BACK TO HEWERS OF WOOD AND DRAWERS OF WATER

Energy, Trade and the Demise of Petrochemicals in Alberta

PARKLAND INSTITUTE

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Energy, Trade and the Demise of Petrochemicals in Alberta

By Terisa E. Turner and Diana Gibson

September 2005

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Executive summary

Canadians are questioning the logic of having traded away our energy sovereignty with NAFTA, the North American Free Trade Agreement. The cost of these concessions has been high: Canada no longer has the ability to adequately manage price or supply of natural gas or regulate exports. Consequently, oil and natural gas prices have been rising dramatically and fluctuating wildly while conventional reserves are on the decline. These price and supply changes are having impacts across the economy and are causing job loss.

This study focuses on one example – Celanese, one of Alberta's oldest petrochemicals plants, is closing its operations in Edmonton and relocating where production is cheaper. In this report we tie this closure to natural gas price and supply changes. We then place the closure in the context of broader trends in the petrochemicals industry and more generally, Alberta's low level of value-added manufacturing. We make the connection with the lack of both energy and industrial strategies in the province and the country as well as the energy provisions of NAFTA.

The Alberta government has not recognized any of these interconnections in its response to the Celanese closure; its explanations instead focussed on free markets. The Alberta government also views the Celanese closure as an isolated exception to (what it claimed to be) the robust health of the Alberta petrochemicals industry. This research reveals that both levels of government actually had a formative impact on natural gas prices, and thus the closure through policies on NAFTA, pipelines, royalties and exports. The research also throws into question the future health of the industry.

Celanese is not unique: the petrochemicals industry as a whole is heavily reliant on natural gas as both an input and an energy source. Consequently, much of the petrochemicals industry is feeling the pressure of increased prices. Supply is also a concern. As supplies of conventional gas dwindle, the petrochemicals industry has raised concern with prioritising natural gas use in the tar sands and domestic heating. As Ramesh Ramachandran, the CEO of Dow Chemical Canada, put it, "We currently use a significant portion of Alberta's gas to extract oil! This is akin to using $100 bills to light the candles at the dinner table." Dwindling supply, coupled with higher prices, is driving new investments elsewhere, such as to Asia and the Middle East.

This study identifies the causal factors in these natural gas price and supply changes as NAFTA, gas and pipeline policies and export policies. NAFTA had major impacts on Alberta's natural gas prices and reserves by dramatically reducing citizens' democratic control over non-renewable and declining energy resources. The significant changes included: national treatment rules by which foreign corporations must be treated as if they are Canadian; the opening of the

energy sector to foreign corporations; the prohibition of preferential pricing for Canadian industries; the elimination of export taxes, impact assessment requirements for export licences, and Canada's 25-year vital supply safeguard; and the introduction of the "proportional sharing" requirement whereby current export levels are guaranteed to the U.S.

These changes had the effect of dramatically increasing exports, while reserves began to decline; natural gas exports increased by 233 per cent over the decade of the 1990s. The proportion of production that is exported has also increased, despite increased production, from 33 per cent to 49 per cent. In 2003 about 8.9 years of natural gas production remained in Alberta. Because of the proportional sharing rule, these exports are now locked in, guaranteeing supplies to the U.S. indefinitely at this inflated proportion regardless of the state of Canadian reserves. Government is prohibited from taking action to protect value-added industries from these negative impacts of NAFTA by the threat of legal proceedings by the U.S. government or even private corporations under NAFTA.

In spite of the obvious negative implications of NAFTA the trend may be toward further integration through expanding NAFTA to other countries in the hemisphere with the Free Trade Area of the Americas (FTAA), and through "deep integration" with the United States.

Provincial policies are also at fault in this natural gas scenario. Export policies such as the expansion of the pipeline capacity to the U.S., policies that allow the export of feedstock rich gas, and royalties that favour raw exports have all had serious negative impacts on value-added manufacturing, especially in the petrochemicals industry.

In spite of growth in China and low feedstock prices elsewhere, there could still be a future for petrochemicals in Alberta. However, the federal and provincial governments would need to choose different paths. Energy and industrial strategies are needed at both the provincial and national levels to manage competing demands and limited and falling reserves, and to plan for the future. To manage the energy resources in such a way that prioritises Canadian consumers and industries, Canada will need to exit NAFTA's energy provisions and secure the kind of control over its energy resources that Mexico and the U.S. have. Though Mexico was forced to agree to some compromises, it maintains control over the three key aspects to energy resource sovereignty: pricing, production and export levels, confirming that Canada could choose a different path. The time is right for Canada to exit NAFTA. Not only do high petroleum prices combined with peak oil increase Canada's bargaining power, but the U.S.'s unwillingness to respect NAFTA's rules opens the door for Canada to exit the agreement.

An active industrial strategy that promotes value-added manufacturing and high-paying jobs is also needed to secure a future for Alberta's petrochemicals industry. There have been governments in Alberta's past that have made better efforts in this regard than has the Klein administration. The most obvious example is Premier Lougheed, whose government successfully built Alberta's fledgling petrochemicals industry into the large sector it is today. Though this report does not endorse all of the means used by Lougheed, it applauds his goals: diversification and building high-paying jobs for Albertans through value-added manufacturing.

