



Alaska and Arctic Canada – a review of 2010

Executive Summary

Alaska and Arctic Canada both enjoyed an increased level of licensing activity in 2010. In Alaska, the amount of acreage awarded more than doubled from 2009. Most notably, Great Bear Petroleum entered the Alaskan North Slope in a big way, acquiring a large swathe of land to the south of Prudhoe Bay. Offshore, no federal licensing in the Chukchi or Alaskan Beaufort Seas took place. However, across the border, Chevron signalled a confidence in the Canadian Arctic's potential, placing a work commitment of Cdn\$103 million for a large tract in the Beaufort Sea.

In 2010, five exploration wells were drilled in Alaska – the lowest level since 1995. Savant Resources drilled one well as part of its continued work at Badami and returned the field to production in November, after a three year hiatus. In the state waters of the Beaufort Sea, Brooks Range Petroleum sidetracked its Sak River 1-A well. To the south, Cook Inlet exploration activity remained subdued and three exploration wells were completed.

In the National Petroleum Reserve-Alaska (NPR-A), ConocoPhillips' Alpine West project faces delays following the denial of a key permit. Development of the discovery would ultimately encourage further industry activity in the NPR-A. In addition, BP delayed rig construction at its Liberty field, while it conducts a thorough safety review. Nonetheless, work at several of the North Slope's key future projects continues. ExxonMobil's Point Thomson and Eni's Nikaitchuq fields are both progressing towards first production.

The Alaska and Arctic offshore regions have already been impacted by the regulatory backlash resulting from the Macondo oil spill in the Gulf of Mexico. In Alaska, the 2010 federal Chukchi lease sale was removed from the 2007 to 2012 leasing programme, and Shell has faced increased opposition to its plans to drill in the Alaskan Beaufort and Chukchi Seas. In Canada's Arctic waters, no exploration wells were drilled in 2010. An offshore regulatory review has now commenced, with drilling unlikely until at least 2014.

Lease Activity

Alaska – another lacklustre year

The amount of acreage awarded in Alaska during 2010 more than doubled relative to 2009's low point. However, the average signature bonus per acre fell substantially. During 2010, over 200 tracts were preliminary awarded in Alaska for a total bid amount of around US\$13 million. Around 60% of the apparent high bids were located in the central North Slope area, which similarly accounted for 66% of bonus spend. The most expensive lease of the year was located in the Cook Inlet, attracting a high bid of US\$311,040 from Cook Inlet Energy LLC.

Alaska North Slope

Making its entrance into Alaska in a big way, Great Bear Petroleum had apparent high bids on 105 tracts, or 81% of the central North Slope leases offered. Total bonus spend for the 537,600-acre position amounts to US\$8.1 million, although not all of the leases are expected to be awarded due to a state-imposed 500,000 acreage limit. The company plans to test recovery techniques using the fracturing of source rocks on its newly acquired acreage. Elsewhere, independents and individual investors dominated, with ConocoPhillips the only participating major. The company added one tract in the central North Slope, just south of its Nanuq field.

Beaufort and Chukchi Seas

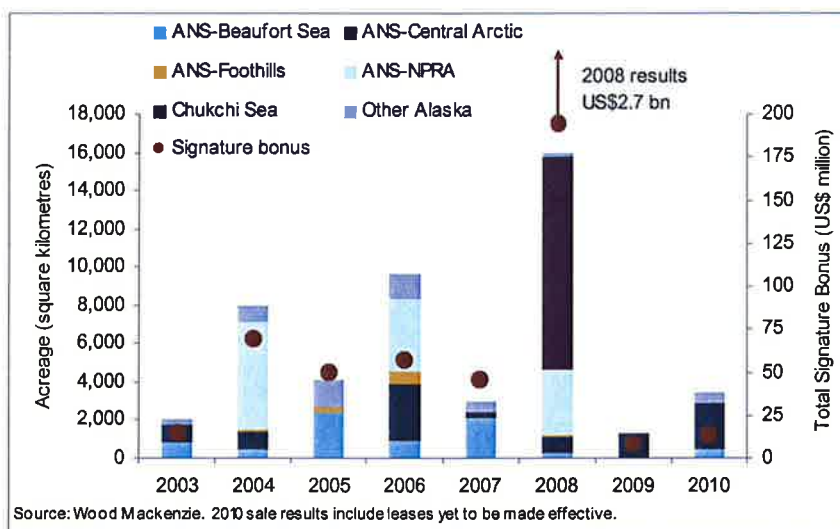
Interest in state Beaufort Sea leases was subdued, with the February sale attracting US\$0.72 million for 18 leases and the October sale just US\$0.68 million for 20 leases. The latter is yet to be made effective. GMT Exploration Company, Sun-West Oil & Gas and individual investors were the sole bidders for ANS-Beaufort Sea acreage. GMT Exploration submitted the highest bid, targeting a tract just north of the Nuiqsut field.

