Three Scenarios For US Energy Policy in the Arctic Region
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(Cover Photo: Mineral Management Services)
Introduction

The Arctic ice is melting. The unexpectedly rapid melt of the perennial ice cap during the past year has become one of the rallying cries for United States environmentalists. The melting ice is widely seen as a prime and tangible example of the reality of global warming and its dangers. Yet the perils of global warming and the environmental danger in the Arctic are ancillary to a more imminent and potentially deadly issue. The far more grave concern that the United States faces in the Arctic is one of national security.

Deep below the Arctic Ocean lies an immense wealth of fossil fuels. These riches are located within territorial waters claimed by eight different nations, including the United States and Russia. With the increasing demand for energy and the accelerating depletion of known resources, the world is looking to the Arctic for its untapped fossil fuels. The potential for armed conflict over Arctic energy resources is real.

A few weeks ago, on March 27, 2009, the Russian Ministry of Defense announced its intention to create an Arctic military base to secure its claims to Arctic energy resources. The militarization of the Arctic region is now underway and thanks to years of neglect, bad science, and
unilateralism in foreign relations, the United States lacks a coherent policy for this global hotspot.

How should the United States deal with the resource opportunities in the Arctic the threat of Arctic militarization? These questions can no longer be deferred. The Arctic Region represents yet another crisis that the Bush Administration left behind. The failure of previous US administrations to acknowledge the scientific realities of global warming that are transforming the region and the distraction of armed conflict in the Middle East may have contributed to the United States lagging behind in Arctic policy development and implementation. In order to catch up, the United States must examine what its priorities should be for the Arctic, taking into account the energy resources of the region, environmental issues, and the role of both in national security.

The purpose of this paper is to examine three distinct scenarios for United States policy regarding oil and natural gas exploration and exploitation in the Arctic Region. The scenarios consider whether US interests would be advanced by exploration and drilling in the Region. But any effective policy for the Arctic Region must go beyond the binary question of to drill or not to drill. The complex geopolitics of the Arctic Region, the reality of climate change, and the national security issues
inherent in energy resource competition require a nuanced but goal oriented approach.

The first scenario examined is the “Drill, Baby, Drill” approach. This scenario advocates for immediate deregulation and massive drilling in the US Arctic Region and a policy of neutrality towards any foreign resource exploitation. The second scenario accepts drilling in the US Arctic Region but under strict restrictions and guidelines from Congress and the promotion of multilateral restrictions for all extraction in the Arctic. The third scenario calls for a complete ban on all exploration and drilling for fossil fuel resources in the Arctic Region. Current US infrastructure for extraction would be deactivated but preserved for use in only the most exigent national security circumstances. This ban would be enacted by Congress and enforced by the United States not only in its own sovereign waters but also throughout the entire Arctic Region.
Chapter One: The Geopolitics of the Arctic

In order to evaluate the feasibility and consequences of the three scenarios to be examined, it is necessary to first explore the complex geopolitics of the Arctic Region. This chapter outlines five major geopolitical factors that affect the region: (1) the Arctic’s potential, untapped oil and natural gas resources and the world market price for these fossil fuels; (2) global warming and Arctic ice melt; (3) regional environmental concerns; (4) international relations and the role of the United Nations Convention on the Laws of the Sea; and (5) national security concerns, including the threat of militarization of the region by Russia.

Background: The Map of the Arctic Region

The vast area north of latitude 66.5°N (the Arctic Circle) is known as the Arctic Region. With an area of approximately 8.2 million square miles, the Arctic comprises 6% of the Earth’s surface. But only 3.1 million square miles of the region is land, the other 62% being the waters of Arctic Ocean. (USGS Factsheet 2008) Eight nations border the Arctic Region: the United States (by virtue of Alaska), Russia, Denmark (by virtue Greenland), Finland, Sweden, Norway, Iceland, and Canada. (See Appendix A for map)

The two nations with the longest Arctic coastlines are Russia and Canada. Indeed, nearly half of the shoreline of the Arctic Ocean is in
Russian territory. The precise extent of the Canadian Arctic coastline is in some dispute, but Canada is demonstrably second only to Russia in the extent of its Arctic claims.\(^1\) The Arctic territory of the United States comes from its Alaskan North Slope coastline. While not fully explored yet, the continental shelf extending from the Alaskan coast could give the United States claim to Arctic territory half again as large as Alaska. (Demos)

**Section One: Energy Resources and World Markets**

**Arctic Energy Resources Estimates**

The primary geopolitical consideration in the Arctic is that enormous probable oil and natural gas resources have been identified there. The United States Geological Survey (USGS) completed a survey of the Arctic region in May 2008, assessing its potential oil and natural gas resources. The conclusion reached by this report is that there are significant probable, economically recoverable oil resources above the Arctic Circle.\(^2\) However,

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\(^1\) The Canadian claim dates back to the end of Canada’s status as a colony. The British claimed that “all Islands adjacent to any such territories’ whether discovered or not” were within the domain of Canada. But citizens of the United States of America discovered several of the major islands and hence there is an arguable US claim to those islands. (Canadian Encyclopedia)

\(^2\) The Society of Petroleum Engineers provides this definition: “probable reserves are those unproved reserves which analysis of geological and engineering data suggests are more likely than not to be recoverable.” (Society of Petroleum Engineers, hereafter: SPE)

Whether resources are economically recoverable is contingent upon current technology and current market prices of oil and natural gas. (Energy Information Administration, hereafter: EIA)
dwarfing the potential oil reserves are the potentially massive natural gas resources that are thought likely to be there, as well.

The USGS estimates that the Arctic Region contains close to 90 billion barrels of oil (bbl), 1,669 trillion cubic feet (Tcf) of natural gas, and 44 billion barrels of natural gas liquids that are now economically recoverable. (USGS Factsheet 2008) The largest oil producer in the world, Saudi Arabia, has estimated proven reserves of 267 bbl. Thus the Arctic oil reserves could be equal to one-third of the Saudi reserves. The estimates for the Saudi gas reserves are between 328 Tcf and 628 Tcf, including the recently discovered – but still unproven\(^3\) – northwestern fields. (Energy Information Administration, Saudi Arabia Country Analysis Brief) The Arctic potential natural gas reserves would be nearly 3 times that of the Saudis, dwarfing their natural gas resources.

While not as great as the massive Saudi oil reserves, the Arctic energy resources are significant, and, if fully realized, could make a serious dent in the dependence of the West on Middle Eastern oil and natural gas. The economically recoverable Arctic oil reserves would be able to provide enough oil for the entire world at the current consumption level (85,220,000

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\(^3\) The SPE definition states, “Unproved reserves are based on geologic and/or engineering data similar to that used in estimates of proved reserves; but technical, contractual, economic, or regulatory uncertainties preclude such reserves being classified as proved.” (SPE)
barrels/day\(^4\)) for 469.37 days. But if the United States were able to exploit the Arctic oil reserves for its sole use, at current US consumption levels (20,680,000 barrels/day\(^5\)), the Arctic oil resources would be sufficient to supply the United States for about 12 years, assuming no other sources of oil were available.