This report recommends that the citizens of the province and the country engage in serious debate on the development of a national energy security strategy. Albertans require a sovereign energy strategy that prioritizes Alberta's needs first, and Canadian needs next, before exporting any surpluses. It must also focus on long-term supply as well as conservation, reducing dependence on fossil fuels, and building an economic transition plan for high wage industries. This report proposes creative solutions for a renewed export strategy, environmental strategy, energy strategy, industrial strategy, and fiscal strategy. It is hoped that these proposals will form the basis for discussions leading to an alternative path of development provincially and nationally – one that prioritises the interests of the majority of citizens, rather than those of a few large multinational corporations; one that aims to conserve non-renewable resources as much as possible, rather than selling them off fast; one that shifts away from burning our resources, and instead using them to provide quality jobs that support families and communities over the long term.

CHAPTER 1

Introduction

Canadians are increasingly questioning the logic of having traded away our energy sovereignty with NAFTA, the North America Free Trade Agreement. Citizens are doing so especially because that sovereignty was given up in return for trade and economic commitments that the U.S. consistently refuses to honour in disputes such as BSE and softwood lumber. This is felt doubly because Mexico is exempt from those same energy provisions. It also stings to know that both Mexico and the U.S. have national energy strategies while Canada does not.

The costs of conceding Canada's energy sovereignty have been high. Oil and natural gas prices have been rising dramatically and fluctuating wildly while conventional reserves are on the decline. Because of NAFTA, Canada no longer has the ability to adequately manage price or supply of natural gas or regulate exports. These price and supply changes are having impacts across the economy. While record profits have resulted for many in the Alberta energy sector and parts of the economy are growing rapidly, other Albertans are being hit by costs, not only at gas pumps and on monthly heating bills, but in the workplace as well. Industries across the board are feeling the pinch of high energy costs and for some Albertans this is translating into job loss.

While a boom mentality energizes the province, petrochemical workers are concerned for their job security. Celanese, one of Alberta's oldest petrochemicals plants, is closing its operations in Edmonton and relocating where production is cheaper. The plant is laying off all 300 of its employees. While the Alberta government claims this is just a market restructuring, beyond its control, the workers and other companies in the petrochemicals industry see a much larger trend. The closure was preceded by a foreign takeover and involves the migration of production first to Mexico and soon to China. It immediately raises questions of the role of NAFTA and whether Alberta is doing enough to encourage and maintain high skill, high paid, value-added jobs in the province.

Using the petrochemicals industry generally, and the Celanese closure specifically, this study draws the links between Alberta's low level of value-added manufacturing and the lack of both energy and industrial strategies in the province and the country. The study also exposes some of the impacts that NAFTA has had on Alberta's energy and manufacturing industries.

As this study deals with the petrochemicals industry and natural resource extraction, it calls for consideration of the larger context. The Parkland Institute considers conservation of natural resources to be a high priority, and upholds the goal of reduc-

ing the dependence of Albertans on non-renewable energy sources. There is presently no energy strategy for the province that adequately addresses using non-renewable fossil fuels to support the shift to more renewable energy sources. Alberta lacks policy for a just transition for workers, environmental sustainability, and for reducing the province's dependence on non-renewable resources. In fact, quite the opposite is happening with rapid expansion of the tar sands, and the shifts to coal bed methane and coal.

Alberta's Conservative government is emphasizing the extraction and export of the province's natural resources at alarming rates. In this context, it is important to ensure that the benefits to Albertans are maximized through an appropriate industrial strategy. Alberta's workers recognize the importance of value-added industries and want to be more than hewers of wood and drawers of water.

The first few chapters of the report deal with the story of the Edmonton Celanese plant closure. The first chapter describes the community impacts and the provincial government's explanation and responses. The next chapter examines the Celanese case in more detail to identify the key factors behind the closure: natural gas price and supply. These case study findings are then applied to the broader petrochemicals industry to assess whether the Celanese closure is an isolated case or is indicative of broader trends in the industry.

The next two chapters describe the active parts the provincial and federal governments have played in the drama in the areas of NAFTA, as well as pipeline and export policies. Chapter five highlights the energy aspects of the FTA and NAFTA. It links those agreements to recent changes in natural gas price and supply. The broader impacts of these policies on the petrochemicals industry and the implications for value-added processing in general are also explored. Significant concerns for the future of the industry emerge.

NAFTA shapes industrial policy. Alberta's industrial strategy, if it can be called that, puts full emphasis on raw exports to the detriment of value-added manufacturing. The export of raw materials is facilitated through the expansion of pipeline capacity to the U.S. and the granting of permission by Alberta's government to export natural gas containing petrochemical feedstock. These policies and their implications are described in chapter six.

The final two chapters address possibilities for the road ahead. The necessity of regaining Canada's energy sovereignty and the potential for changing NAFTA are discussed. Some examples of Latin American countries, including Mexico, that are following a different path are described. The need for an alternate industrial strategy is also raised. Such an alternative should prioritise value-added manufacturing and diversification. Former premier Peter Lougheed's active strategy to launch Alberta's petrochemicals industry is described as an example of commitment to diversification. Lougheed's active commitment to diversification, value-added and local ownership provide a startling contrast to the priorities of the current conservative government – the export of raw resources. The Lougheed example stands out sharply against the current government's willingness to sacrifice value-added jobs in favour of projects such as the tar sands.

Alberta's workers recognize the importance of value-added industries and want to be more than hewers of wood and drawers of water.

