

**Delta Gas:
Views from the outside looking in**

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Introduction... My presentation is in two parts of approximately equal length.

First, I offer some comments on northern, specifically Delta, gas development prospects, from a historical and personal perspective.

Second, I want to briefly tell you about the gas resource assessment work of the Canadian Gas Potential Committee and about some of its findings relevant to the North.

1. Delta Gas Prospects

Far away and long ago... It was in the summer of 1968 that Canada's northern pipeline appetite was first whetted in peacetime. That was following announcement of the super-giant Prudhoe Bay oil discovery. Dreams were conjured up of an oil pipeline from there up the Mackenzie valley to Alberta and beyond. Those dreams maybe received some encouragement from the Alaska producers who needed to explore all the options to get their oil to lower-48 markets: across Alaska to tidewater and then marine; the Arctic marine route; and overland all the way across Canada. But in 1971 the producers formally advised the Canadian ministers of Energy (Mr. Joe Greene) and of Indian Affairs and Northern Development (a young Mr. Jean Chrétien) that, despite the legal delays then being experienced by the Alyeska project, they did not intend to apply for a Mackenzie valley oil pipeline.

(Canada of course had to wait more than a decade to get her first commercial northern oil pipeline. That happened when Imperial contracted with IPL NW to ship Norman Wells crude. The two companies then created the modern prototype for an environmentally and socially responsible, low-key, northern energy development. Norman Wells spoke an important lesson: no northern pipeline can succeed without producer endorsement and support.)

Gas was close behind... Just as the original oil pipeline concept was foundering, Canada's interest in a northern gas pipeline, to handle both Alaskan and Delta gas, was growing. TransCanada's Northwest Project study group had started work in 1969 and in the same year Westcoast with American partners had examined the concept of a pipeline along the Rocky Mountain trench. Northwest was followed by AGTL's (=NOVA's) Gas Arctic in 1970, one of whose proposals, the 1974 Maple Leaf Pipeline from the Delta south, is arguably still before the National Energy Board. A year later, the two study groups were encouraged by Ottawa to come together as Canadian (and American) Arctic Gas with full producer participation. But in 1974 they separated when AGTL, followed by Westcoast, withdrew to form the Foothills Project, whose Alaska Highway routing in 1977 won the approval of the National Energy Board, then of the Federal Government and finally of Washington, as expressed in the September 1977 Canada-United States Pipeline Agreement.

“Bob Blair’s Pipeline” as it has been called, was hailed as “Canada’s project of the Century”. But the scheme as conceived, applied-for and approved in the ‘70’s, was fundamentally unsound, for three principal reasons:

1. Foothills was never to my knowledge endorsed by the gas producers, who had stayed with the Arctic Gas group;
2. Foothills’ economics depended essentially on the high cost of northern gas being diluted in American markets by the much lesser cost of price-controlled lower-48 gas; and
3. The project’s financing was predicated on the ship or pay commitments of a large part of the American gas transmission industry, which at that time was also responsible for ensuring gas supply to markets.

These last two success factors became unsustainable in the early ‘80’s as North American gas prices and demand fell and as, a little later, commodity markets were deregulated and pipelines became simply transmission service providers. Happily for all concerned, this avoided what would surely have become “the financial disaster of the century” had the northern portion of the line been built.

The “pre-build” of the southern portion of the system of course went ahead some 20 years ago, giving gas from the western Canada basin an important new export conduit through which trillions of feet of gas have been exported and billions of dollars earned for producers and governments. And the pre-build as it exists today provides a strong “pipe-in-the-ground” foundation for a future Alaskan project.

In retrospect, the northern pipeline decision-taking environment of the ‘70’s was not a good one for investors. There was an excessive “clutter” of non-commercial considerations around, which prevented sound commercial decision taking.

What are the likely success factors today?...Essentially two factors have to be present for pretty well any pipeline scheme anywhere to succeed:

1. Producers must be able confidently to anticipate that, when the project is up and running, the market will provide an acceptable return, after deduction of transportation costs; and
2. Producers must be similarly able to anticipate that the process from project inception to start up can be accomplished within predetermined acceptable limits of time and cost.

What’s déjà vu today?...At least four of the factors that encouraged some potential investors in the early 70’s appeared to be present, well certainly they were a year ago:

- A tight gas supply/demand situation and rapidly rising prices;
- An apprehended energy supply crisis regionally—on the American west coast;
- The expected peaking of Alberta gas production in the early part of the new century; and

- The importance of keeping existing southern Canada gas transmission systems reasonably filled.

It is no doubt a matter for continuing assessment whether those factors are still present or likely soon to re-emerge. I offer no judgments.

What's new and different today?...Compared to the '70's I see a lot of positive change in the environment for project decision-taking. Thus:

1. The success factors I have enumerated are I believe much more widely recognized, in particular it is appreciated that no project can succeed without producer support.
2. Commercial, political and regulatory activities are not occurring in a global "energy crisis" atmosphere such as characterized the '70's: generally speaking, crises do not good projects make.
3. The Canada-U.S.A. energy relationship is at a mature stage, framed in the relevant NAFTA provisions and stands in contrast to the fears and hopes that were engendered by the fractious relationships of the '70's.
4. At the federal ministerial level, interest seems to be in facilitating regulatory processes and in understanding commercial ones, rather than in "shaping" them, and
5. At the federal officials' level, the focus appears to be on developing a sound framework in which regulatory processes can take place.
6. The regulatory matrix is admittedly more complex than it was 25 years ago, but clear and purposeful steps have been taken and are ongoing to ensure cooperation among the agencies involved.
7. There is a functioning, anonymous, North American gas market continuously transmitting signals to producers, transporters and consumers, leaving them to interpret and anticipate those signals. This contrasts sharply with the '70's when "the market" comprised less than a score of large pipeline corporations and, behind them, all of the managements, personalities, alliances and contracts that were involved.