At the global consumption rate of 10.4921 Tcf/month, the Arctic would be able to sustain the world demand for natural gas for a little more than 13 years. At the current level of natural gas consumption of 2.702 Tcf/month, the Arctic natural gas reserves would provide enough gas for the US for over 51 years. (EIA Oil Factsheet; CIA Factbook: World)

The USGS divides the Arctic into 33 geological provinces for purposes of analysis. This approach is clarifying because 84% of the probable Arctic oil and natural gas bounty is located offshore. The provinces containing 70% of these probable oil reserves are Arctic Alaska (AA), Amerasia Basin (AM), East Greenland Rift Basin (EGR), East Barents Basin (EBB), and West Greenland-East Canada (WGEC). (See Appendix B for map)

\(^4\) CIA Factbook: World
\(^5\) Last updated and reviewed in February 2009 by the Energy Information Administration (EIA: Oil Factsheet)
The Arctic Alaska and Amerasia Basin provinces, located within US territorial waters or its economic sphere of influence, account for 44% of probable oil in the Arctic. The East Greenland Rift Basins and the West Greenland-East Canada province, both within the territorial waters or economic spheres of influence of Denmark and Canada, account for 18% of the probable oil. The East Barents Basin is located well within Russian territorial waters and its economic sphere of influence, but accounts for only 8% of the probable reserves. This analysis indicates that although the United States does not have the largest territorial claim in the Arctic Region, the US claim includes the largest oil reserves. (USGS Factsheet 2008)

The same does not hold true for probable Arctic natural gas. The provinces containing more than 70% of the probable natural gas are the West Siberian Basin (WSB), the East Barents Basin, and Arctic Alaska. (See Appendix C for map) The West Siberian Basin and the East Barents Basin are both within Russian territorial waters or its sphere of economic influence and account for 58% of the probable natural gas reserves. The Arctic Alaska province accounts for only 13% of the probable natural gas located in the Arctic. (USGS Factsheet 2008)

It is noteworthy that Russia has presented quite a different version of the scope of the Arctic reserves. The Russian Ministry of Natural Resources
over the past two years compiled its own assessment of Arctic energy resources and predicts more than 13 times as much oil, but far less natural gas. The Russian Ministry claims that the Arctic Region contains well over 586 bbl of oil and only some 25 Tcf feet of natural gas. All in all, the Russian claim is that there are as many as 10 trillion tons of economically recoverable hydrocarbon resources, the equivalent of 73 trillion barrels of oil. (Cohen, Szaszdi, Dolbow)

The substantial discrepancies between the US and Russian estimates have yet to be thoroughly explained in published sources. It is unclear what pricing mechanism the Russian Ministry was using in evaluating economically recoverable resources. The most recent Russian assessment was released in 2007. If it used predictions of increasing prices such as those seen in the 2007-2008 oil spike when prices exceeded $140 per barrel or anticipated even higher barrel prices, rather than the post-spike price range used by the USGS, the scope of economically recoverable resources would be much greater. Of course, it is also possible that technological differences underlie the US and Russian assessments. But another explanation for such dramatic differences in estimates could be a bit of realpolitik on the part of the Russian government.
In terms of geopolitics, the primary reason that Russia might want to present such a bold assessment is that it is in its national interest to bolster its reputation as the most powerful oil and natural gas supplier in the world. Indeed, Russia presents itself as the fossil fuel supplier of last resort, claiming influence over reserves even greater than those in the Arabian Peninsula (including former Soviet Republics and the Arctic reserves). (See CIA Factbook: Oil – proved reserves) The claim of being the world’s biggest energy nation has obvious economic benefits for Russia and enhances its political clout.

Consider, for example, the way that Russia flexed its muscles over supplying gas to the Ukraine in January 2009, cutting off all gas to that country and also disrupting the flow of gas to all of Europe for several weeks in midwinter. (BBC 2006, 2009) The intermittent armed conflict with Georgia over the potential Nabucco pipeline that flared up again in the summer of 2008 is another example of Russia exerting its influence and control over resources. Moreover, although there were protests from the US and other Western nations, the Russian energy giant pursued its own interests without substantial interference from the world community. (Telegraph) Another reason that the Russian Ministry might be promoting
bigger numbers is to justify state-sponsored investment and to encourage private foreign investment in Arctic Region resources in Russian territory.

**Extraction and World Market Prices**

Whatever the proper estimate of the energy resources in the Arctic maybe, and there is no guarantee that the numbers released by the USGS are wholly accurate either, the extraction of fossil fuel resources always comes up against the issue of economic feasibility. Economic feasibility requires the prediction of profit after all upstream and downstream expenses.\(^6\) Thus to a large extent economic feasibility rests on predictions of world market prices. But even to state it this way is an oversimplification because while gasoline and natural gas are generally fungible, crude oil from different reserves is not.

The world market price for crude oil that is so frequently quoted is actually the price of either Western Texas Intermediate (WTI) or North Sea Brent. (Bloomberg) These are both light, sweet crude oil, one of the most valuable and highest grade and quality of crude oil. This crude oil market price is used as a benchmark against which all other grades and qualities of oil are priced. Thus while WTI was at $46.34 per barrel on January 2, 2008,

\(^6\) Upstream is the exploration and production portion of the oil and gas process. Downstream refers to the refining, marketing, and distribution of oil and gas. (SPE)
Alaska North Slope crude, which is a lesser grade of oil, was sold for $2.20 per barrel less than WTI. (Bloomberg; Reuters)

The different grades and qualities of oil require different refining infrastructure because they each have different cracking points\(^7\). Once the lighter, fuel-grade hydrocarbon is extracted from the crude oil, the product is uniform. But until the refining process takes place, each type of crude oil requires a refinery built for it specifically. Thus it is not enough to discover and prove new oil reserves, extensive capital investment for new infrastructure and transportation are generally required as well to get product to markets.

For all of these reasons, oil and natural gas companies have criteria that tend to be fairly conservative when they approach exploration and new exploitation of resources. As of 2003, industry observers have assumed that Arctic Region prices must be consistently above $19 per barrel for any extraction to be contemplated. But the oil industry expects the price per barrel to cover more than just the upstream and downstream expenses. On top of all those costs, the major oil companies seek returns of 18% at the minimum on their investments. With all these expenses to consider, prices

\(^7\) Cracking point is the temperature at which specific longer chain hydrocarbon molecules break into shorter chain molecules. (SPE) Crude oil is heated to its “cracking point” to provide gasoline and other petrochemical by-products.
must maintain well above a minimum of $30-$40 per barrel in order for oil and natural gas companies to deem Arctic resources economically viable. (Tatham, Logan)

While a threshold of $30-$40 per barrel seems to be fairly easy to reach in this day and age of high oil prices, the volatility and unpredictability of the oil market is such that there is no assurance that prices will remain this high. During 2007 and 2008, prices rose steeply, eventually hitting more than $147 for a barrel of light, sweet crude on July 11, 2008. (CNN Money) However, in a period of only 9 months since July 2008, the prices have once again crashed and as of April 2009 are hovering between $40 and $50. (Bloomberg; NYMEX) Forecasts by the EIA indicate that prices will continue to decline as demand falls during the current economic contraction. (EIA) The sheer number of factors that go into pricing a barrel of oil are so intrinsically tied into so many different facets of the economy, that it is extremely difficult to accurately predict the future of price in a free market. To the extent that the Organization of Petroleum Exporting Countries (OPEC) and other non-OPEC producers control production levels of crude oil, it may be even more difficult to predict prices.

By contrast to the relatively high threshold for Arctic oil, economic feasibility for oil extracted in the Arabian Peninsula is achieved at only $5
per barrel. (Huber, Mills) Thus it is not surprising that as of yet there is not extensive infrastructure for oil exploitation in the Arctic. It is still so much more profitable to extract elsewhere.