The Celanese closure exposes the downside to Canada of NAFTA's energy provisions. The case study and the analysis of the broader petrochemicals industry highlight the need for Alberta and Canada to change direction on energy policy and industrial strategy. Current energy prices have created an opening for public debate on energy strategy. Public opinion polls also reveal that the governments are out of step with the public on energy and environmental issues. According to an August 2005 Leger Marketing poll, 49 per cent of Canadians want petroleum resources nationalized.[1] Another 2005 poll found that 56 per cent of Canadians and 62 per cent of Albertans think that Canada's leaders are doing too little in terms of controlling foreign access to our energy resources.[2] This poll also found that 73 per cent of Albertans think their government is doing too

little to protect the environment. When asked how concerned they were personally about environmental problems, 87 per cent of Albertans said "a great deal" or "a fair amount." Also, Albertans rated energy as the sector of the economy that has the furthest to go to become sustainable. When asked the best way to meet future energy needs, 74 per cent of Albertans chose reducing consumption of energy while only 19 per cent said to increase supply of energy to meet demand.[3] These values are quite contradictory not only to the policies of the provincial government, but to the way that government portrays the values of Albertans.

This report proposes some creative solutions that would be more in line with the priorities of Albertans. Some examples include exiting NAFTA's energy provisions, reinstating a 25-year vital supply safeguard, changing pipeline export policies and investing in renewable energies. This study does not purport to have all the answers. However it does emphasize the urgent need for a broad public debate on energy sovereignty and industrial policy.

Closure of the Celanese plant

The Fort Saskatchewan Celanese plant was one of the first petrochemical plants to be built in Alberta after the big oil discovery of 1947; it pioneered what was to become the province's second largest manufacturing industry by value of output. The plant has operated for over 55 years. These operations are being phased out over 2005 and 2006 with the work being transferred to the Celanese plant in Mexico.

The impact on community

Celanese's Alberta plant will shut down entirely in the first quarter of 2007, with layoffs being phased over the prior two years. A total of 300 highly paid employees will be laid off in Edmonton, some of whom are the third generation in their family to be Celanese workers. The federal government estimates that each full-time job creates an additional 2.5 indirect jobs. Thus, the broader impact on the community will be the loss of at least 750 jobs.

On the individual and community levels, the impacts of these layoffs are high. The average age of the workers on the plant site is about 44 and the average education level is Grade 12. Though employees in some units have valuable trades skills and training, such as the third class steam tickets, and a relatively high education level, most of the workers from the unit being closed in 2005 do not even have a grade 12 education. These workers are having a difficult time finding new jobs. Though some have been lucky enough to move into union jobs through the union's Worker Resource Centre, many have not been so fortunate and are moving instead into lower paying labour or service jobs.

Those who have trades skills are finding work, but they have become victims of the 'new economy.' The new work is often in temporary contracts, many of which are out of town. This does not compare with the jobs they have lost – regular salaried positions near their families. Wages are about the same, but the jobs are irregular, and family life suffers as workers become absentee parents and spouses. While the workers are facing uncertain job prospects and their families and communities feel the impacts, foreign shareholders have made large profits from the takeover and closure of the plant.

Foreign takeover and lay-offs pay high returns

The move to close Celanese follows a series of changes in ownership. The plant ownership changed out of the hands of minority Canadian shareholders into those of foreign shareholders when Hoechst bought out Canadian shareholders in 1999. Then Blackstone International, a hedge fund seeking high returns, bought out Hoechst in 2003. Shortly after purchasing Celanese, Blackstone announced the closure of the Edmonton operation. Without the minority Canadian shareholders, Blackstone could close a profitable Canadian plant in order to make higher profits elsewhere, and make quick returns on the market.

Blackstone is no stranger to quick flips of investments, such as making a profit of four times its investment in Foundation Coal, which it took public less than six months after acquisition.[4] Blackstone has done something similar with Celanese. Blackstone bought 84 per cent of Celanese in December 2003, quickly announced changes, including the closure of Celanese Edmonton, to make Celanese appear more profitable, and 11 months later offered shares on the stock market.[5] In this way Blackstone and other shareholders took less than a year to earn a U.S. $803-million payout from the initial public offering of Celanese Corp.[6] Blackstone received an immediate return of about 125 per cent on its initial investment in Celanese and maintains 60 per cent ownership. These market returns increase the frustration felt by the workers, their families and communities being impacted by the closure, and has engaged them in understanding and resisting these global dynamics.

Celanese was viewed as an unfortunate victim of the market, and of circumstances beyond the control of the government. There was no mention made of the role played by provincial and federal policy choices.

The provincial government's response

Further exacerbating the frustration felt by workers, the Alberta government's response to the closure announcement was superficial at best. Official explanations of the closure focussed on free markets while abnegating any direct responsibility. The province claimed that Celanese had succumbed to the rigors of competition within the North American market.[7] In this explanation Celanese was viewed as an unfortunate victim of the market, and of circumstances beyond the control of the government. There was no mention made of the role played by provincial and federal policy choices.

The Alberta government also views the Celanese closure as an isolated exception to (what it claimed to be) the robust health of the Alberta petrochemicals industry. Alberta's energy minister insisted in late 2004 that the province's petrochemical industry was in excellent health, a "success story." Moreover, he framed the government's approach as one of passivity in the face of a magical and all-powerful 'global marketplace', stating:

> *Alberta is home to a world-class petrochemical industry, and Albertans have among the best understanding of both markets and technical challenges in this industry. As with many industries, the petrochemical industry is highly competitive and adjusts to the global marketplace. In Alberta, the petrochemical industry is a success story and will continue to be important to this government.*[8]

The minister, however, qualified this by admitting that Alberta cannot match opportunities offered by regions with stranded gas or special incentives, bringing into question his "success story" assertions.[9]

As the later chapters in this report will show, the federal and provincial governments have played an active role in creating the market conditions that led to the Celanese closure with policies that favour raw exports over value-added manufacturing. The Alberta government has disregarded the impacts that these policies are having on highly skilled jobs and value-added manufacturing in general, and the petrochemicals industry in particular.