There are others here better qualified than me to comment on the development to this date of the northern socio-economic environment for a Delta gas project, particularly the development of native people's attitudes and institutions. But my impressions, from the outside looking in, is that there has been a sea change compared to the '70's which has found reflection in events such as the October 15 MOU between the Delta Producers Group and the Mackenzie Valley Aboriginal Pipeline Corporation.

Conclusion...Investors' expectations as to what the gas market will offer are going to be the fundamental determinant of whether or not we have a Delta gas project. Other considerations—socio-economic and regulatory—could "break" but not "make" a project. Much has changed since the 1970's. It seems to me that, by and large those changes have to be assessed as positive, because for the most part they present the commercial choices more clearly than they were discernable 25 years ago.

2. Natural Gas Potential in Canada – 2001

I now speak as Chairman of the Canadian Gas Potential Committee, a volunteer group of about 50 geoscientists, mathematicians and others from industry and government, formed in 1991 to conduct an independent assessment of Canada's gas endowment.

Support...We have been generously supported by industry organizations (CAPP, CEPA and CGA), petroleum companies and government agencies. At the same time we maintain an independent arm's-length relationship with our supporters.

Organization...A steering committee of nine members is responsible for overall planning and business decisions. Our assessment activities have been carried out under the broad direction of Robert Meneley, a distinguished geologist and our Chief Analyst, by about two dozen play group teams.

Relationships...The CGPC maintains fraternal relations with the American Potential Gas Committee, which has been active for more than 30 years, publishes biennially, and is supported administratively by the Potential Gas Agency of the Colorado School of Mines.

Uniqueness...The CGPC's assessments are:

- Independent of any interest group;
- Authoritative in professional terms;
- Unique, in part due to the peer reviews to which they are subject;
- Transparent, in terms of the data and methodologies used, which are always made explicit; and
- Consistent, in that the results for every play are presented in a similar manner.

Value...CGPC's assessments have value as a basis for supply forecasting, to assist the development of exploration strategies and as a foundation for resource policy decisions. CERI is presently canvassing interest in a Canadian gas supply cost study that would use our Report 2001 as a basic raw material.

2001 Enhancements...Our 2001 Report is based on five more years' data (through 1998) compared to our 1997 study, there is greater emphasis on the frontiers and the concept of "nominal marketable gas" is introduced.

Definitions..."Resources" is a volume concept that includes discovered and undiscovered gas and does not take account of technology or economics. It relates to gas in place and is synonymous with the term "endowment". "Reserves" is of course similarly a volume concept, but one that includes only discovered gas and is expressed as a marketable volume. "Supply" is a flow concept, expressed as a daily or annual rate.

Nominal Marketable Gas...This is gas in place (GIP) adjusted (discounted) by factors that reflect the recovery loss and surface loss experience relative to discovered reserves in

producing fields. In the case of the Mackenzie Delta and Corridor estimates, the factors were based on the recovery loss and surface loss experience for the producing pools in those areas.

Exploration Play... This is our basic building block, defined as a geological configuration within a defined area that combines source rock, reservoir, trap, migration and preservation in such a way that the critical factors that control the occurrence of gas are essentially similar. An established play is one in which the existence of gas has been proven by the discovery of one or more pools. Conceptual plays are those that do not yet have discoveries or reserves attributed to them, but which geological analysis indicates may exist.

Methodology... The Mackenzie-Beaufort plays were assessed using Petrimex or modified Petrimex methodologies. A short note is available at the back of the hall on the Petrimex methodology. As well, it contains comments on the reliability of CGPC estimates.

Results... The Committee estimates Canada's gas endowment at 592 Tcf of GIP. Of this, about 54 Tcf is assessed to be in play groups in the Mackenzie-Beaufort and Mackenzie Corridor and Eagle Plain area. With more than 40 discovered pools aggregating some 15 Tcf, this leaves an appreciable 39 Tcf gas in place to be discovered. The total Canada nominal remaining marketable gas is put at 233 Tcf, of which about 35 Tcf or 15% is in the Mackenzie-Beaufort, the Corridor and Eagle Plain area. Clearly, the Committee sees the WCSB as the great and continuing strength for Canadian gas supply, but it also regards the Mackenzie-Beaufort, the Corridor and Eagle Plain as the second most important repository of gas in the country, well ahead of the third-ranked Scotia Shelf that comes in at about 11 Tcf nominal remaining marketable.

Confidence... Our scientists regard this as a work in progress. Our 2001 results are based on a more detailed set of data on discovered fields and different, more comprehensive, information on undrilled prospects, to which the Committee's judgement has been applied. The data from drilling programs undertaken from 1998 onwards will be raw material for our future assessments which could lead to somewhat different results. The 2001 Report of course represents the Committee's best assessment based on the data presently available.

Conclusions... The Western Canadian Sedimentary Basin will be the primary source of future Canadian gas supply. The near frontier regions, first the Scotia shelf, then the Mackenzie Delta and Corridor, will supplement WCSB supply. The remote frontiers such as the Labrador Shelf and the Arctic Islands, are technologically and economically inaccessible as a supply source. Non-conventional sources such as CBM and gas hydrates hold promise, but will require more research before they achieve commerciality.