At this time the only oil field in the Arctic currently under exploitation is Prudhoe Bay on shore in Alaska. Exxon and ARCO first discovered the massive oil field on the North Slope of Alaska on March 12, 1968. BP (formerly called British Petroleum, now rebranded as Beyond Petroleum) subsequently confirmed it in 1969. The first wells started pumping in 1977 and have been pumping with minimal interruption ever since. The massive field is owned mostly by three of the major oil companies: BP Exploration, ConocoPhillips Alaska Inc., and ExxonMobil. (BP Factsheet)

Prudhoe Bay is actually the top producing oil field in the United States, pumping out 96.3 million barrels per year. (EIA) This oil is then pumped into pipelines that take it to waiting refineries built to Alaskan North Slope (ANS) crude specifications. There is one refinery at Prudhoe Bay, two along the pipeline near Fairbanks, and three on the southern Alaskan shores. At the refineries, the ANS crude is converted into the various types of fuels and then pumped into awaiting oil tankers. The tankers then take the refined product and disperse it globally, some coming
to the US and others proceeding to Asian markets, chiefly Japan. (BP Alaska North Slope Assay)

There are also an estimated recoverable 26 Tcf of natural gas in the Prudhoe Bay field, in addition to the oil. (BP Factsheet) However, very little of the natural gas finds its way to world markets. A small portion of it is used to heat the town; a larger portion of the gas is used in the oil extraction process for injection. But the vast majority of the gas at Prudhoe Bay is merely burned off as the oil is extracted and refined. (Hoefs)

The only other extraction infrastructure in the Arctic Region is the facility currently being built at the Shtokman gas mega-field in Russia. The Shtokman field is an offshore extraction site for natural gas, liquid natural gas, and gas condensates. While originally planned to be exclusively owned by Russian Gazprom, both the Norwegian company StatoilHydro and the Italian company Total have recently negotiated contracts with Gazprom for joint development of the deep-sea resources. (Madslien; Gazprom; Total) Shtokman is estimated to contain 10.4986 trillion cubic feet of natural gas and 31 million tons of gas condensate. (Offshore-Technology)

With the volatility of prices in the market, the current contraction of the world economy and the suddenly erratic demand for oil and natural gas

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8 Injection is the process of forcing or pumping substances into a porous and permeable subsurface rock formation in order to force out oil. (SPE)
worldwide, and the lack of existing infrastructure, oil and gas companies have been wary of commencing serious new exploitation in the region or even exploration to prove resources.

Section Two: Impact of Climate Change on the Arctic

The second major geopolitical factor, and indeed concern, in the Arctic Region is climate change. Over the past three years, global warming (climate change) has not only opened up the legendary Northwest Passage, but ice melt has also uncovered and rendered economically feasible the exploitation of substantial additional oil and gas reserves. Thus at one level the global warming problem has created new resource opportunities in the Arctic.

The once constant perennial ice cap that covers more than half of the Arctic Ocean is melting at an increasingly accelerating rate. According to data provided by the National Aeronautics and Space Administration (NASA) and the National Oceanic and Atmospheric Administration (NOAA), during the summer of 2008, one million square miles more than average of perennial ice melted. Some predictions put the complete melting of the perennial ice as close as 2013. (Borgerson)

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9 NASA, in conjunction with NOAA, has been collecting data from satellites flying over the Arctic since 1979. (Richter-Menge, Nghiem, Rigor)
In a study released on April 6, 2009, researchers from NASA and the National Snow and Ice Data Center in Colorado announced an even more disturbing discovery. As Spring 2009 begins, 90% of the Arctic ice is only one to two years old. The young sea ice is the ice that melts in the summer time and then reforms during the late fall and winter. Usually this younger ice accounts for only 70% of the ice cover. The age of the ice is, in fact, crucial to global temperature. The older, thicker ice (often times 10 or more feet thick) traps sea ocean heat and helps keep the environmental and climate balance around the globe. If the ice is not thick enough to trap it, the heat is dispersed throughout the oceans of the world, causing temperature fluctuation and altering ecosystems and climates globally. (Borenstein) These new findings suggest that climate change is proceeding more rapidly than had been predicted previously.

The Center for Strategic and International Studies (CSIS), in conjunction with the Center for New American Security (CNAS), released a report in November 2007 on global climate change which develops three models for geopolitical planning purposes. The three models that these think tanks use are Expected Climate Change, Severe Climate Change, and Catastrophic Climate Change. (Campbell, Lennon, Smith) Although not
specific to the Arctic Region, these models provide useful reference points for any serious discussion of climate change.

The Expected Change model outlines the most likely near term outcomes and hence describes the situation for which all nations should prepare themselves. According to the CSIS/CNAS team (a group of scientists, political scientists, and mathematicians), the Expected Change will result in an increase of 1.8°F (1°C) in average temperatures worldwide by 2040. The model predicts that this temperature increase will result in resource scarcity and increased disease proliferation, as well as substantial changes in weather patterns. The political and social impacts that the model predicts are substantial – heightened border tensions; conflict sparked by resource scarcity (particularly in weak states in Africa); population fluctuations due to increased disease proliferation; and some geopolitical reordering as nations adjust to new resource, economic, and political realities. In the Expected Change model, climate change will exert upward pressure on oil prices because of supply disruptions and contribute to instability in some oil producing regions. Offshore oilrigs and refineries will be increasingly damaged by natural events, such as hurricanes, earthquakes, and floods. Liquid natural gas demand in the US will increase as oil
becomes more difficult to extract and scarcer around the world. (Campbell, Lennon, Smith, pp. 55-70)

The second model is the Severe Change scenario. Severe Change is predicted if carbon dioxide emissions are not curtailed sufficiently over the next few years. The effects will be an increase of average global temperatures by as much as 4.68°F (2.6°C) by 2040. The result of this increase will be large-scale changes causing “pernicious challenges” and pandemic disease; a dramatic rise in migration as areas become uninhabitable, putting strain on cohesion of international actors; flooding of coastal regions; armed conflict over scarce resources; an increase in the danger of nuclear war; an increase in religious fervor; and a permanent shift in the relationship between humans and nature. The scarce oil and natural gas reserves in the world will be harder to access, driving up prices to abnormally high levels and forcing major change in energy use and policy. (Campbell, Lennon, Smith, pp. 71-80)

The third and final model is the Catastrophic Change scenario. The authors of these models readily admit that trying to fully delineate the possibilities for Catastrophic Change pushes the line between probability and imagination. However, this scenario remains a possibility if carbon emissions continue at current levels or increase with economic development.
powered through fossil fuel use. The Catastrophic Change model anticipates an increase of 10.08°F (5.6°C) in average global temperature by 2100. This would mean a sea level increase of some 6 feet 6.74 inches (2 meters), resulting in a 30% loss of coastal wetlands. Major cities such as New York, Miami, London, Copenhagen, Shanghai, Bangkok, Calcutta, Casablanca, Alexandria, Lagos, Dakar, Dhaka, Sydney and Alexandria are all highly susceptible to sea level increases and will be devastated. The results of this scenario are hard to predict because of the shocking and devastating effect it would have on human society, but they are sure to be unimaginably harsh. (Campbell, Lennon, Smith, pp. 55, 81-92)

Given the dire results of even the Expected Change scenario, it is of critical importance that the Obama Administration acknowledges the significance of climate change and does not deny the existence of global warming as the Bush Administration did for so long. It is generally thought that a rapid reduction in the use of hydrocarbons could slow the rate of climate change to the more manageable level of Expected Change. Hence alternative energy sources to substitute for hydrocarbons pursued more and more both by political leaders and the private sector.\textsuperscript{10} Alternative energy

\textsuperscript{10} Alternative energy refers to energy sources such as solar power, wind turbine power, water current power, and nuclear power. These energy sources are severely undeveloped in the United States and are only now being brought to the forefront of
sources also have drawbacks, but the need to reduce the US addiction to carbon-heavy oil should drive their development and improve the technology. Yet even with the support of the Obama Administration, wide substitution of alternative energy resources is still far in the future.

