its geographical jurisdiction, and therefore under the jurisdiction of the federal authorities (Anderson 2012). The Department of Interior in Washington D.C. is the sole body responsible for this outer offshore development, although the State itself is highly active and engaged in the development process. It promotes oil and gas activity in its region through beneficial tax regimes and active collaboration with the respective industries, while also lobbying federal government to allow drilling to take place in the

area. Consequently, there is a situation in which the State's regional government acts as an independent body in pursuit of specific pro-development interests, aiming to convince the federal government to allow drilling off the coast. On the federal side, the decision-making process on opening up new areas for oil and gas exploration is also highly politicised, as any lease sale must be included in the Department of Interior's overarching five-year plan – a plan informed by political agendas as much as it is geared to optimising governance of offshore resources (DoI 2012).

Consequently, how strongly the US federal government pushes for Arctic drilling in Alaska is, on the one hand, related to national energy interests, and on the other, a result of interest group interaction with central decision-makers (Lew 2012). The development of unconventional natural gas resources elsewhere in the US has also lessened the perceived urgency of developing a natural gas in the Alaskan Arctic. The situation in the US is therefore one in which the federal government – positioned far from the Alaskan Arctic in both mind-set and geography – is wary of upsetting the balance between regional interests and environmental concerns as it will be held accountable for whichever decision, if any, is made (DoI 2013; U.S. Government 2012).

Indeed, with the decision to allow Shell to conduct exploratory drillings causing a public outcry, the current Obama administration appears to be somewhat more cautious than its predecessor, despite Obama's first energy plan relying heavily on increasing domestic oil production in Alaska. After the Macondo accident, rhetoric naturally took a turn towards elevating environmental concerns. Separating the functions of the former Minerals Management Service (MMS) into the Bureau of Ocean Energy Management (BOEM) and the Bureau of Safety and Environmental Enforcement (BSEE) has also been one way of de-politicising the management of oil and gas activities, following intense post-Macondo criticism of the MMS. However, the oft-stated goal to make use of domestic oil resources in the Arctic has yet to be altered: the new five-year plan for 2012–2017, released in November 2011, proposes that another

lease sale in the Chukchi Sea should take place in 2016 (BOEM 2012a).

#### *Canada and Ottawa*

Of the three cases, it is arguable that Canada represents the strongest level of federal decision-making concerning oil and gas, despite an ongoing process of transferring governance to the territories (Ibbitson 2013). The regional government of the Northwest Territories have a substantially lower degree of autonomy than its American and Greenlandic counterparts. Although the federal government in Ottawa is slowly devolving decision-making competence and authority to the regional level, the starting point is relatively low and the Department for Aboriginal Affairs and Northern Development (AANDC) is still in control of petroleum development both on and offshore (Ibbitson 2013). With the AANDC in charge of Arctic petroleum development, and the National Energy Board in charge of evaluating drilling applications, the process for conducting lease sales in the Beaufort Sea is arguably less politicised and more geographically fragmented than in the US.

Given that the region itself does not constitute a very strong driver for further expansion in the Beaufort Sea, the decision to open up for offshore lease sales and approve exploratory drillings is more closely linked to interests in Ottawa. These interests play into the fact that Canada is emerging as an international heavy weight in oil and gas production due to the presence of oil sands in Alberta and petroleum production in the provinces of New Brunswick and Newfoundland. A federal push, similar to the one seen in the 1970s, to develop costly and remote Arctic gas fields, is, however, not inevitable, because Canada is not largely dependent on developing these resources for domestic energy supplies. Although there undoubtedly exists a strong commercial interest in developing offshore fields in the Beaufort Sea, and both regional and federal levels openly favour oil and gas development in the Arctic, there is less leveraging of these interests in comparison to the US.

