

# *Final Report of the*

## ***Ethane and NGLs Task Force***

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***July 1999***

***Submitted to***

**Hon. Stephen C. West,**  
Minister of Resource Development

***by***

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Task Force Chairman

***and***

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On December 8, 1998, the Honourable Steve West, Minister of Energy issued a News Release reconfirming Alberta's ethane policy and announcing the formation of a task force "to ensure Alberta's ethane and natural gas liquids (NGL) objectives will continue to be achieved in a changing business environment."

Minister West noted that Albertans, as owners of the province's natural gas and NGL resources, have a number of objectives and interests, including:

- Promoting value-added use of NGLs, particularly the use of ethane as petrochemical feedstock in Alberta;
- Ensuring adequate natural gas pipeline capacity is in place to ensure full market access and prices for Alberta natural gas production;
- Ensuring appropriate royalty value and Crown royalty share of production is received by the people of Alberta;
- Encouraging continued growth in Alberta's petrochemical industry based on competitive access to an adequate supply of feedstock.

The Ethane and NGL Task Force ("the Task Force") reviewed all aspects of the policy framework pertaining to ethane. The Task Force was comprised of MLAs Rob Lougheed and Victor Doerksen. They consulted with representatives of the upstream oil and gas and the petrochemical industries, and senior officials from the Alberta Department of Energy. Mr. Lougheed was the Task Force Chairman. This document represents the Final Report of the Task Force. It reviews the issues discussed.

## Issues Considered

### Fundamental Principles

The Task Force and stakeholders quickly reached agreement on a number of principles and considerations with respect to the environment in which resource development, activity and investment should occur and be promoted. These included:

1. ***A positive environment for attracting investment in Alberta for all sectors, including both the upstream exploration and petrochemical industries, must be maintained and enhanced.*** Key to this is a stable, competitive, efficient and market-based policy and fiscal framework that supports on-going development and expansion of both the oil and gas and the petrochemical sectors.
2. ***The free trade environment provides important market access for the petrochemical and petroleum industries and for the Alberta economy as a whole, and provides a key framework for industry expansion.*** The importance of export market access to Alberta's industries is evident in figures which indicate that approximately 75% of Alberta's natural gas production is exported from Alberta, while nearly 90% of Alberta's chemical and chemical products production is ultimately exported.

3. ***Natural gas price convergence between U.S. and Alberta prices resulting from increased pipeline capacity represents the market in operation and is sought or at least accepted by the Task Force and stakeholders.*** A recurring feature of the natural gas market in Alberta has been that Alberta prices have been depressed below prevailing North American prices. Recent expansions and future projects will in the near term ensure that adequate pipeline capacity exists such that Alberta prices reflect North American prices on a transportation cost-adjusted basis. There is uncertainty as to the extent to which further natural gas pipeline capacity expansions will be required over the longer term, and when any such expansions will be required.

#### ***Interdependence and Common Interests***

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The Task Force and stakeholders recognised the fundamental linkages between the upstream exploration, midstream processing and petrochemical sectors, and the common interests which result. A consultant study made available to the Task Force and stakeholders noted that the petrochemical industry represents roughly 40% of the intra-Alberta natural gas market<sup>1</sup>. Including ethane feedstock, this represents 6% of Alberta's total natural gas production. It was noted that petrochemical investments currently underway by companies such as Dow, NOVA Chemicals, Union Carbide, and Shell Chemicals, will nearly double Alberta's petrochemical capacity by 2000, relative to what it was three years ago, substantially increasing this industry's gas and ethane requirements. Industry stakeholders noted that ethane supply arrangements are in place, or are planned, to support these expansions.

#### ***Ethane Markets Working Group***

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The Task Force and stakeholders established an Ethane Markets Working Group to develop scenarios for possible future ethane market development, and to identify key variables that will affect its evolution. With respect to ethane supply, demand and pricing dynamics in Alberta, the working group noted the following:

- Ethane competitiveness in Alberta depends on relative Alberta and North American natural gas prices, supply and demand balances for ethane in Alberta, and relative cost structures – including natural gas/crude oil feedstock pricing relationships – of competing petrochemical centres in the U.S. Gulf Coast and elsewhere.
- Expansions in gas production and of the petrochemical industry have increased ethane supply and demand, respectively.
- Expanded natural gas pipeline capacity has recently narrowed Alberta and U.S. natural gas and ethane price differentials.
- Changes in crude oil and natural gas pricing relationships have recently affected the economics of midstream and petrochemical processing.

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<sup>1</sup> "Report on the Alberta Petrochemical Industry: Current Status and Future Prospects." December 1998. PECCI

The working group also noted the ongoing imperative for all industry sectors involved in oil and gas, NGL, and petrochemical development in Alberta to remain competitive on a global basis. As this relates to producer marketing decisions regarding gas and NGLs, they will continue to be based on the maximisation of the value of their overall product stream. In this regard, it was noted that technology changes that allow transmission of NGL rich gas to distant markets will offer an additional marketing option for individual NGL components of natural gas. Supply flexibility will evolve over time to capitalise on market opportunities.

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### *The Availability of Ethane for Future Demand*

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The Task Force and stakeholders discussed the supply and demand outlook for ethane to support future petrochemical development, which could occur through either incremental expansion of existing facilities or construction of a fifth world scale ethylene plant.