The reality of climate change is most visible in the rapid rate of the environment-altering Arctic ice melt. Yet for Arctic energy resources in the near term, climate change can be seen to be improving economic feasibility. Estimates of reserves by the USGS just eleven years ago, in 1998, predicted probable reserves of only 40 bbl of oil and 43 Tcf of natural gas. (USGS debate. While solar, wind, and water current technology can never fully accommodate the massive energy needs of the country, the electric power that nuclear energy could provide is a very serious and important alternative to the dependence on fossil fuels for electricity. The infrastructure of the US power grid would have to be seriously improved, as well as the construction of many new alternative power stations in order to have any serious dent on the oil and natural gas dependence. (American Society of Civil Engineers)

But alternatives have their downsides, as well. Nuclear power remains a dangerous source of energy if improperly maintained. The haunting images from such catastrophes as Chernobyl and the Three Mile Island accident remained as a deterrent for that particular source of energy. Ethanol and biofuels require significant amounts of cropland, in fact far more than is available in the US, for them to make any kind of real contribution to the energy sector. (Wind Energy Planning)

Wind turbines require an area with significant amounts of wind for them to be economically feasible. But many of the windiest areas in the US are used for crops, such as the windy plains of the Midwest. The large-scale deployment of turbines and the switch to ethanol-based crops would mean the loss of significant farmland, driving up food prices. A recent study done by Vaclav Smil, an energy expert at the University of Manitoba, the United States would require 75% of the world’s arable land in order to supply its domestic energy needs with ethanol. This, in turn, would have a worldwide ripple effect. (Mouawad) Wind farms, as the large groups of wind turbines are called, that are located offshore will face a number of problems, including damage to the ocean ecosystems, as well as potentially harming the fishing industry. (US Army Corps of Engineers Cape Wind Assessment 2004)
Arctic Assessment 1998) The current estimates of probable reserves more than doubles that amount with 90 bbl of oil and 1,669 Tcf of natural gas.

**Section Three: The Fragile Arctic Environment**

The other side of the raging environmental debate concerning the Arctic Region is conservation and pollution. In the United States the debate has been particularly fierce over the question of whether or not to open the Arctic National Wildlife Refuge (ANWR) in Alaska to drilling for oil and natural gas. But as important as the ANWR issue is, it is really a very limited issue in the context of the damage to the regional Arctic environment and indeed, the global environment of full scale Arctic energy exploitation.

ANWR figured prominently in the energy policy of President Bush from as early as 2001 when he first tried to open the Refuge to the oil industry. But the debate over ANWR truly began in the early 1990s. The question of ANWR drilling appeared numerous times in Congress during the first term of the Bush Administration, passing the House several times but always stalling in the Senate, thanks to the threat of a filibuster by the Democrats. In 2005 the Republican leadership thought of trying to include in a filibuster-proof appropriations bill, but the Republican chairman of the Appropriations Committee refused the measure. This leaves legislation concerning ANWR at an impasse, and likely not to be revived anytime soon.
thanks to the advent of the Democratic majority in 2008 and the policy of the Obama Administration. (CQ Quarterly)

In a sense the much publicized ANWR debate masks a far more critical environmental issue. Exploration and exploitation of oil and gas reserves in and of itself increase the size of the human carbon footprint. Long before the actual extraction of the oil and natural gas can begin, companies must go through a costly and environmentally damaging process of exploration. This exploration happens in a number of different ways. It begins with geological assessments and predictions concerning the area in question. These assessments take into account the soil type, density, and estimate the depth of any potential pockets of oil or natural gas. Companies also use resonance equipment and other electronic imaging equipment to find the pockets. (US Army Corps of Engineers)

However, to prove the existence of oil and natural gas at a particular site, one must drill down and release the fossil fuel. This takes machinery that leaves a significant carbon emissions footprint. If there turns out to be

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11 It is important to note, however, that the debate concerning ANWR embodies a fundamental geopolitical mistake about Arctic energy resources. The key issue for extraction in the Arctic is that 84% of the probable oil and natural gas reserves in the Arctic Region are offshore. This makes the question of opening ANWR to drilling far less significant if full scale energy exploitation is the goal, since ANWR is an onshore refuge. Offshore drilling is really the issue in the Arctic Alaska geological province. Cost benefit analysis might well identify offshore drilling as the most feasible, although it is more expensive than onshore exploitation. But whether offshore drilling is environmentally preferable is debatable.
no oil or natural gas, the significant carbon emissions that were released are for naught and merely damage the environment without increasing energy resources. If, however, there is a pocket of oil or natural gas, the process for extraction of the resource will result in the release of 122 to 388 lbs of carbon into the atmosphere per barrel of fuel. (US Army Corps of Engineers; Kunzig pg. 47) Further, because of the waste produced before, during, and after the extraction process, the environment around the drilling sites is irrevocably changed. Water used for injection into the wells returns to the surface full of heavy metals and toxins. This water permeates into the surface soil and creates a toxic waste area in once verdant surroundings, devastating the local ecosystems. (Kunzig, pp. 46-57)

Another regional environmental and conservation issue in the Arctic is the conflict between the needs and interests of food supply and the fishing industry on the one hand and the consequences of offshore exploration and exploitation on the other hand. Offshore exploration begins by mapping the seabed using a high-pressure air pulse that rebounds off the seabed. This pulse, however, kills any small fish within a 33-foot radius. (Fouché) The US fishing industry in the Arctic Region grosses around $2.2 billion annually. It also brings in more than about 50% of all fish caught in America’s coastal waters. If there were to be large-scale oil exploration and
exploitation in the Arctic Region, the US fisheries and fishing industry would suffer greatly. On the other hand, with current royalty and taxing structures for oil and gas extraction, the US Department of Interior Minerals Management Service estimates that the Region would yield revenues of close to $8 billion over 20 to 40 years. (NY Times, 2009) The damage done to an important world food source and a highly profitable fishing industry must be balanced against the economic benefits of any increase in oil and natural gas output from the Region.

Thus while US environmentalists focus on conservation of ANWR, the environmental danger of exploration and extraction in the Arctic is a more complex and more urgent global issue. Moreover, exploration and extraction in any part of the Arctic Region, whether in Russian, Canadian, Norwegian, Danish, Swedish, Finish, Icelandic, or US territory, will result in carbon emissions that will cause significant harm to both the regional and the global environment. Whether the issue is heavy metals from injection, carbon emissions, or killing fish, the United States should not be indifferent to environmental damage caused by energy exploitation any Arctic nation.