#### *Denmark and the European Union*

In terms of regional/federal relationships, the case of offshore Greenland is set apart from both those

of Canada and the US. In comparison with both Alaska and the Northwest Territories, Greenland can exploit potential resources as it sees fit, although it is still part of the realm of Denmark (Hammeken-Holm 2012b). Devolving the final development decision to the local population has undoubtedly been a central factor in setting the current rapid pace of development. As highlighted in the previous section, there are strong drivers in Greenland for activities that encourage economic independence from Denmark. However, though Greenland is by far the most autonomous territory of the North American Arctic, its relationship with the national government in Copenhagen still influences its aspirations to continue to develop oil and gas fields offshore (Hammeken-Holm 2012a). Governments in Copenhagen have nonetheless been strong supporters of this development, due to both revenue expectations and inclusion of Danish industry, like Dong Energy (Degeorges 2012). Moreover, Denmark has played a substantial role in developing local competence and mechanisms in Greenland to deal with the influx of petroleum interests (*ibid.*).

Although Denmark currently supports Greenlandic petroleum exploration, though it lost its say in the matter in 2009, the balance between regional interests in Greenland and popular opinion in Denmark might become a source of tension, should the latter shift against Greenlandic development. The relationship between interests in Copenhagen and interests in Nuuk has not always been amicable, and sections of the Greenlandic population would seem to prefer full independence from Denmark at some point in the future (Ward & Pfeifer 2010). Being connected to, but not part of, the European Union, Greenlanders have also experienced the effect of Brussels-based interests trying to meddle in the island's resource management. The EU's 2008 import ban on seal products, as well as negative statements against Greenlandic Arctic petroleum exploration, have caused resentment in a self-government that perceives resource development to constitute the fastest way to economic growth (Ward & Pfeifer 2010). Especially in the European Parliament, environmentally focused members have actively teamed up with the recent Greenpeace campaign "Save the

Arctic”, directed at Greenland in particular (Greenpeace 2012). Although Greenland has greater internal cohesion than its North American counterparts, it is struggling harder against external interference and popular opinion beyond the borders of the realm of Denmark. While this might not pose any immediate problems, the long-term effects are harder to predict.

**COMPARING REGIONAL DEVELOPMENTS**

As outlined above, the role of regions, in terms of how their interests are formed, conveyed and constrained, constitutes an important determinant of the pace and trajectory of Arctic petroleum development on a case-specific level. Table 2 summarises the dimensions evaluated, allowing us to draw some comparisons and conclusions.

The State of Alaska clearly has powerful regional interests in offshore development in the Chukchi Sea. Weak internal cohesion, however, is an issue as opinion here is significantly more polarised than in the other two cases. The federal level, the State, local indigenous communities, engaged NGOs and commercial actors like Shell and Alyska are all highly active, and influential, in determining the process

of opening up the region for oil and gas exploration. The State itself enjoys a strong degree of autonomy in its dealings with the petroleum industry and development matters inside its geographical boundary. In Arctic offshore development, on the other hand, the federal government is the empowered decision-making authority. The federal level has a moderate degree of interest in development, but has clearly been cautious in its handling of the issue. In particular, the relationship between federal bureaus located in Washington D.C., local groups in Alaska, and the interests of the Alaskan State government, is likely to be conflictual for any sitting administration. As a result, the project itself faces obstacles both at a local and national level, while the regional level currently functions as an active facilitator and lobbyist for development without the tools to transform those interests into corresponding policies.

By contrast, offshore Arctic petroleum development in the Canadian Beaufort Sea seems less defined by stated regional interests; they are vocalised less strongly at least than those encountered in neighbouring Alaska. Internal cohesion is also at a moderate level, as tensions between competing interests have by no means reached the level of polarisation