A Chukchi Sea lease sale was originally planned for 2010, but was deferred by the Bureau of Ocean Energy Management, Regulation and Enforcement (BOEM). The Chukchi Sea 193 sale, which accounted for 2008's record bonus levels, faced legal challenges that were upheld by the US Court of Appeals in July 2010. Environmental groups contested the sale based on an insufficient environmental impact statement. The BOEM drafted a supplemental environmental impact statement in September 2010 to address the outstanding issues raised by the court case, but ongoing legal wranglings are anticipated.

Other Alaska

Outside of the North Slope, 35 tracts were awarded in the Cook Inlet and no bids were received for acreage in the Foothills. ConocoPhillips was the sole participant at the National Petroleum Reserve-Alaska (NPR-A) sale held in August 2010, where only five of the 190 offered tracts received bids. ConocoPhillips' spend totalled just US\$0.8 million. The Bureau of Land Management (BLM) does not plan on scheduling another NPR-A sale until at least 2012, following the completion of a comprehensive planning process.

Acreage awarded and total signature bonuses in Alaska 2003 to 2010



Lease Relinquishments

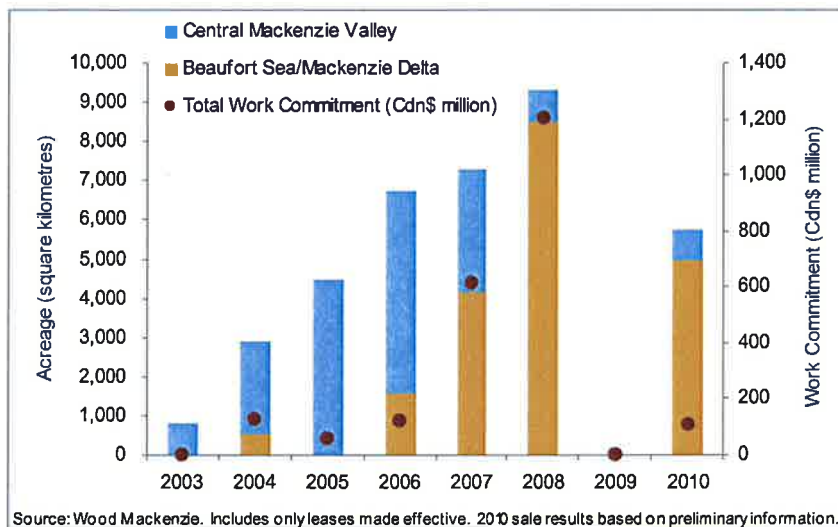
A number of notable leases were relinquished across Alaska during 2010, as companies high-graded their positions to focus on more prospective areas. Chevron and its minority partner, Total, relinquished a large bulk of the partnership's lease position in the White Hills area. Chevron drilled five wells between 2008 and 2009 on the prospect, which lies south of the Kuparuk field. In the NPR-A, Talisman Energy relinquished 19 leases in Harrison Bay, near the Beaufort Sea. In addition, ConocoPhillips and Pioneer Natural Resources have also trimmed their NPR-A positions during the past two years. Other relinquishments that occurred during the year included the southern portion of Anadarko's holdings in the Foothills and Eni's nearly 80,000 acre position in the central North Slope.

