

**Arctic Gas - Will This Project Grow in Spring?**

**February 5, 2007**

**Overview**

The proposed Mackenzie Valley Gas Project (MGP) would involve the development of a 6 Tcf natural gas resource in the Mackenzie Delta, in addition to the construction of a 1,220 km pipeline, with an initial capacity of 1.2 Bcf. The pipeline will be expandable in order to accommodate other natural gas fields that can be added into the gathering system or the main pipeline. The Mackenzie Delta and adjacent areas possess an estimated 21.5 Tcf of natural gas reserves. The initial capacity can be expanded to 1.9 Bcf through additional infill compression. This pipeline system would transport gas from the Beaufort Delta region to an existing pipeline system in northern Alberta. The pipeline would run along the Mackenzie Valley in the Northwest Territories, and would be longer than the distance between New York, NY to Chicago, IL (1,158 km).

APG and the Producer Group (including any new owners). According to tolls published in the application, each 10% of the pipeline would be worth \$15 Mm in annual rate-based earnings. However, these numbers are subject to a revised cost estimate, expected in March 2007.

Once construction begins, the APG earns its post-development working interest via the expansion of gas production, which gives an incentive to the aboriginal nations to encourage development on their lands. At 1.2 Bcf/d, the APG owns 3% of the pipeline; at 1.4 Bcf/d, 18%, and at 1.6 Bcf/d, the APG realizes the full 33.33%. Once the APG reaches a 33.33% share, TransCanada is granted the right to 1/3 of further expansions, with the APG and Producers Group splitting the other portion equally. We have detailed various contingencies in the table "Potential Working

The project is being proposed by Imperial Oil (34.4% pre-development working interest, and the owner responsible for building and operating the pipeline), ConocoPhillips Canada (15.7%), Shell Canada (11.4%), ExxonMobil Canada (5.2%) and the Aboriginal Pipeline Group (APG). The APG was assembled in 2000 in order to represent the ownership interests of the Aboriginal peoples of the N.W.T. It has a 33% pre-development working interest in the Mackenzie Valley Pipeline. Actual ownership interests will be set at the time of the decision to construct.

By financing the pre-development costs of the Aboriginal Pipeline Group, a 33% owner of the pipeline, TransCanada and the owners reached an agreement whereby it has the option to acquire a 5% ownership stake from the share of the Producer Group (the owners other than APG) upon the decision to construct. It also received the right of first refusal if any owner chooses to sell, with the right to acquire 50% of any stake put up for sale. If the pipeline expands beyond its original capacity, the additional capacity would be split between TransCanada, the

**Proposed Pipelines in the Arctic**



Data Source: National Energy Board, TransCanada Corporation

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**Potential Working Interest Scenarios in Mackenzie Valley Pipeline**

Owner	Pre-Construction	Construction (1.2 Bcf/d)	Expansion to 1.4 Bcf/d	Expansion to 1.6 Bcf/d	Expansion to 1.8 Bcf/d	Sale of IMO Share*	Sale of COP Share*	Sale of SHC Share*	Sale of XOM Share*	Producer Group Sells Out*
Producer Group	66.70%	92.00%	77.00%	61.67%	58.52%	35.88%	48.19%	51.02%	55.10%	0.00%
Aboriginal Pipeline Group	33.30%	3.00%	18.00%	33.33%	33.33%	40.88%	36.77%	35.83%	34.47%	62.59%
TransCanada	0.00%	5.00%	5.00%	5.00%	8.15%	23.24%	15.04%	13.15%	10.43%	37.41%
	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>
Individual Producer's Working Interests										
Imperial Oil (IMO)	34.40%	47.45%	39.71%	31.81%	30.18%	0.00%	32.50%	31.74%	30.82%	0.00%
ConocoPhillips (COP)	15.70%	21.66%	18.12%	14.52%	13.77%	17.44%	0.00%	14.48%	14.07%	0.00%
Shell Canada (SHC)	11.40%	15.72%	13.16%	10.54%	10.00%	12.67%	10.77%	0.00%	10.21%	0.00%
ExxonMobil (XOM)	5.20%	7.17%	6.00%	4.81%	4.56%	5.78%	4.91%	4.80%	0.00%	0.00%
	<b>66.70%</b>	<b>92.00%</b>	<b>77.00%</b>	<b>61.67%</b>	<b>58.52%</b>	<b>35.88%</b>	<b>48.19%</b>	<b>51.02%</b>	<b>55.10%</b>	<b>0.00%</b>