Section Four: International Relations in the Arctic Region

The Arctic Region presents as a clear case as one can imagine for the need to carefully manage international relations. There are eight Arctic
nations, six Western regional actors (Denmark, Norway, Iceland, Finland, Sweden, and Canada) and two global actors (Russia and the United States). Effective treaties and supranational adjudication of conflicting claims are sorely needed to assure stability in the Arctic Region. Although the United States initially took the lead in drafting the multilateral United Nations Convention on the Laws of the Sea (UNCLOS) treaty in the 1960s through the 1980s, it has not been able to carry through its part of this multilateral effort to date. The UNCLOS, which should be the centerpiece of international relations in the Arctic, needs attention immediately. But even more urgent is the need to respond to the Russian move toward militarization of the Arctic Region.

Among the most significant clauses of the UNCLOS are the definitions it establishes for territorial waters as littoral waters and a 200 nautical mile economic zone globally for seas and oceans. (UNCLOS) These are crucial questions when it comes to oil and natural gas in the Arctic Region because most of the resources are located offshore. The United States rejected an earlier version of the UNCLOS in 1982 on the grounds that it did not adequately address sovereign rights concerning deep-sea mining. After it was modified to meet US objection, President Clinton signed the current version of treaty in 1994. But due to lingering questions
of sovereignty rights and the political troubles that plagued the Clinton Administration, UNCLOS was not ratified before he left office. To date, the UNCLOS has yet to be ratified by the United States Senate. Vice President Biden, during his tenure as the Chairman of the Committee on Foreign Relations from 2006 to 2008. President Bush did not endorse it until March 17, 2007. But the 109th Congress ended before a vote was scheduled. (Pitt, United States Senate, NSPD-66)

During Hillary Clinton’s confirmation hearing for appointment as Secretary of State on January 13, 2009, Senator Lisa Murkowski (R-AK) pressed her on the issue of UNCLOS ratification. Secretary Clinton’s response was that she and the Obama Administration would be pushing for the ratification of the treaty. In addition to the support for UNCLOS, Secretary Clinton also stated that it was the intention of the Obama Administration to “deepen our partnerships with Russia and others across the board.” (Transcript, Council on Foreign Relations) But the Senate has yet to ratify it.

All of the other Arctic nations including Russia have ratified the treaty and therefore are ahead of the United States in using it to further their interests in the Arctic Region. The seven other Arctic nations are allowed to submit claims to the UNCLOS Commission on the Limits of the Continental
Shelf (CLCS) for judgment and adjudication. Russia and Norway have already submitted their claims with the CLCS for confirmation of these Arctic territory claims. Canada and Denmark are preparing their own submissions by 2013 and 2014, respectively. Until the United States ratifies treaty, it may not submit its own claims, some of which will probably be in conflict with Russian and Canadian claims.

Russia’s submission to the CLCS calls for the Russian economic sphere of influence to extend all the way along the Lomonosov Ridge. (See Appendix D for map) This Ridge effectively divides the Arctic in half and is thought to be the edge of the Eurasian continental shelf. In August 2007, on the successful mission to plant a titanium Russian flag on North Pole seabed, the Russian deputy speaker of the lower house of parliament in Russia and special representative to the Arctic, Artur Chilingarov, expressed the Russian sentiment that, “The Arctic is ours and we shall manifest our presence there.” (Cohen)

These territorial claims are crucial to the question of access to oil and natural gas in the Arctic, and the United States should respond quickly by ratifying the treaty and submitting its own claims. However, in addition to the valuable fossil fuels and other mineral resources in the area, there is also a pressing question concerning newly opened maritime trade routes. The
fabled Northwest Passage, long sought by explorers from Europe, is finally a reality, thanks to the melting of the perennial ice in summer. On the Russian side of the Arctic, the Northeast Sea Passage has also been opened and is now being plied by both tourists and cargo ships. (See Appendix E for map)

In order to continue to have safe and peaceful passage of international ships through these maritime routes, it will be important for the United States to insist that the trade routes remain international waters. To do this, the United States should be proposing treaties – whether bilateral or multilateral – with Canada and Russia to protect its interests and the interests of global commerce including transportation of oil and gas to world markets. However, the prospects for peaceful treaty-based resolution of these issues with Russia are not entirely clear at this time.

On March 27, 2009, the Russian Ministry of Defense announced that it would be opening a military base in the Arctic Region. The Russian Ministry says that it will be dispatching a Federal Security Service (the successor of the KGB) coast guard unit to the Region and building an intelligence network to provide effective control of the area. In addition to the militarization of the Arctic, Russia is preparing legislation that would impose tight controls over navigation through its northern coasts, including the North Sea Route. Chilingarov provided a striking explanation for the
announcement of the New Russian military base: “All our northern regions are in or come out into the Arctic. It is our Russia.” (Halpin) Russian ambitions in the Arctic Region are clearly in conflict with the US interests. The move towards militarization creates a new urgency for US policy.

Section Five: National Security

Over the past two decades, even while the importance of the Arctic Region has grown, the place of the Arctic Region in national security policy of the United States seems to have diminished. Outgoing President Bush made vague pronouncements but at this time no clear US policy is evident. Indeed, the US State Department has yet to respond to the March 2009 Russian threat to militarize the region. Yet given the geopolitics of the Region and the increasingly feasible access to fossil fuels there, the potential for fossil fuel resource competition in the Arctic Region is high and represents an unresolved threat to peace.

There is a pressing need for US policy for the Arctic Region that recognizes that national security encompasses energy needs and ambitions of nations as well as military options. For many years Russia has been actively building the resources to protect its ongoing claims in the Arctic Region and to widen its influence there. The Russian fleet already has several nuclear-powered icebreakers. The March 2009 announcement of its plan to build a
new military base in the Arctic state the goals to “guarantee military security in different military-political situations,” and to provide “effective control of economic, military, (and) ecological activity” in the region. (Halpin)

The United States, on the other hand, has been effectively reducing its presence in the Region. Currently the United States Coast Guard (USCG) is tasked with patrolling the US territorial waters of the Arctic, a still open-ended concept. The duties of USCG include maritime safety, maritime mobility, maritime security, national defense, and natural resource response and security. (USCG, Homeland Security) In order to do this the USCG uses icebreakers (ships with reinforced hulls that are capable of breaking extremely thick sea ice at moderate speeds). Yet over the past several years the size of the icebreaker fleet has diminished drastically.

Until 2007, there were four conventionally powered icebreakers on active duty: Polar Sea, Polar Star, Healy, and the scientific research vessel Palmer.12 (USCG, National Academy of Sciences) But with the retirement of the Polar Star, there are only three icebreakers on active duty with the

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12 The Healy is currently the largest vessel in the USCG fleet and runs on diesel fuel. She was commissioned in November 1999 and is currently deployed in the Arctic. The Polar Sea is also a diesel-powered vessel; she was commissioned in 1978 and is still on active duty and being refitted at Integrated Support Command Seattle, having returned from Arctic West Patrol. Her sister ship, Polar Star, commissioned in 1976, is likewise a diesel-powered ship, but is no long in active service. The Palmer continues to serve as the National Academy of Sciences’ vessel on the high seas, conducting purely research missions. (USCG, National Academy of Sciences)
Coast Guard. These three vessels must not only patrol the Arctic waters, but also maintain a US presence in the Antarctic. In testimony before Congress in September 2006, the National Academy of Sciences stressed the importance of maintaining the current icebreakers and budgeting for new ones in the upcoming budgetary requests. The report advocated immediate construction to ensure the US presence in the Arctic. In addition to the new vessels necessary for the continued security of national economic interests in the Arctic, the Academy also stressed the importance of maintaining the current icebreakers, all of which – with the exception of the Healy – are being used past their life expectancy. (National Academy of Sciences)

However, the budget request set forth by the USCG for FY 2010, does not appear to contain an allocation for the construction of any new icebreakers. In view of the geopolitics of the Arctic Region, this may be a serious and potentially dangerous omission on the part of the federal government. Whether the apparent reduction in the US presence in the Arctic was a factor in Russia’s recent announcement of its intentions to militarize the Region is not clear.