Arctic Canada – a slight improvement

Six exploration licences were awarded in Arctic Canada during 2010, with Cdn\$110.7 million in work commitments placed. In a big move, Chevron successfully placed a work commitment of Cdn\$103.3 million to secure EL 460, a Beaufort Sea licence that spans more than 500,000 acres. The block lies in water depths of 711 to 1,801 metres (2,333 to 5,909 feet) to the west of licences originally acquired by BP, ExxonMobil and Imperial Oil during 2007 to 2008. The remaining five licences were acquired by MGM Energy, with Cdn\$5.7 million placed for four tracts in the Mackenzie Delta and Cdn\$1.7 million for one tract in the Mackenzie Plain.

In another positive signal for the deepwater Beaufort, a joint venture agreement was reached between ExxonMobil, Imperial Oil and BP on two large adjoining exploration blocks. As a result, BP gained a 50% interest in EL 449 (Pokak), while ExxonMobil and Imperial Oil each attained a 25% interest in EL 446 (Ajurak). The leases are located just 10 kilometres to the east of Chevron's newly acquired acreage.

Acreage awarded and total signature bonuses in Arctic Canada 2003 to 2010



Drilling and discoveries

Alaska North Slope

Based on the latest available information, we estimate that two exploration wells were drilled on the North Slope in 2010, down from 10 in 2009. This marks the third straight year of declining exploration activity on the slope. The decline is disappointing, but not entirely unexpected as industry focus was largely centred on development at Point Thomson, Nikaitchuq and Oooguruk, and in progressing offshore work in the Chukchi and Beaufort Seas.

Savant Resources re-entered and completed the Badami-38 exploration well, also referred to as Red Wolf, in January 2010. Results remain tight on the well's primary target, the Kekiktuk reservoir, but Savant reported it had encountered oil in a secondary target – the Cretaceous Killian sands. The well is part of Savant's efforts to commercialise the Badami field, which returned to production in November 2010 following a three-year production hiatus. BP has transferred ownership in four of the Badami leases to Savant Resources and its partner, Arctic Slope Regional Corporation.

The Sak River – 1A sidetrack was completed by Brooks Range Petroleum Corporation in March 2010, discovering oil shows in the Kuparuk Formation, but with high amounts of water. The well, located just north of the Prudhoe Bay Unit in the state waters of the Beaufort Sea, was drilled to a depth of 3,879 metres (12,726 feet).

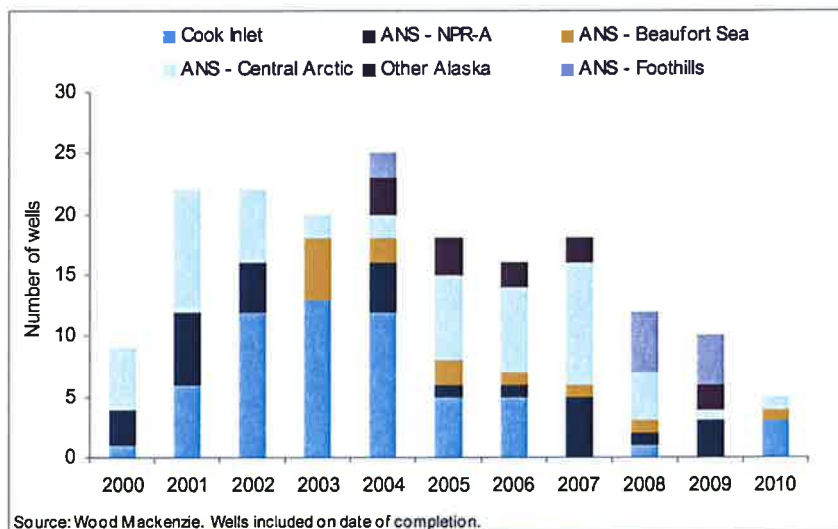
Alaska Cook Inlet

Exploration activity in the Cook Inlet picked up marginally in 2010, with three wells drilled. Marathon's onshore Sunrise well, located within the Kenai National Wildlife Refuge, was completed in February 2010. The well targeted gas reservoirs just east of the Swanson River field, but results remain tight.

Armstrong drilled two wells to delineate its 2008 North Fork discovery, which could be brought onstream in early-2011. The drilling programme delineated the gas-bearing Tyonek Formation and tested for oil in the deeper Hemlock Formation. Both well results remain tight.