\*Assumes 1.8 Bcf/d scenario

Data Source: FirstEnergy Capital Corp., Aboriginal Pipeline Group

Interest Scenarios in Mackenzie Valley Pipeline". Should the pipeline expand to 1.8 Bcf/d, we estimate that TransCanada could hold 8.15% of the pipeline according to the current structure, with additional working interests available should other partners decide to sell. It is worth noting that most of the original owners of the Alliance Pipeline were producing companies; now Alliance is owned by pipeline company Enbridge (50%) and mid-stream asset owner Fort Chicago Energy Partners (50%). Therefore there is a possibility that some or all of the Producers Group may sell their interests in the Mackenzie Valley Gas Pipeline.

The project would involve gas fields from each of the companies: Taglu (Imperial Oil WI 100%), Niglintgak (Shell WI 100%), and Parsons Lake (ConocoPhillips WI 75% and ExxonMobil WI 25%). Combined, these fields can supply 800 Mmcf/d of natural gas over the life of the project. Additional production to fill the line would come from other fields; with 4.6 Tcf of total estimated recoverable but currently undiscovered reserves beyond the fields mentioned above (according to an MGP resource study filed with the application), the Mackenzie Delta should contain sufficient further capacity to fill the line to 1.2 Bcf/d and beyond to 1.9 Bcf/d when new discoveries permit. The fields will be connected to a gathering pipeline system, which will then move the gas to a processing facility near Inuvik. In addition, the MGP resource study estimates that another 2.9 Tcf of undiscovered sales gas reserves exist in the Central Mackenzie Valley, with another 8.1 Tcf of discovered and undiscovered gas reserves potentially available in the Beaufort Sea offshore the Delta.

There is currently no pipeline to connect the northern gas reserves with the Alberta pipelines. Efforts to construct the pipeline have been in the works since the 1970s. The rising demand for natural gas has heightened the need for this infrastructure in the energy sector.

**Regulatory Approval**

Construction of the pipeline can only commence once regulatory approvals have been met. The project requires approval from federal, territorial, provincial, and settlement area regulatory authorities.

In the preliminary stages, the organizations involved formed the regulatory Cooperation Plan, in order to ensure the environmental assessment and regulatory procedures were effective and efficient. The Cooperation Plan ensured the needs of all northern agencies were satisfied, honoured land claim agreements, and satisfied the regulations of federal and territorial legislation.

In June 2003, the Mackenzie Gas Project then submitted the Preliminary Information Package (PIP) to the regulatory agencies. This document outlined all aspects of the project and the socioeconomic effect the project has on the North. A land-use permit and water license application were then filed through the Mackenzie Valley Land and Water Board.

In October, 2004, the Environment Impact Statement was filed for review by the Joint Review Panel. The major regulatory applications were also filed with the National Energy Board (NEB) at that time, thereby initiating the formal environmental assessment and regulatory review of the project.

If regulatory approvals are given, various licenses and permits will be required in order to ensure conditions are met. The MGP began to file applications for permits in April, 2005. Over the past two years, applications have been filed for various purposes, such as water licenses and land use permits for all the aboriginal areas involved. The project would pass through four aboriginal areas in the N.W.T.: The Gwich'in Settlement Area, the Inuvialuit Settlement Region, the Sahtu Settlement Area and the Deh Cho Territory.