A different explanation of the closure

The provincial government's explanation of market and corporate restructuring is, to say the least, incomplete. Through policies on NAFTA, pipelines, royalties and exports, both provincial and federal levels of government had a formative impact on natural gas prices. Natural gas price and supply were significant factors in the Celanese closure and these factors impact negatively on Alberta's competitive position for petrochemicals and other manufacturing. Markets and corporations operate within a framework created by government policy. The federal and provincial governments had very specific roles to play in creating the scenario that led to the Celanese closure.

A little background

The Edmonton Celanese plant produces methanol, acetate flake and acetate tow. The methanol side remained profitable, but the Acetate side did not.[10] When this report was commenced, the fate of the Methanol side had not yet been decided. In August 2005, the company announced that Methanol operations would also be closing.[11]

The closing of the acetate flake side is linked to Celanese's choice to exit flake production altogether. The acetate tow production, however, will continue with operations being relocated to Mexico in the short term and China in the longer term. Acetate tow, which is used in cigarette filters, is made from wood fibre and acid with natural gas as both a component in creating the acid and as a significant energy source. Though the North American market was declining due to a fall in the demand for cigarettes, the key market for these Edmonton operations has been China, not North America. Canada has historically been a consistently high-quality, low-cost producer, while China's cigarette manufacturers have historically preferred Canadian acetate tow to that produced in Mexico.[12] Additionally, the plant was at an advantage in being located close to secure low-cost energy resources. The tow manufacturing remained profitable through the 1990s. It is in this context that the question of the causes of the closure must be explored.

With production moving to Mexico and China, assumptions of lower labour costs and lower environmental standards immediately jump to mind. However, gas prices and currency fluctuations are

what changed most notably in the early 2000s when Celanese Canada's profits were hit hardest. It was this erosion of these Alberta advantages that impacted Alberta's comparative profitability most notably.

Table 1 shows the profitability of Celanese Canada's operations over the past few years.

About 60 to 70 per cent of Celanese's costs are in Canadian dollars, while the products are exported. The strengthening of the Canadian dollar made the Canadian costs of operations relatively more expensive, and reduced the profitability of the Edmonton operations, on a consolidated basis. Though currency fluctuations did have a significant impact on profitability, these losses correlate most directly with the natural gas price fluctuations illustrated in Figure 1. Substantial losses occurred in 2001 when natural gas prices spiked. In 2002 the price of natural gas returned to its historical levels, explaining the operating profit in 2002. Losses then continued through 2003 and 2004 (as seen in Table 1). For Celanese, as for other petroleum dependent producers, profit is highly sensitive to input costs.

Natural gas price sensitivity

The 1999 Celanese Canada annual report shows the raw material cost sensitivity to Celanese based on the effect of a 10 per cent increase in raw material price per share.

Figure 1 indicates that Celanese's profit is very sensitive to changes in natural gas price. With a 10 per cent increase in natural gas price, share profits drop by 16 cents per share. Note that the figure demonstrates the gas price sensitivity for all of Celanese Canada's operations, which would include other products and is therefore not specific to Celanese Edmonton production. However, the graph is still indicative of the general sensitivity of the different cost components. Teraphathalic acid, the most sensitive component, is not used in the production of acetate flake or tow, making natural gas the largest cost component of the acetate operation. Natural gas is also a large cost component on the methanol side. In explaining the closure of the methanol operations, site director Andy Day clearly implicates gas prices and global competition. He is quoted in the Edmonton Journal as saying, "The methanol plant is dying of old age, high equipment replacement costs, steep gas prices and global competition."[13]

The relocation of Celanese production to Mexico begs a comparison of gas prices between Canada and Mexico. While gas prices have fluctuated wildly in Alberta, the Mexican government fixed its natural gas price at U.S. $4/Mmbtu in 2001 to reduce price volatility. This fixed price, expected to be in place through 2006,[14] significantly favours moving production to Mexico. The situation is exacerbated by the currency issue. Though Canada's currency has been going up compared to the U.S. dollar, the Mexican peso is pegged to the U.S. dollar and thus has remained stable for exporters.

The result of these combined price and currency scenarios is the erosion of Alberta's relative feedstock and energy advantages. The growing petrochemicals operations in the Middle East and China deepen concerns about the future of Alberta's petrochemical industry. This is confirmed again by the Celanese Edmonton site director. In his explanation of the Methanol closure, Andy Day further states that, "Overseas

Table 1: Celanese Canada – Profitability of Canadian operations 2001 to 2004

	Nine months ended December 31, 2004	Year ended December 31, 2003	Year ended December 31, 2002	Year ended December 31, 2001
Net sales	$211 million	$236 million	$176 million	$215 million
Operating profit (loss)	($8 million)	($16 million)	$39 million	($36 million)

Source: Celanese 2004 Annual Report, Note 30 to the Consolidated Financial Statements, and Celanese January 2005 prospectus, Note 27.