A jack-up rig is required to drill some of the region's more attractive offshore prospects, particularly the Kitchen Lights Unit. As a result, several companies have made unsuccessful attempts at securing a rig. However, two separate companies, Buccaneer and Escopeta Oil & Gas, are now independently advancing plans to procure a jack-up rig for Cook Inlet drilling in 2011. Both companies intend to relocate a jack-up, drill their own prospects, and then lease the rig to other operators in the region. Buccaneer plans to purchase a jack-up for use in both the Cook Inlet and Arctic outer shelf which, not counting delays, the company anticipates will be on location by the end of Q2 2011. Escopeta Oil & Gas has progressed separate plans to lease and possibly exercise a purchase option on the Gulf of Mexico-stationed Spartan 151 jack-up and transport the rig to the Cook Inlet by May or June. Both companies are motivated by special production tax incentives. The credits fund a portion of drilling costs for the first three explorers utilising the same rig to drill into pre-Tertiary formations. However, each well must be drilled by a different and unaffiliated company. At the very least, onshore exploration will continue into 2011 as Buccaneer is planning to drill its first Alaska well at its Kenai Loop project.

Alaska – exploration wells completed 2000 to 2010



Beaufort and Chukchi Seas

No drilling occurred in the federal areas of the Beaufort or Chukchi Seas during 2010. Statoil did though add to its position in the Chukchi Sea after swapping selected Gulf of Mexico leases for a 25% interest in ConocoPhillips' Devil's Paw prospect. Devil's Paw is a large prospect spanning 50 leases that ConocoPhillips acquired during the Chukchi Sea 193 federal lease sale. Statoil, along with partner Eni, already owned interests in 16 Chukchi Sea leases. This acreage was the target of a 2010 3D seismic programme, which covered more than 640,000 acres.

Shell's efforts to drill in the federal waters of the Beaufort and Chukchi Seas have continued to face setbacks. The latest obstacle came in December 2010 when the Environmental Appeals Board returned Shell's air quality permits to the Environmental Protection Agency for revision. This move will deter Shell's plan to use the Noble Discoverer drillship to drill the Sivulliq prospect during the 2011 summer drilling window. The Gulf of Mexico Macondo incident intensified environmental scrutiny of drilling efforts in Alaskan federal waters. Despite the BOEM-imposed drilling moratorium ending in October 2010, stricter regulations and further environmental studies on the impacts of a spill may be required before permits will be approved for drilling.

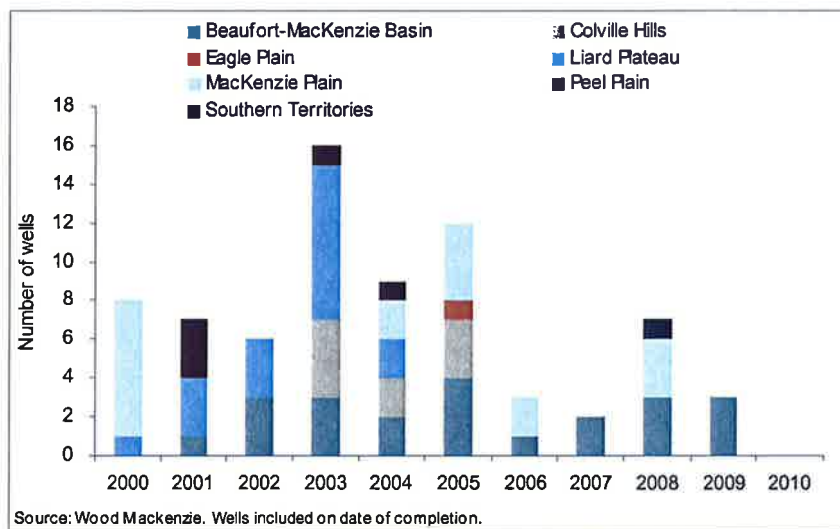
National Petroleum Reserve

No wells were drilled in the NPR-A. Markedly, ConocoPhillips did not drill a well in the area for the first time since 2003. The company has indicated that the focus of its future exploration efforts will shift to the Chukchi Sea. In addition, the United States Geological Society (USGS) downgraded reserve estimates for the NPR-A in October 2010. The previous 2002 estimate of 1.5 billion barrels of undiscovered technically recoverable oil fell to just 896 million barrels.