Further, national energy needs are clearly a critical aspect of national security. Armed conflict over scarce resources is very much part of the history of war. But whether full militarization of the Arctic Region is
inevitable may not be a foregone conclusion despite the Russian announcement. The Arctic situation is one more simmering crisis handed to the Obama Administration. The neglect of diplomacy and denial of science that characterized the Bush Administration has finally come to a head in the Arctic polar reaches. But a coherent policy for the region from the Obama Administration may be able to diffuse the mounting crisis.

Summary

The militarization of the Arctic has already begun. Russia, in announcing its intention to build a permanent military base in the Arctic Region has taken the first step. The United States is faced with the necessity to respond. Unless it can develop and implement diplomatic and multilateral solutions very quickly, conventional thinking would require the United States to increase its military infrastructure in the Arctic, including new port facilities for surface ships, new airstrips and landing pads for planes and helicopters, and new monitoring equipment. New, year-round, bases would have to be constructed on the North Slope of Alaska. In addition to the USCG, US Navy, in particular submarine patrols and overflights, would likely be increased.

The threats from foreign actors to national security in the Arctic are now tangible. The rapidly changing climate in the Arctic Region increases
the potential for resource competition. In a carbon-hungry world these resources of the region represent wealth and power. Yet complexities of the economic, environmental, security, and international relations considerations that go into examining the Arctic must not be underestimated. The United States must first decide where its interests lie and quickly announce what its Arctic policy will be.
Chapter Two: Scenario One – Full Scale Drilling

In this scenario, the United States opens the US geological territories in the Arctic Region to immediate and large-scale drilling of oil and natural gas. The goals of the full scale drilling scenario are (1) to create open market exploitation of an estimated 39.68452 bbl of oil and 278.28881 Tcf of natural gas, (2) increase the roll of the United States as a global oil and natural gas exporter thereby enhancing its influence in world energy markets, and (3) somewhat decrease the US dependence on foreign oil imports. The full scale drilling scenario would enable a profitable sector of the US economy to expand and, in doing so, increase the domestic tax base.

The immediate and full scale drilling scenario capitalizes on the energy resources newly rendered economically feasible by Arctic ice melt resulting from climate change. Assuming that market-driven exploitation of these resources would be as rapid as possible, this scenario would encourage the use of what may be a limited window of opportunity to extract Arctic resources uncovered by ice melt before further climate change makes offshore drilling, transportation, and resource competition even more difficult than it is today – as all three of the CSIS/CNAS climate change models predict will happen before the middle of the 21st Century.
This scenario resembles energy policies of Vice Presidential candidate Sarah Palin and the administration of President George W. Bush. Both advocated deregulation of onshore and offshore Alaskan resources. (Republican Platform, 2008) Conservative think tanks such as the Heritage Foundation also support such an approach to the Arctic resources. (Cohen) However, during the Bush Administration, even while there was a Republican majority in both chambers, efforts to enact such a policy met with substantial political resistance in the US Senate.

Nonetheless, in a world in which resource competition is likely to increase rather than decrease, full scale Arctic drilling may be in the US national interest and therefore it is important to outline the consequences and effects of such a policy in all its dimensions. One example of a situation in which full scale Arctic drilling could be thought necessary is if the alternative energy initiative is viewed as a complete failure. Given the current reassessment of the once promising prospects of ethanol as an important alternative fuel, loss of confidence in alternative energy is clearly a possibility. Another situation in which US domestic politics would be more favorably inclined to Arctic drilling is if international conflict limited access to oil imports.
To implement the Scenario One full scale drilling policy, changes in US law to deregulate the Arctic Region would be necessary. It is almost certain that in addition to private investment significant public investment in different types of infrastructure would be required.\(^{13}\) One necessary type of public infrastructure investment would be a very substantial increase in USCG presence in the Arctic. At this time there are no year-round bases above the Arctic Circle. The increased sea traffic in the newly opened sea routes will require patrolling and protection. Whether the threat is piracy, ice, or aggression from international resource competition, the USCG, and perhaps the US Navy, would be called upon for protection. The Russian announcement of its plans for a military base and an expansion of intelligence operations in the Arctic Region would make expanded US presence obligatory to protect US economic and security interests.

In this scenario, it is assumed that the need to tap Arctic oil and natural gas reserves in the Arctic region outweigh all other concerns. But new evidence of climate change demonstrates that this is a dynamic issue that constantly requires reassessment. Whether or not the United States is making progress towards reduction of fossil fuel consumption, exploration

\(^{13}\) One question for future research is to what extent Arctic energy exploitation would be profitable without public investment in infrastructure and the support of other government subsidies.
and exploitation in the Arctic will, by itself, increase the carbon footprint. This may increase the risk of moving from the less frightening Expected Change model in the direction of Severe Change or, in the worst case, Catastrophic Change. Ironically, efforts to exploit the resource opportunities created by climate change will likely cause the window of opportunity to close more quickly.

Even if the goals of the full scale drilling scenario are accepted as US national policy because of extreme political or international circumstances, it is important to include in this scenario the regional environmental damage and threat to food supply. The exploration of the Arctic seabed for drill sites will result in large-scale destruction of fisheries. The construction of offshore oil and natural gas infrastructure carries additional risks of local environmental damage from spills and other accidents. Particularly if the United States remains outside of UNCLOS, damage to the local environment and fisheries could cause severe conflict with other Arctic actors. The loss of such a significant portion of a food supply in and of itself has significant negative economic and security consequences.

In this scenario the United States could be acting independently or with some participation from Canada. It would be in the interest of Canada to participate in this rush for the oil and natural gas for several reasons. The
fossil fuel extraction would result in significant revenue, and the Canadian companies would want to carve out their own market share. Arctic oil exploitation might also be an attractive alternative to the controversial extraction from oil sands. (See page 26) In addition, the pressing matter of a concerted joint effort to counter Russian militarization and influence in the region might be a suitable incentive for Canada to cooperate with the United States.

However, there are several reasons why Canada might choose not to join in the drilling rush. The environmental concerns might overwhelm the potential gains in the eyes of the Canadian government and therefore present a barrier to assistance. In addition to the political barrier presented by environmentalists, the question of how to justly compensate the indigenous populations of the Canadian Arctic Region for tapping their resources and damaging their ecosystems might create an unbridgeable gap between US and Canadian interests.

Given the long-time resistance to ANWR deregulation by US environmental groups, it should be anticipated that protests and resistance to a full scale drilling policy would continue, if not escalate. It is not difficult to imagine that sabotage and eco-terrorism of the kind seen in the Pacific Northwest and Colorado would manifest itself in the Arctic Region. There
is some speculation that there has already been sabotage of Alaskan pipelines.

The Russian response to US implementation of full scale Arctic drilling is likely to be aggressive pursuit of its own reserves and further militarization. The tone of Russian public pronouncements about its Arctic claims is already quite aggressive and its intentions to militarize have been made clear. However, market forces might severely limit the ability of Russia to act upon its intentions. Since the crash in oil and natural gas prices in 2008, the Russian economy, one based on energy, has been in turmoil and on the brink of collapse. The potentially massive fields that lie deep in the Arctic region are no longer economically viable for Russia. If oil prices rise dramatically to be above $80-$100 per barrel once again, the Russian economy has a chance for a rebound and Vladimir Putin’s dream of Russia as the major energy provider has a chance for success. Russia would be able to invest in or subsidize large-scale operations of its own in the region through the semi-private energy companies found in the country. But until the market prices are high enough, the Russian response is limited to the threat of militarization.