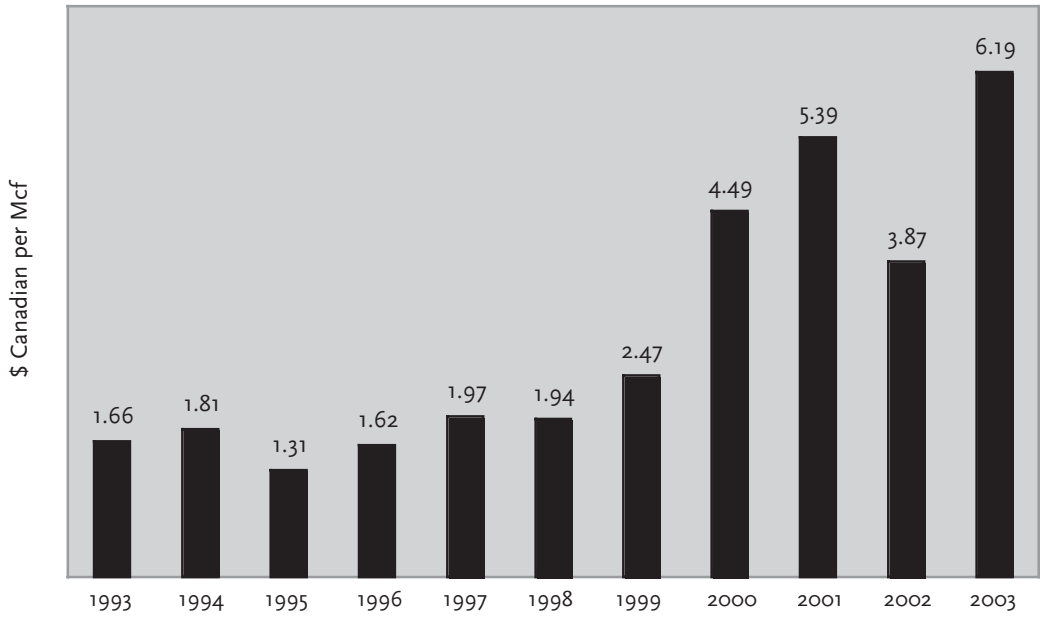
rivals undercut North American methanol plants... In the Middle East gas can be had for less than 10 per cent of prices in Canada and the United States."[15] As another example, China's government permits the use of coal for the production of steam heat in the petrochemical plants it jointly owns with Celanese. This will provide a significant cost advantage over natural gas energy prices in Alberta.

In summary, the key factors that reduced the profitability of Celanese in Canada relative to other locations were the recent increases in natural gas prices and the strengthening of the Canadian dollar over the same period. These factors were accompanied by the foreign takeover of the company by a large multi-national able to move production to the more profitable Mexican plant where the government still has significant control over supply levels and regulates price. As is seen later in this report, the perceived viability of the plant was further impacted by the fact that natural gas supply was no longer secure in Alberta.

Celanese is not unique: Alberta's petrochemicals are threatened

Given the factors at play in the Celanese closure, it is not surprising that industry leaders and investors contradict the provincial government's confidence in the health of Alberta's petrochemicals industry. Celanese is not unique: the petrochemicals industry as a whole is heavily reliant on natural gas as both an input and an energy source. Consequently, much of the petrochemicals industry is feeling the pressure of increased prices and limited supply. This applies to petrochemicals across the country, not only in Alberta. For example, Methanex announced in September 2005 that it would be closing its plant in Kitimat, B.C, a methanol plant serving Asian and North American markets, because of high gas prices.[16] Celanese is also closing its two Texas methanol plants. Though other closures have not yet been announced in Canada, industry leaders are expressing great concern about the pressures they are facing due to the high price of natural gas and insecure supply.

Figure 1: Alberta natural gas prices



Source: Alberta Energy, Alberta Gas Reference Price History. http://www.energy.gov.ab.ca/xdata/gas/refprice/agrp.asp
Note: This charts the gas reference price, that which the producer get for the gas at the point of extraction.
The price paid by industrial consumers will be higher. The trends seen in this chart hold true for industrial gas prices.

A brief history of petrochemicals in Alberta

The Alberta petrochemicals industry is one of three concentrations in Canada, the other two being in Sarnia and Montreal. Alberta has half of Canada's petrochemicals capacity. In 2005 Alberta Economic Development reported production of over $9.5 billion annually in petrochemicals product. Exports go mainly to the U.S., but also to China, Korea, Mexico, Hong Kong, Taiwan and Japan. The industry's four segments include petrochemicals, fertilizers, inorganic chemicals and specialty and fine chemicals. Alberta's chemical industry employs 7,773 engineers, scientists, technologists, operators, tradespeople, and support personnel – highly skilled, highly paid workers – who share an annual payroll of $526 million.[17] Additionally, the federal government estimates an average of 20,000 or more spin-off jobs.[18]

The Alberta's chemical industry's 7,773 highly skilled workers share an annual payroll of $526 million.

The Alberta government secures income directly from petrochemical production through royalties received on natural gas liquids that are used as feedstock. It also receives revenues from the energy resources used for fuel to run the manufacturing processes. Indirectly, government revenues from value-added manufacturing in Alberta are obtained through taxes (personal, corporate and property). In 2004 the petrochemicals industry contributed significantly to the economy. This included $25 million in annual tax revenue.[19] The industry also accounted for $1 billion in annual capital investment, 67 per cent of products exported and $4 billion in annual export revenue.[20]

Price vulnerability

As was the case with Celanese, Alberta's petrochemicals industry more broadly is highly sensitive to natural gas prices. Natural gas accounts for more than two-thirds of petrochemical production costs.[21] According to Dow Canada's CEO, natural gas accounts for 75 per cent of the cost of manufacturing ethylene. Dow Canada alone uses 600,000 gigajoules of energy each day, meaning that a 10 cent per gigajoule increase would cause a cost hike of $40 million per year."[22]

Petrochemicals and chemicals are at risk

The North American petrochemicals industry faces serious challenges. In Alberta, the key historical advantage of locating production in the province included a secure supply of natural gas and gas liquids, and favourable government policies. These advantages have been eroded by high gas prices, dwindling supply, and government policies that favour raw energy exports over value-added production.