TABLE 2: SUMMARY OF THE REGIONAL DIMENSION IN ARCTIC OFFSHORE DEVELOPMENT

		Chukchi Sea, Alaska	Beaufort Sea, NT	Offshore Greenland
REGIONAL	Regional interests	Strong	Weak	Strong
	Internal cohesion	Weak	Moderate	Strong
	Regional autonomy	Strong	Weak	Strong
FEDERAL	Decision-making authority	Federal	Federal	Regional
	Federal interests	Moderate	Weak	Strong
II	Role of regional level	Active facilitator and lobbyist	Passive facilitator	Active facilitator and developer

in Alaska. But the Northwest Territories has much less autonomy than its US. counterpart, despite changes currently underway. Federal interest in promoting such development, which ultimately determines when to open up for lease sales and drillings, is therefore weak, not least given the current national energy abundance. Should large quantities of recoverable oil or gas be discovered in the near future, however, this situation could change rapidly. Nonetheless, the challenges relating to lack of regional and federal-level interest will continue to weigh on development in the short to medium term, and the regional level can currently only act as a passive facilitator of future development.

Offshore development in Greenland is the most anomalous of the three cases, given that the territory it has acquired a larger degree of autonomy over the management of its natural resources than its regional counterparts. This autonomy is coupled with strong regional and national (Danish) interests in offshore development, as the drive for economic independence spurs the Greenlandic self-government while Copenhagen is interested in the potential economic benefits for Denmark. Development in Greenland has also been influenced by a somewhat different range of factors than in Alaska and the Northwest Territories, as internal cohesion is comparatively

strong and the main challenges to development have come from outside the realm of Denmark. That said, increased regional authority over petroleum production also gives the regional level greater influence to determine developments looking ahead. Commercial viability plays into it, as does local and international civic engagement, but it should be clear that of the three regions in question, Greenland is the only one holding the key to its own potential riches.

To summarise the table, in the US and Canada the federal government has authority over the Outer Continental Shelf; the regional governments in Alaska and the Northwest Territories can therefore only act as facilitators, promoting their individual interests when a federal decision is underway. In these two cases, the locus of decision-making power lies outside of the Arctic Circle, and a decision is the result of the balance struck by respective federal governments between different policy interests. In Greenland, however, the line of sight between regional interests and policy outcomes is substantially clearer, as decision-making competences are devolved to the regional self-government. However, Greenland's enduring relationship with Denmark and the EU is a systemic factor that still should be taken into consideration.

## CONCLUSION

Looking beyond wider international trends such as price levels, technology and retreating ice sheets, this study set out to identify and analyse what influences specific development of offshore oil and gas in the Arctic. The article has focused in particular on development drivers in areas of the Arctic that can be regarded as somewhat conflictual, pitting commercial interests against environmental and/or local forces. A key dimension, namely the interests of those actually residing in these areas – represented by their respective regional governments – was another concern of the study, as it is an often neglected or understated factor in the current Arctic research literature. The study therefore asked: what role do

regional interests have in the process of developing oil and gas in the North American Arctic?

With no current offshore production activity, but a rapid pace of development that is expected to result in exploratory drillings in the near future, the North American Arctic was chosen as the focus area. The three cases studied here, namely the Chukchi Sea, the Beaufort Sea, and the offshore waters around Greenland, share relatively similar climactic conditions. However, the development of petroleum has progressed at different rates, even as Arctic oil and gas figure increasingly on the international agenda

and the North American Arctic experiences an influx of commercial interests.

By looking at the processes surrounding this influx of new commercial interests, and those factors determining the pace of development in each case, some important conclusions can be made. Interest in all three regions is undoubtedly influenced by the level of hydrocarbon resources in offshore basins, as outlined by the USGS and other geological surveys. Together with international price trends, accessibility, transport infrastructure and the cost of Arctic operations, it informs estimates of commercial viability in each case. Commercial viability in turn determines the extent to which commercial actors, such as Shell, Statoil or Cairn, push for exploratory offshore drilling.

Yet this study has shown that case-specific development is also influenced by the interests of the implicated regional actors. The way regional governments define their interests in petroleum development, the article suggests, constitutes the basis of regions' participation in the development process. The relationship between regional governments and the national/federal level, in terms of both decision-making competence and autonomy, then determines how regional interests are transformed into correlating policies. This in turn determines which interests emerge at the national/federal level in the course of Arctic petroleum development, with regional cohesion and external influences also contributing to the political environment in which decisions to allow exploratory drillings are made.