Other international response will depend on whether or not the United States acted unilaterally or worked with its allies. If Canada’s concerns are
not answered and it does not participate in the increased drilling activity, the tensions between the United States and Canada will increase, perhaps doing irrevocable damage to the longtime partnership. A significant amount of pressure will be placed on the UN through the UNCLOS. The United States, not having ratified the UNCLOS treaty, might decide to ignore the boundaries decided upon by the supranational organization. Such unilateral action could result in a call for sanctions against the United States or the collapse of the treaty.

If the United States sets the example of open resource competition, China and India might increase their own energy ambitions whether by treaty with countries such as those in the oil-rich Caspian region and potentially with Russia, or direct action. In order to secure its own energy interests and to continue its attempt to counter the US hegemony over the seas, China might increase its navy. The militarization of these key global actors has the potential to lead to a general militarization around the world as nations perceive the importance of protecting their own energy sources or seizing those of other countries. Concerted diplomatic efforts would be needed to counteract the pull towards conflict.

The end result of the immediate and full scale drilling scenario is that the United States will have continued the dangerous policy of isolation from
old allies and potential new ones. The Arctic Region will become a significant militarized zone, leading to further tensions between the US and Russia, as well as any other potential military actors in the region. This tension is unlikely be isolated to the Arctic and could well endanger all other interactions between the two major powers.

**Scenario Two -- Moderate Drilling Under Strict Guidelines from Congress, Multilateral Cooperation**

This scenario calls for the United States Congress to open the Arctic Region for drilling, but under strict guidelines ensuring the protection of the environment and working multilaterally to enforce such protections in relation to drilling. Unlike the previous militarized full scale drilling scenario, the multilateral nature of this scenario will shift conflict to the realm of diplomacy. The factors that would make this scenario necessary are if the United States continues to be unable or unwilling to find alternative energy sources in the near term. If natural gas becomes a more prevalent energy source in the United States, this would provide another reason for Arctic gas exploitation.

In this scenario, the US ratifies the UNCLOS treaty and presents its own claims, based on the work of the US Geological Survey. Having ratified the treaty and working with the other seven Arctic nations to
determine sovereignty, the division of resources would be smoother and disputes should be decided by the supranational body created by UNCLOS. While there would be some conflict directly with the Russian submissions, this would result in mainly political posturing instead of increased militarization. There would be some militarization of the Arctic because the United States continue to be the "police" of the high seas and would, by virtue of UNCLOS, increase its purview to the Arctic waters. There might be some lingering tension between the United States and Canada due to the Canadian claim that the Northwest Passage is in its sovereign waters and its claim over some islands discovered by US citizens.

The strict guidelines and laws that the US Congress passes with respect to drilling in the Arctic would also limit the amount of environmental damage done. Therefore, it is probable that this scenario not contribute much more to climate change than the United States does now. Hopefully, the Expected Change model rather than the Severe Change model would be the end result.

The United States would increase its military presence in the region, although significantly less than the previous scenario. The bulk of the military presence would be confined to the USCG. Whether future year-round bases in the region would need to be constructed in strategic locations,
such as Prudhoe Bay and near the Bering Straights, would be examined but unlikely. The icebreaker fleet would have to be maintained and increased, although with less urgency. The US Navy would maintain its submarine presence in the region and might consider overflights, but at a limited level.

The political conditions of this scenario are much less drastic than those for the full scale drilling scenario. The moderate, controlled drilling program that this plan calls for is something that the Republican Party is likely to support this issue but support from the Obama Administration and Democratic leadership is not so clear. The most likely basis for support for the controlled drilling is that it would allow a transition to alternative energy use. It would coexist with public and private investment in alternative energy sources such as wind, solar, current, and nuclear over the decade or more needed for implementation.

But the restricted drilling scenario likely would result in outcries from environmental groups, probably not limited to domestic groups. However, the majority of the US citizenry would probably be less concerned due to the belief that the governmental restrictions to drilling would be effective. It can be expected that there would be about the same level of resistance to this scenario as has been previously seen during the 2008 Presidential campaign concerning drilling in ANWR and new tracts in the Gulf of Mexico. Indeed,
the Republican 2008 platform concerning offshore drilling in the Gulf and deregulation in ANWR met with stiff criticism. Any policy that resulted in the establishment of new offshore leases in waters previously would come under the same kind of scrutiny and condemnation as it did in September of 2008. (Center for American Progress)

The response to the restricted drilling scenario from Russia would, once again, depend on oil and natural gas prices. The continuance of restricted drilling should not result in the perception that there is an energy crisis, and thus should not cause prices to spike. Thus the prices necessary to sustain the Russian energy empire would not be achieved. The Russian economy would continue to spiral downwards without the boost from increased energy prices. Russian investment in the Arctic Region beyond Shtokman likely would be limited due decline in economic feasibility.

While Russia would likely continue with its plan to militarize its Arctic Region, US ratification of UNCLOS would allow conflicts between the Arctic nations to be adjudicated in a multilateral fashion with the support of the UNCLOS establishment.

The potential for tension between the US and Canada would be mitigated by international cooperation. The question of the Northwest Passage would be dealt with in a peaceful manner and with both countries
adhering to the decision of the international community. The Canadian oil and natural gas reserves would increase and thus provide for even more trade with the US.

The energy hungry developing economies China and India would drive those countries to continue to seek an increased market share of the world’s energy supplies and most likely try to buy stakes of the new fields in Russian waters or other national waters. Regardless of the international cooperation, China likely would continue to increase its navy size in order to establish its own regional naval dominance.

In the restricted drilling scenario, the United States would need to gradually (over a period of a decade or two) increase its investment in the natural resources of the Arctic. This includes the private major oil and natural gas extractions companies as well as the USCG. However, because of the multilateral approach followed by the United States, there would be little, if any, impetus for an arms race in the region. The market prices for oil and natural gas might dip moderately, but likely would become stable. The overall international response to this scenario would be positive and supportive with the political backlash, both domestically and abroad, being minimal and confined to environmental and radical groups.
Scenario Three – Drilling Ban in the Arctic Region

The ban on Arctic drilling scenario calls for the United States to enact an immediate and complete ban on exploration or exploitation of oil and gas in the Arctic Region. The goal of this scenario is to (1) reduce the rate of climate change, (2) protect the fragile Arctic environment and fisheries, and (3) reduce militarization of the Arctic. Creative and energetic diplomacy would be the principal means of accomplishing these goals.

To implement the drilling ban, the United States would work with the other Arctic nations to establish this restriction on a multilateral basis. In order for this scenario to be viable, the United States would have to make a massive and immediate investment in alternative energy sources. This scenario would also require a change in mentality from supply-side economics in the energy market to a more demand controlled market. (See Lovins) Increased regulation on a state and federal level would contribute greatly to this shift in the United States energy market. These regulations would take the form of increased miles-per-gallon efficiency, emissions standards, carbon caps, and a carbon tax. But unilateral restrictions in carbon emissions would not be sufficient to achieve the goals of this scenario.
The United States would work with the other seven Arctic nations, including Russia, to create and maintain the ban on Arctic drilling. This would include gradually tapering off the exploitation of current fields like Prudhoe Bay and Shtokman. But the preservation of those facilities in the event of national emergencies would be both necessary and desirable. The technical feasibility of preserving such facilities will have to be understood. Monitoring would be required. The ban scenario would work well with Canada and other environmentally mindful counties, assisting in the allure of the plan. However, there would have to be incentives for the other nations, probably in the form of alternative energy technology sharing. Even the prospect of reducing the likelihood of Catastrophic Change or Severe Change is probably not enough of an incentive for some of the Arctic actors.