The CEOs of Dow and Nova, two of the largest petrochemicals manufacturers in Alberta, are raising concerns. As Ramesh Ramachandran, the CEO of Dow Chemical Canada told a Calgary natural gas conference in March 2005, "Natural gas prices have rocketed with tremendous speed. The natural reaction to this change in energy prices in the marketplace has created unusual volatility, weakening domestic industry."[23] Nova Chemicals, a large chemicals company based in Alberta, recorded losses in 2001, 2002 and 2003, with some recovery in 2004.[24] In a press release reporting its 2003 year-end results, Nova noted that "the chemical industry has suffered from an extended downturn over the last 18 months, quite possibly the worst trough in the industry's history."[25] No longer could the chemicals industry achieve its remarkable historical average of a 10-fold increase in the value of feedstocks by converting them into products. Nova described the natural gas prices as devastating to the chemicals industry, which had been forced to "close plants."[26]

These impacts are not limited to the petrochemicals sector. By mid-2003 the Canadian and U.S. economies were negatively impacted by high natural gas prices. The crisis began in June 2000 and had a dramatic economic impact across North America on consumers, the economy and especially on manufacturing. In the first 41 months of the crisis natural gas price increases cost industrial consumers, including the petrochemicals industry in the U.S., an extra U.S. $57 billion (an 83 per cent increase).[27] In Canada, fuel and feedstock prices for the petrochemicals industry have more than doubled. Between 1994 and 2003, fuel and feedstock prices rose by 166 per

cent.[28] The situation further deteriorated in September 2005, when the devastation attendant upon hurricane Katrina damaged petroleum facilities on the Gulf of Mexico coast and spurred extreme prices for oil and natural gas.

Supply also a concern

Long term supply of natural gas is also a serious concern to the petrochemicals industry. As supplies of conventional gas dwindle, the industry has raised concern with prioritising natural gas use in the tar sands and domestic heating. As Ramesh Ramachandran put it, "We currently use a significant portion of Alberta's gas to extract oil! This is akin to using $100 bills to light the candles at the dinner table"[29]

The provincial government has identified coal bed methane as a solution to the energy needs of oil extraction from the tar sands. The gas from that source is low in natural gas liquids, or, as the industry describes it, dry. If this gas is put into the distribution system, it will have the effect of diluting the higher quality natural gas from conventional sources. Consequently, the industry does not see coal bed methane as a panacea.[30]

No new investments

Not only is current production capacity in Canada jeopardized by this price and supply scenario, but new investments have moved elsewhere (to Asia and the Middle East). Declining reserves and competing uses such as the oil sands, increasing residential use in Canada and the U.S., and exports of natural gas to the U.S. (facilitated via pipelines such as Alliance), reduce the attractiveness of long-term petrochemical investment in Alberta. The Canadian Chemicals Producers' Association confirmed that there has been no significant new investment in Alberta since the last ethylene plant was built at Joffre over three years ago.[31]

This echoes concerns raised by other industry representatives. At Nova Chemical's April 6, 2005 annual general meeting, CEO Jeff Lipton pointed out that "there have been no new ethylene crackers and no new polyethylene plants announced for North America. None." [32] The industry projected that there would be no new investment in the continent until at least 2009.[33] Figure 2 shows that very small additions to styrene capacity projected for North America are dwarfed by massive expansions in Asia, espe-

Figure 2: Styrene Monomer new capacity 2004-2007

Year	Region	Company	Capacity (MMM lbs.)
2004	North America	Atofina, United States	500
	Asia	Qilu, China	300
		Total 2004	800
2005	North America	Nova Chemicals, United States	400
	Asia	BP, China	1,100
		Total 2005	1,500
2006	Asia	Shell, China	1,200
		FCFC, Taiwan	1,200
		YNCC, Korea	300
		Reliance, India	1,200
	Europe	Repsol, Spain	300
	Latin America	Innova/DOW/BASF, Brazil	500
		Pemex, La Cangrejera. Ven	200
	Middle East	NPC, Iran	1,300
		Total 2006	6,200
2007	Middle East	PIC/DOW, Kuwait	700
		Total 2007	700

Source: CMAI and NOVA Chemicals, as sourced in Pappas, Chris, Styrenics, Nova Chemicals, 2005. Morgan Stanley Basic Materials Conference, New York, NY, February 22, 2005, http://www.novachem.com/07_investor/pdfs/msbmc_0205.pd

cially China, and the Middle East.[34] New investment has gone outside the U.S. and Canada. The CEO of Dow Canada stated in March 2005 that Dow was "investing in cost-advantaged regions of the world." He explains that his company and others in the industry are investing and moving production overseas to be closer to the growing markets for products and low-cost energy and feedstock supplies.[35] Alberta was able to compete for Asian markets in the past through the advantage of price and supply of natural gas, as illustrated by the Celanese case.

Alberta was able to compete for Asian markets in the past through the advantage of price and supply of natural gas, as illustrated by the Celanese case.