Arctic Canada

No exploration wells were drilled in Arctic Canada during 2010 and offshore inactivity is poised to continue as Canada's National Energy Board (NEB) conducts a review of offshore regulations. The NEB review, issued in response to the Macondo incident in the Gulf of Mexico, will focus on safety issues and relief well requirements. No clear timeframe has been given for the review, but drilling activity before 2014 seems unlikely. Onshore, MGM is preparing to drill its first well on the Great Bear oil prospect in the central MacKenzie Valley during early-2011.

Arctic Canada – exploration wells completed 2000 to 2010



Development highlights and other highlights

North Slope – Point Thomson drilling, Liberty delayed, and Nikaitchuq start-up imminent

Two development wells, PTU-15 and PTU-16, were completed on the ExxonMobil-operated Point Thomson field during 2010. These wells will be part of a gas-cycling project that will extract and export 10,000 b/d of condensate, while re-injecting gas for later commercialisation. Further drilling activity is not expected until 2013, with condensate export expected to begin in 2015. The wells were drilled on two contested leases that had previously been annulled by the state. Further legal wranglings between the state and ExxonMobil on the status of the unit is anticipated.

At BP's Liberty project, the drilling of some of the world's longest extended-reach wells was scheduled to commence from the Endicott drilling island into federally regulated waters. However, drilling was delayed into 2011 as regulatory authorities indicated they intended to review the project plan. In November, BP delayed start-up further when rig construction was suspended while the company conducts a design and engineering review. Production start-up for Liberty is not now expected until 2012.

Originally intended to start-up in December 2009, Eni's Nikaitchuq field is set to begin production in early-2011. We expect the project's onshore wells to begin producing in January 2011, and offshore drilling activity to commence in mid-2011.

National Petroleum Reserve – ConocoPhillips denied key permit

Development plans for Alpine West in the NPR-A were delivered a blow in February 2010 when the US Army Corps of Engineers rejected ConocoPhillips' permit for the CD-5 drill site. ConocoPhillips intended to construct a bridge traversing the Colville River to link existing infrastructure to the proposed drill site. The drill site would be used to develop the Alpine West field and as a possible site for future exploration and development activity. The Army Corps of Engineers

argue that an alternative plan of drilling extended-reach horizontal wells and installing an airstrip would result in less environmental impact; ConocoPhillips is contesting the decision.

Cook Inlet – LNG export licence extension and Chevron taking its leave

The Kenai LNG export licence was granted an extension of two years by the US Department of Energy. The plant's owners, ConocoPhillips and Marathon, will continue to export gas from the Kenai and North Cook Inlet fields until 31 March 2013. Gas destined for the plant is diverted to local utilities during peak demand. Regional utilities and the government are increasingly concerned about declining local gas production and it remains possible that the LNG plant may be converted into a receiving terminal post-2013, if other alternative gas supply solutions are not pursued.