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If approval is obtained, the organizations involved will then decide whether to proceed with construction of the project, upon considering factors such as costs. Four years of construction are expected according to the PIP, involving construction of camps, storage facilities, and roads, with pipelines and the remaining facilities to follow.

Various parties are involved in the regulatory process, including many government organizations such as Indian and Northern Affairs Canada, Natural Resources Canada, Fisheries and Oceans Canada, Transport Canada, Environment Canada, Human Resources and Skills Development Canada, the National Energy Board, the Canadian Environmental Assessment Agency and the Privy Council Office. These groups have been involved in reviewing the proposal.

**Socioeconomic Impacts**

The project would provide a large contribution to the economy of the N.W.T. If accepted the MGP would be the largest privately-funded infrastructure project ever in Canada, and would employ 6,500 to 7,500 workers at peak construction. However, there are also many environmental implications to the proposed pipeline. For example, the proposed pipeline will run through the middle of the Cape Bathurst caribou range. The population of caribou has already dropped from 17,500 in 1992 to 1,800 in 2006.

The Mackenzie Valley watershed is twice the size of Ontario, and is the largest watershed in Canada. While the project has not received serious environmental opposition, many environmental organizations are ensuring the environmental implications are reviewed. The Sierra Club of Canada is a registered intervener in the Joint Review Panel hearings. It is also working with other conservation organizations to ensure effective engagement of the environmental community in the hearings of the Joint Review Panel and the NEB. In addition, the World Wildlife Fund has called for protective areas to be established before development.

Some Aboriginal communities are adverse to the pipeline. The Deh Cho First Nations was particularly opposed to the pipeline project, due to its effects on their culture, land, and way-of-life. Two groups of the Deh Cho First Nations actually showed an interest in joining the Aboriginal Pipeline network in H2'06, due to the job creation it would bring. However, the Deh Cho leadership stated in January 2007, it will still not completely support the construction of the pipeline until a land-claim agreement is in place.

On January 27, 2007, they announced “that they were prepared and ready to take on the impacts and benefits of the massive Mackenzie Gas Project”. They are working to have plans in place to mitigate any of the risks to their culture and environment from the project. However, the acceptance of the pipeline comes with some compromises. Jurisdiction of lands is the main priority of the Deh Cho, and not the MGP. They are currently waiting for more information as to the land-use plan, and the amount of money and land that the government is prepared to offer. This information will become available in the spring, and then the Deh Cho will formulate a decision.

On January 22, 2007, Imperial Oil Resources announced that the project’s co-venturers have signed a Socioeconomic Agreement with the N.W.T. Government, in order to address the various concerns. The agreement between the parties covers various areas such as training and employment, business opportunities, well-being, sustainable development, net impact on government, and continuous monitoring of the project. Commitments were also made in several areas such as cultural preservation, safety and security, in addition to training and employment targets for aboriginal residents.

The agreement was seen as a significant step towards commencement of the project. Now that the agreement has been signed, the particulars of the terms will be filed with the Joint Review Panel, which is currently conducting public hearings regarding the regulatory applications. The pipeline backers are to cover \$21 million towards training the northern residents for jobs if the project is approved. The remaining money will be provided by the government. The deal also states that approximately 800 locals are to be hired for the construction phase of the project, with 140 of the jobs to remain when the pipeline commences operations.

**Decision Time**

The Socioeconomic agreement represents an important milestone in the progress of the project, and increases the likelihood of the project proceeding. This benefit package goes a long way in acquiring the support from the territory. It aligns the interests of the project proponents with the N.W.T. Government. The details of the specific terms of the agreement will then be filed with the Joint Review Panel, which is currently conducting public hearings on the social and environmental impacts of the Project. While the NEB hearings concluded in December 2006, the JRP hearings are expected to conclude on March 20th, 2007,

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with a conclusion anticipated in April, 2007. The NEB decision is expected in early 2008. With three to four years of construction to follow, the pipeline will be in service in the fourth quarter of 2001 at the earliest.