Industry Canada also recognizes the changes facing the industry. A 2003 report found that, on a global scale, North America has moved from being a low-cost producer of petrochemicals, to a relatively high-cost producer today. [36] According to Industry Canada this trend has been driven by the erosion in Alberta's feedstock advantage resulting from the rapid and dramatic rise in natural gas prices. Further, it acknowledges that in response, global chemical companies have shifted their focus to other parts of the world for major new investments, particularly the Middle East and Asia Pacific.[37]

Though the bulk of the growth in petrochemicals can be seen in Asia, Mexico is also experiencing growth. Celanese is not the only major petrochemicals firm to be expanding there. In 2004 NOVA Chemicals was selected by the state-owned PEMEX Petroquimica as a partner for a proposed world-scale ethylene/polyethylene complex in Mexico. One of Nova's justifications for the move is access to cut-rate secure feedstocks.

The Alberta government claims that Celanese is the victim of market forces beyond its control and that the petrochemicals industry will have to adapt to the market. Certainly, natural gas price and supply are major factors in the closure as well as key challenges facing the broader industry. However, government policies at the federal and provincial levels created this price and supply scenario, eroding the advantages Alberta has to offer the petrochemicals industry.

NAFTA

The Canada-U.S. Free Trade Agreement (FTA) and the North American Free Trade Agreement (NAFTA), signed by Canada, the United States, and Mexico, have had a major impact on Alberta's natural gas prices and reserves. The energy-related provisions in NAFTA dramatically affected citizens' democratic control over non-renewable and declining petroleum resources, along with other kinds of energy. These provisions, tied with the lack of an energy plan and industrial strategy, have caused dramatic price increases, dwindling reserves and loss of investment in value-added processing in the province. This is revealed in the petrochemicals industry's story.

Sovereignty eclipsed

The implementation of NAFTA in 1994 completed a process of energy deregulation in Canada that had begun with the signing of the FTA in 1989. These energy provisions of NAFTA fall into the following five key areas:

- national treatment rules by which foreign corporations must be treated as if they are Canadian;
- the opening of the energy sector to foreign corporations;
- the prohibition of preferential pricing for Canadian industries;
- the elimination of export taxes, impact assessment requirements for export licences, and Canada's 25-year vital supply safeguard; and
- the introduction of the "proportional sharing" requirement whereby current export levels are guaranteed to the U.S. [38]

These energy provisions laid the groundwork for the elimination of the two-price policy for natural gas in Alberta, leading to dramatic fluctuations and price increases. The change in export policies also caused Canadian proved natural gas reserves to begin to decline.

Two-price policy goes by the wayside

Albertans are no strangers to price increases under deregulation, with the electricity industry as the most obvious current example. Natural gas followed the same path of deregulation: price fluctuations and increases.

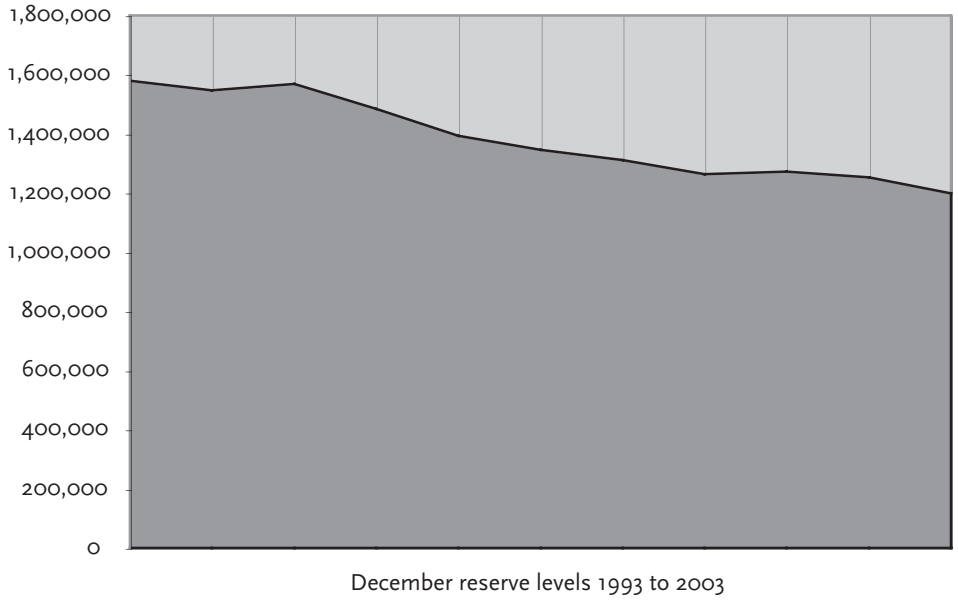
Prior to 2001 there was effectively a different natural gas price for Canadian and U.S. consumers. The elimination under NAFTA of preferential pricing for domestic users signalled the beginning of the end of Alberta's two-price policy for gas. This change did not fully take effect in Alberta until 2001 when export capacity was increased with the Alliance pipeline, but NAFTA laid the necessary groundwork.[39] The elimination of preferential pricing and export limitations has created the current continental market where Alberta's gas prices are set south of the border. As was seen earlier in Figure 1, the result has been the vulnerability of Canadian consumers to the recent dramatic price fluctuations in the U.S. These price fluctuations are not the only impacts; NAFTA has also had significant implications for Canadian natural gas reserves.

The elimination of preferential pricing and export limitations has created the current continental market where Alberta's gas prices are set south of the border.