The Task Force and stakeholders noted that the commercial market has operated efficiently in matching ethane supply and demand at competitive prices, and in accommodating in a timely fashion Alberta's historic and current petrochemical expansion. With respect to accommodating prospective future expansion, the following supply considerations are noted:

- Expanded natural gas exploration, development and production in response to increased pipeline capacity will increase ethane supply.
- Roughly 50% of total ethane available in natural gas production is currently recovered in Alberta, with the balance being exported as a component of natural gas. This level of ethane recovery is consistent with other North American ethane producing regions.
- Both the working group Task Force and stakeholders noted that additional costs would be incurred, and investments necessary, to increase the percentage of ethane recovery in Alberta, and that this could reduce the future competitiveness of the Alberta ethane cost structure.
- Midstream processing investments currently either underway or under consideration by various companies will increase gas processing capacity and NGL recovery in Alberta.
- Various commercial parties have indicated a willingness to pursue commercial negotiations in the future when petrochemical proposals emerge to address additional ethane requirements.
- Both oil and gas producers and the petrochemical industry note uncertainty with respect to both the supply and demand components of the future ethane market outlook.

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### ***Evolving Markets for Ethane and Other NGLs***

The Task Force and stakeholders noted the historic growth and evolution of the natural gas, midstream and petrochemical industries in Alberta. It also noted that ongoing growth and evolution of these industries, as witnessed in various developments under way or under consideration, would continue to affect the processing, marketing, transportation and valuation of all Alberta NGLs. Some of these initiatives identified by the Task Force and stakeholders included component balancing and tracking for gas delivered on the NGTL system, new mechanisms and practices with respect to NGL compensation, new straddle plants and midstream processors, and new technology that allows transmission of NGL rich gas to markets.

### **Policy Framework**

The Task Force and stakeholders reviewed the current policy framework in the context of evolving gas and NGL markets. The review included the broad royalty and regulatory framework relevant for natural gas and NGL development, as well as Alberta's ethane policy.

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### ***Broad Framework***

The Province, as owner of the resource, retains a royalty share of resources which it may have delivered in kind, or may require a cash payment. For gas, royalty is paid in cash. With respect to the broad policy framework, the Task Force and stakeholders agreed that:

- The oil and gas regulatory and fiscal policy framework has to date been supportive, and has generated oil and gas development.
- The policy framework to date has encouraged NGL extraction and access in Alberta. Ethane extraction capacity has increased in tandem with petrochemical development.
- The policy framework to date has been supportive of a competitive pipeline environment that promotes pipeline expansion and least-cost connection to North American markets.

The Task Force and stakeholders noted that, notwithstanding this assessment, the policy framework currently in place may require revision to reflect the various NGL objectives of Albertans given the numerous and significant changes underway in natural gas and NGL markets.

In this regard, the Task Force and stakeholders discussed, in general terms, possible changes to realign the policy framework with the emerging market framework. These included potentially incorporating features of the conventional oil royalty system into natural gas and NGL royalty systems such as taking the Crown's royalty share of

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production in kind, and/or introducing added sensitivity to natural gas royalty rates to reflect the NGL composition of residue gas. The Task Force and stakeholders also discussed potential future changes with respect to the conditions under which the Crown, as owner of the resource, consents to production of the gas.

There was consensus that any significant changes would need to be considered and developed in consultation with all stakeholders, and that there may be other options available to achieve the Crown's objectives.

### ***Ethane Policy Evolution***

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Historic ethane initiatives have sought to ensure that ethane would be available and accessible to support ongoing petrochemical expansion in Alberta, while balancing the ethane interests of the producing industry. One aspect of this policy framework has been to provide for the export of recovered ethane that is surplus to Alberta's petrochemical requirements. Deliveries of extracted ethane to markets outside of Alberta have averaged roughly 37,000 barrels per day, or roughly 18% of total Alberta ethane production, in the last three years. Stakeholders noted that these exports are expected to decline significantly after 2000, as the volumes are redirected to expanded petrochemical requirements in Alberta.

There is concern and uncertainty with respect to the combined impact on future ethane accessibility in Alberta of contracts, tolling structures, and technology changes that encourage the shipment of richer gas to markets outside of Alberta for recovery of ethane and other NGLs.

The Task Force and stakeholders note the commitment and willingness by the various parties to pursue commercial negotiations as necessary in the future to ensure expanded ethane availability for petrochemical industry expansion. However, the concern is for the future, beyond the scope of current expansions and commercial negotiations. There is uncertainty by some stakeholders whether commercial negotiations will conclude supply arrangements that create an environment for additional competitive petrochemical expansion and expanded value added processing for Albertans as resource owners while meeting the expectations of all commercial parties.

### **Conclusions**

The conclusions of the Task Force and the stakeholders are as follows:

1. Over the past decade the policy framework has been successful in supporting the expansion of the natural gas, NGL extraction and petrochemical sectors.

This framework has historically supported a market which has continually provided supply and access in support of the expansion of Alberta's petrochemical industry.

2. Market reliance provides the preferred mechanism for ensuring that all sectors of the industry can adapt to the evolving market.
3. There have been clear and reassuring commitments and expressions of interest that commercial negotiations can and will take place when they are required to provide competitive feedstock for future petrochemical expansion. There is uncertainty for all parties about future market conditions concerning future supply, pipeline and petrochemical developments.
4. The competitiveness of the overall business environment in Alberta, referred to as the Alberta Advantage, provides the basis for ongoing expansion of the natural gas and gas liquids sector, and the opportunities for future petrochemical expansion.
5. On behalf of Albertans, the government has an obligation to ensure the policy framework is up to date in order to ensure Alberta's ethane and natural gas liquids (NGLs) objectives will continue to be achieved in a changing business environment.