Exhibiting strong regional interests, the State of Alaska continues to push for development of the Chukchi Sea, although the final decision is made federally by the Department of Interior in Washington D.C. The State consequently acts as a facilitator, with local interest groups and environmental organisations attempting to halt development at every crossroad. The Canadian Beaufort Sea is similar to the US case in terms of decision-making locus for outer continental shelf development. Regional interests, however, are not as strongly defined as in Alaska, and the Territories is therefore not as active in policy-making

processes. Greenland, as the most autonomous of the three regions, has acquired self-governance over its offshore petroleum resources. Similar to Alaska, the Greenlandic government has been actively pushing the cause of development: by encouraging commercial interests in the region, and by conducting lease sales in rapid succession from 2006 onwards. While development of the Chukchi Sea has encountered domestic resistance in the US, Greenlandic offshore development has encountered international resistance from the EU and Greenpeace.

It is interesting to note that the Arctic often creates strong popular sentiment amongst people who do not reside in the region itself. Due to the use of the Arctic as a symbol of pristine nature and the devastating effects of climate change, there is undoubtedly a strong desire in capitals like Ottawa, Washington D.C. and Copenhagen to prevent industrial activity in the Arctic (Emmerson 2010; Williams 2011). Local inhabitants of the Arctic, however, do not always share such sentiments. Non-Arctic interference in matters of development has long been a source of conflict for Arctic inhabitants (Williams 2011). The Arctic is also populated by different groups of people, and the question of how to deal with the increased influx of commercial interests to the region could cause tensions to rise between non-indigenous regional populations and indigenous local populations.

Altogether, these comparisons show that international trends and commercial viability, while important, are not the only factors to consider when tracking and explaining development processes in the Arctic. Offshore activity takes place in the context of regions, both geographically and politically, and in all three cases regional governments interact with centrally located decision-makers, in addition to commercial, environmental and social actors. The relationship between the regional level, where Arctic offshore developments are actually taking place, and the national level, often located far from the Arctic, therefore constitutes another important, but arguably also frequently neglected, determinant of the development of Arctic oil and gas.

This observation might hold true of other areas of the Arctic given the controversies surrounding offshore development in Northern Norway or in Northwest Russia. But the Arctic is not the only part of the world facing an influx of commercial interests. Deepwater drilling has boomed in the last decade, with controversial offshore fields west of the Shetland Islands in the UK, off the coast of Brazil, and in 'iceberg alley' off Newfoundland in Canada, currently being explored for recoverable resources. As the price of petroleum products soars, and new technologies and increased market demand are pushing companies towards new and challenging areas like the Arctic, the role of the regions in which these activities take place is only set to increase. Consequently, (1) the interests manifesting in these regions; (2) the way regional governments interact with central decision-makers and commercial interests; and (3) how this interaction in turn contributes to the pace of development, are matters for further research.

Such studies will help inform the broader Arctic debate in which generalisations often seem to take

preference over case-by-case analyses. Some of the existing research tends to treat the Arctic as a coherent area, when in fact it comprises different economic and political areas and regions, with different climatic zones and levels of development. After looking at the development of oil and gas in these different regions, it is clear that the Arctic itself is complex, multi-layered and difficult to generalise across. The multiple interests at stake in Arctic petroleum development can vary considerably within a particular geographic area. Discourse and research on the Arctic need to be nuanced and differentiated accordingly, with a greater focus on the interests of those in the regions themselves, as identified here, and the dynamics that determine much of the case-specific activities. Indeed, if the different layers of Arctic development were to be systematically isolated and taken into account, discussions on Arctic petroleum development might be able to move away from oft-cited generalisations and take the debate to a new level, applicable beyond the geographic boundaries of the Arctic itself.

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