**Operations**

If the pipeline were to go ahead, it would connect with the TransCanada system in northern Alberta. TransCanada is providing funding to the APG for the project definition phase of the Mackenzie Gas Project, in exchange for earning several acquisition and expansion rights and financial return if the project proceeds. The proposed pipeline will also deliver associated Natural Gas Liquids (NGLs) to the Enbridge pipeline at Norman Wells from the Inuvik facility. The Norman Wells pipeline transfers approximately 30,000 barrels of crude oil per day.

The preliminary project schedule expected that the MGP would receive regulatory approval mid-2006, and that first gas transmission from the Project would commence in Q4'09. Now the goal of the partners involved is to have the Mackenzie pipeline delivering gas by 2011.

The cost of the project has been estimated at \$7.7 billion. The capital cost of the pipeline from Inuvik to Alberta was estimated at \$4.5 billion, with the remaining estimated \$3.2 billion to be spent developing the Taglu, Niglintgak and Parsons Lake gas fields and gas gathering system and natural gas liquids transportation system from Inuvik to Norman Wells. Imperial Oil is expected to release a revised cost estimate in March 2007, which will likely see costs revised above \$9 billion. As of August 2004, revenue from the tolls and tariffs is expected to average \$693 Mm from 2010 to 2014. Operating costs are expected to average \$67 Mm over that time, with net annual earnings expected to average \$154 Mm on the \$4.5 billion base capital cost. Also from 2010 to 2014, rate of return on equity is estimated at 11.77%, while the interest rate of debt is estimated at 6.10%.

**To Drill Or Not To Drill**

There are other working interest owners in the region, which do not own a stake in the MGP. These owners, which call themselves the Mackenzie Explorer Group, control an approximate 175 Mmcf/d of production capacity, and want to be certain of their rights to pipeline capacity and the cost of transportation. Because the APG receives additional working interest in the Project as more gas is brought onstream, it has a vested interest in encouraging exploration by any and all parties. Some members of

the Mackenzie Explorer Group (MEG) are growing tired of waiting. Devon Canada stated it is "tired of attempting to negotiate solutions." Chevron Canada commented that it was difficult to make investment decisions "when you're not sure when you can actually commercialize that particular investment." The Mackenzie Explorer Group consists of Devon Canada, Chevron Canada, BP Canada Energy, Nyttis Exploration, and EnCana Corporation.

If too much time passes by, the project may become less feasible. Explorers may become more frustrated, and forgo further drilling. In addition, labour and construction costs continue to mount, potentially diminishing returns (although the pipeline would be a rate-based system, the current owners would be moving their own gas). Some of the organizations involved, such as Devon Canada and TransCanada Corporation, have commented there may come a point where it would be easier not continue with the project. TransCanada CEO Hal Kvisle has warned that when considering the rising costs, weakening economics and aboriginal resistance, the Mackenzie project may become "too complicated and it's just not worth the grief to go ahead with it".

However, there also exists a strong commitment to the project. Project leader, Imperial Oil, claims it is as committed to the project now, as it was in the beginning. With 6 Tcf natural gas reserves in the areas, and more reserves probable, MGP support will likely pay off. Pressure to commence operations continues to mount as the amount of imported LNG rises.

**Alaska Gas?**

Also contributing to the urgency is the chance that the Alaska gas pipeline could begin before the Mackenzie Valley Pipeline. However, with a new Alaskan governor elected with a mandate to tear up the previously proposed contract with the Alaska Gas Producers and start negotiations over again, Alaskan production may take some time. A presentation from the government of Alaska in 2006 (before the new Alaskan administration won power) shows that Alaskan gas delivery would come onstream in 2016 at the earliest, with construction beginning in 2012, theoretically after construction on the Mackenzie Gas Project is complete.