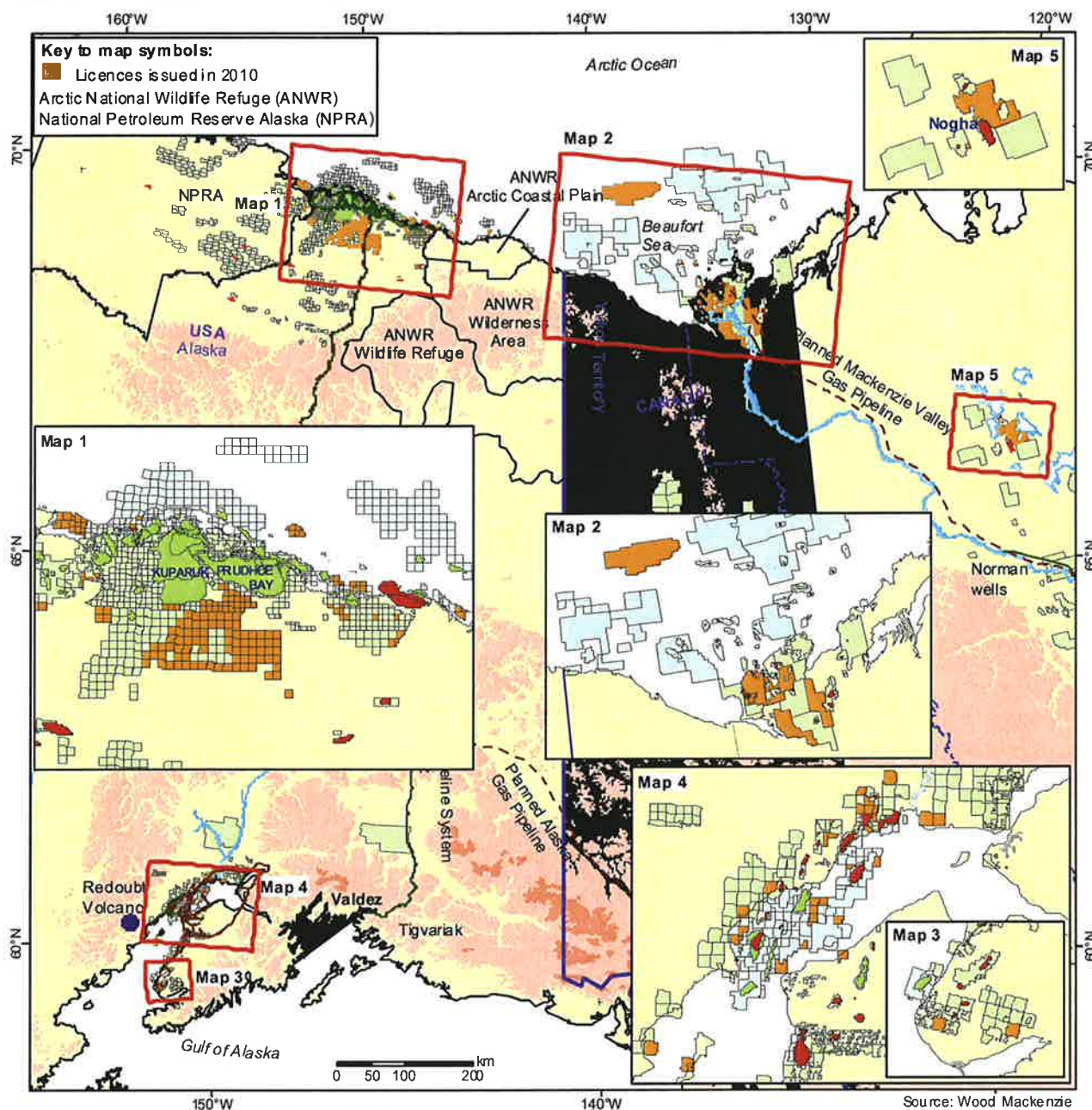
In October 2010, Chevron disclosed plans to divest its Cook Inlet assets, while retaining its relatively small position in the North Slope. Chevron's Cook Inlet assets consist of both onshore fields and ten offshore platforms, including MacArthur River and Granite Point. The assets are in decline and non-core to the company; a data room will be established in early-2011 to market the assets.

Arctic Gas Pipelines trudging forward

Both the TransCanada and Denali Alaskan Gas projects completed separate open seasons in 2010. Work continues on finalising precedent agreements and no results have been released. The previously-published Insight, *'The Alaska Gas Pipeline – progress or just process?'*, highlights the key issues surrounding the two pipeline proposals. High construction costs and the impact of shale gas on the North American gas market dynamic challenge both the timing and economic viability of a pipeline.

Canada's National Energy board (NEB) approved the Mackenzie Gas Project in late-2010, marking an important step forward in the regulatory process. The NEB's approval included 264 conditions and the next hurdle for the pipeline is securing the approval of Canada's federal cabinet during 2011. The Mackenzie Gas Project is a proposed 720-mile pipeline cutting through the Northwest Territories that will connect Canadian Arctic resources into Albertan infrastructure. The project is owned by a consortium of companies including Imperial Oil, Aboriginal Pipeline Group, ConocoPhillips, Shell and ExxonMobil. Under current regulatory deadlines, the companies have until the end of 2013 to decide to go-ahead with the project. The Mackenzie Pipeline project is challenged by many of the same issues facing an Alaskan pipeline, which are compounded by lower levels of known gas reserves.

Alaska and Arctic Canada 2010 lease sales



Map includes apparent high bids in Alaska which have yet to be made effective.

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