The ban scenario would result in a gradual demilitarization of the Arctic Region. While there would have to be some USCG presence in the region to monitor international trade routes and maintain treaties (as they currently do in the Antarctic), the level would not increase, perhaps even decreasing over time. The USCG would be tasked with maintaining the international waterways because it would no longer be needed to protect oil and natural gas extraction facilities. Although the US Navy might perhaps deem it necessary to continue submarine patrols in the area, the need for
overflights would be lessened because there would be minimal international tension in the Arctic.

The threat of climate change would be increasingly addressed and mitigated by the substitution of alternative energy for current hydrocarbon consumption. Carbon emissions in the Arctic Region would be reduced as drilling for fossil fuels ceases. Thus, the likelihood of seeing the Expected Change model come to pass instead of either the Severe Change or Catastrophic Change models would be enhanced. Similarly, when exploration and exploitation of carbon resources stops, the regional environment would be preserved and the threat of destruction of Arctic fisheries would be removed.

Market prices of oil and natural gas might fluctuate, spiking at the announcement of such a ban, but they are likely to level off as use of alternative energy increases and consumers’ demand for fossil fuels declines. Indeed, economist M.A. Adelman’s theory on oil pricing that “there will be no more consumers far before supply runs out,” (Adelman; Lovins) might find application to alternative energy substitution.

The domestic political response would be mixed. Liberal and environmental groups would endorse this ban while more conservative groups would paint it as untenable. There would be significant opposition
from the large oil and natural gas companies, whose traditional carbon exploration and exploitation business would eventually be undermined as demand for carbon is reduced. The alternative energy groups, however, would be supportive because of massive expansion of this sector would be necessary to ensure the efficacy of the ban on drilling.

The Russian response would, once more, depend on several factors. Reduction in world dependence on oil would be destabilizing. The threat of increased turmoil for the Russian economy and the loss of status as the world’s leading oil and natural gas source have the potential to be devastating to the government. If Russia decides to go along with the US plan of no drilling in the area, the large and as yet unfinished Shtokman field would become a financial liability. Russia could well seek to be compensated for its loss of the anticipated revenue from Shtokman. In order to continue its attempt to be energy dominant, Russia would likely pursue much more aggressively a sphere of influence in the Caspian region, the Caucuses, and over the Ukraine. However, if Russia decides to contest the Arctic drilling ban in order to tap into the natural gas for the European market, there could be further militarization of the region and increased tensions between Russia and the West.
While Canada would likely view the ban scenario as beneficial, it will have important repercussions in the Canadian economy. Environmentalists in Canada would be overjoyed, as would be indigenous rights activists. However, Canadian fossil fuel businesses might respond by expanding their exploitation of other sources for oil and natural, such as the oil sands in Alberta and the Northwest Territories for which the extraction process is extremely dirty in environmental terms. (Kunzig, pg. 46) Thus, while saving the Arctic region from drilling might have wide appeal in Canada, the prospect of damage from exploitation of oil sands might overwhelm Canadian support for this scenario.

The ban scenario puts more pressure on China and India, and could result in the increase of coal production and use in those countries. In addition, as in the US, there will be an increase in the number of nuclear energy facilities in these countries. Certainly with India, this could lead to increased tension with its other nuclear neighbor, Pakistan. However, if the United States takes an active role as the leader in alternative energy technology and production, it would be able to be moderate and ease the tensions.

The ban on Arctic drilling would lessen the likelihood that the world will experience Catastrophic Change. The Arctic would see a gradual
demilitarization, assuming Russia agrees to the ban, and be preserved from the ravages of conflict and international tensions. Prudhoe Bay and the Shtokman fields would eventually be decommissioned. Alternative energy would become mainstream in the United States and have increased importance in the rest of the world. The “green” jobs that the Obama Administration trumpets will become a reality and result in a new US economic boom based on alternative energy technology. Through this technology, United States influence would dominate globally. Efficiency and innovation would be the watchwords of the era. Oil and natural gas would, out of necessity, decrease their market share of the domestic energy market. Market prices for these fossil fuels would fall, enticingly, but would remain low due to the decrease in demand.
Conclusion

The Arctic region is in crisis – it is a crisis of national security and climate change, of threats to the food supply and to the regional environment. But if the Obama Administration can boldly imagine a new course of action based on a more profound understanding of national security, this crisis will not be wasted. There is no single answer to the question of US policy in the Arctic Region. The solution must be intricately woven into domestic and foreign policy, scientific, economic, and national security policies.

As the global economy seeks ever more hydrocarbon resources to satisfy its energy thirst the resulting climate change has provided a new opportunity in the Arctic Region. Never before have so much of the resources located deep below the Arctic’s frigid waters been economically recoverable. Now that has changed. But this seeming bounty comes with grave peril. Exploiting these treasure would accelerate climate change. The question of how to sustain the Arctic regional and the food supply from its fisheries are of primary concern. Now Russia has made clear its intentions to militarize the Arctic Region in order to ensure its dominance in the area. The United States can no longer afford to sit idly by.

14 A favorite saying of Rahm Emanuel is “Never let a serious crisis go to waste.”
The militarization of the Arctic by the Russians caught the United States unprepared. Yet it is important not to overreact and to carefully examine the US national interests. It is in the US interest to break free from a dependence on oil, natural gas, and other hydrocarbon fuels, not only because of the massive amount of money spent overseas importing the resources, but also because it will most likely prevent Catastrophic Change. It is in the US interest to have energy sources be domestic, yet it is also in the US interest to be energy interdependent so mutual economic benefit prevents armed conflict as much as possible.

The three scenarios outlined above each have their benefits and their drawbacks. The full scale drilling scenario would provide some relief to the dependence on foreign oil and, in doing so, create more jobs in a profitable industry. But the cost to the environment and to the international relations would be too great for its fleeting worth. The moderate, restricted drilling scenario attempts to balance the need for oil and natural gas with the knowledge that the extraction, production, and consumption of these fossil fuels leads to even more climate and environment damage. If the Obama Administration and the private sector cannot spur enough alternative energy innovation, production and use, the moderate, restricted drilling scenario should become the US Arctic energy policy.
However, after taking into account international relations, scientific realities, economic probabilities, and national security, the only truly sound path is the complete drilling ban in the Arctic. The investment in alternative energy would need to be on a World War II Era scale, the cooperation from the seven other Arctic nations would have to be complete, but if accomplished, it would most definitely save the human race a world of trouble.
Appendix A: Map of the Arctic Region (NOAA)
Appendix B: Map of USGS Geological Provinces, Probable Oil (USGS)
Appendix C: Map of USGS Geological Provinces, Probable Gas (USGS)
Appendix D: Map of US and Russian Interests in the Arctic (Heritage Foundation)

U.S. and Russian Interests in the Arctic

Appendix E: Map of Northwest Passage and North Sea Route
(Geology.com)

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