The proposed Alaska Natural Gas Transportation System (ANGTS) would connect 4 Bcf/d of production from 35 Tcf of reserves of Alaskan natural gas to the North American gas grid. Under the Northern Pipeline Act (updated in

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1985, originally passed in 1978) or NPA for short, TransCanada (via its predecessor Foothills Pipe Lines) was granted the right to build the Canadian portion of the Alaska Gas Pipeline. At the time, Foothills actually received the project approval that the MGP is currently seeking, and the NPA remains in effect as an Act of Parliament.

However, political difficulties remain. The new Alaskan Governor, Sarah Palin, has proposed legislation that would give any company or consortium the right to compete to build the pipeline (at least, the portion in Alaska). This is a change to the earlier proposed contract with resource owners BP, ConocoPhillips and ExxonMobil. An alternative "All-Alaska" line which would cross the state and ship LNG from the Cook Inlet in Southern Alaska has also been proposed.

TransCanada, as successor and 100% owner of Foothills Pipelines, claims the exclusive right to build the Canadian portion of the pipeline through the Yukon Territory and northern British Columbia, as Foothills won these rights through a competitive National Energy Board (NEB) decision in 1977. Ironically, TransCanada was part of a consortium in 1977 called Canadian Arctic Gas Pipeline Limited (CAGPL), which lost to the Foothills group!

The original decision had a David-and-Goliath aspect to it, as the CAGPL group contained some corporate heavyweights such as Imperial Oil, Shell Canada, Gulf Canada (now ConocoPhillips), as well as TransCanada. However, it was the Foothills Project that won the rights to build the pipeline, including the Alaskan portion. TransCanada, in the interests of getting the pipeline built, has now waived any rights to build the portion of the pipeline outside of Canada. According to the NEB Reasons for Decision, the Foothills proposal was preferred as it posed the least environmental and socioeconomic problems. In addition, Phase I of the ANGTS – the Foothills pipeline south of Caroline, Alberta in the central portion of the province - has already been built.

Others disagree that the NPA provides exclusive rights. Alliance Pipeline (jointly owned 50% by Enbridge and Fort Chicago) believes that the NPA does not and should not give TransCanada exclusive rights to build the Canadian portion of the pipeline, saying that it should be re-examined in light of changing market and social conditions. For example, the Alliance Pipeline itself was not in service until 2001, and therefore provides a new market condition.

With 4 to 4.5 Bcf/d of production and a price tag of over \$20 Billion, the Alaskan pipeline would be the largest construction project in North American history. Assuming \$10 Billion was spent in Canada, with a 70% debt/equity structure, and a return on equity of 10% on \$3 billion, the available earnings on the Canadian portion of the line would be \$300 Mm per year. As TransCanada earned \$560 Mm in 2006, the ANGTS would provide significant growth for TransCanada, should it retain exclusive rights and own 100% of the Canadian portion.

It appears that the ANGTS will continue to move forward, propelled both by the natural gas owners and the Alaskan government. The next step towards success is for Governor Palin to renegotiate a new contract with the gas owners and hold a successful competition to build the Alaskan portion of the line.

With the infrastructure conditions having changed over the last thirty years, and a new competitor in Alliance looking to participate in bringing Alaska gas to U.S. markets, it appears that TransCanada may have to defend its right to build the Canadian portion. There is a saying in football that defense wins championships; should it succeed, TransCanada's defense would have won this pipeline Super Bowl by defending its 30 year old leading position. Until then the ANGTS will cause ANGST for all concerned.

**Conclusion**

With Alaska gas and LNG waiting in the wings, the fate of the Mackenzie Gas Project lies in the hands of the government. While debate over the project and its chance of success continues among stakeholders and in the press, we would caution against excessive optimism until all parties, including native groups, have given their approval. That said, it appears that all parties concerned are at least moving in the direction of approving construction. The partners can only wait until the snow melts, to see if the project can grow in spring.