Export limits are gone and reserves fall

Prior to the implementation of NAFTA, Alberta had a provision that oil and gas could not be exported unless there was a 25 year supply for Canadians – the vital supply safeguard. However when NAFTA cancelled this requirement to maintain reserves and at the same time eliminated export limits, there was a dramatic increase in exports, and reserves began to decline (see Figure 3).[40] Natural gas exports increased by 233 per cent over the 1990s.[41] The proportion of production that is exported also increased, despite increased production, from 33 per cent to 55 per cent. All exports go to the U.S. In 2003 about 8.9 years of natural gas production remained in Alberta, given proved reserves and production levels for that year.[42] Figure 3 shows that new natural gas finds have not been keeping pace with this high level of production and export growth, and proved reserves have been falling dramatically across the country. In fact, increased production has meant that the expected lifetime of Canada's proved gas reserves has declined by more than 10 years over the past decade.[43]

Figure 3: Alberta natural gas proved reserves



Source: Statistics Canada, Table 128-00041 – Petroleum and marketable natural gas, remaining established reserves in Canada, annual (Cubic metres x 1,000,000)

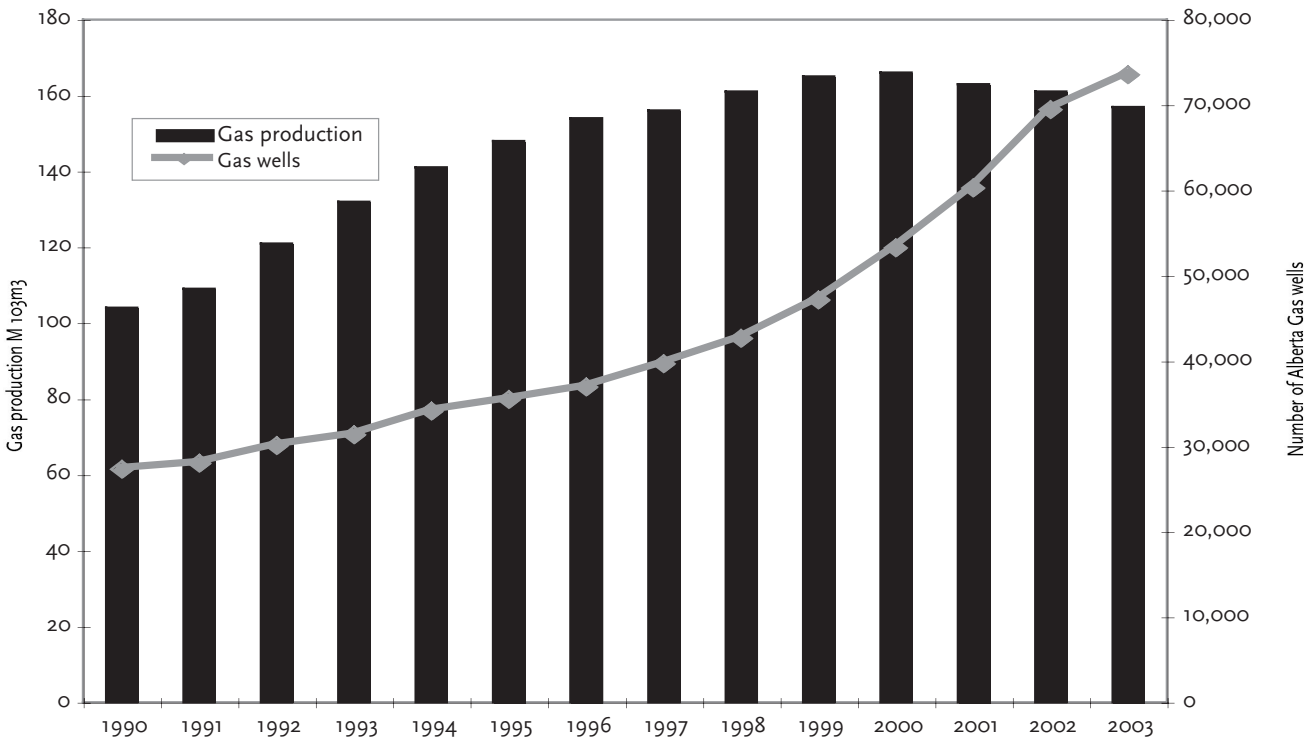
Proved reserves have declined despite increased exploration spurred by high gas prices. Figure 4 sets out Alberta gas production since 1990. It shows that gas production has levelled off and slightly declined. The fact that the number of gas wells drilled has increased while production has been falling reveals that the production decline is not due to a lack of exploration or development.

The Alberta government is confident that this shortfall will be addressed by controversial new sources such as coal bed methane, the Mackenzie Valley pipeline or the tar sands. The Mackenzie Valley pipeline has not yet been approved and may still be scuttled, as happened the last time this pipeline was proposed. Even if the petroleum industry does push through the Mackenzie Valley pipeline, much of the gas it will deliver is already allocated to fuel the extraction of oil from the tar sands. Coal bed methane costs more to extract than conventional natural gas and has greater environmental impacts. Only very small quantities of coal bed methane are classified as proved reserves as it has yet to be determined how much of the resource will be accessible and economical to extract. The coal is located in the highly populated southern part of the province where extraction will have high social and environmental costs as well. And, as noted above, the coal bed methane is 'dry' – low in the natural gas liquids needed by the petrochemicals industry.

Lack of political will

Though the reserve protections were eliminated with NAFTA, the federal government did maintain the ability to regulate exports to some extent. Under the National Energy Board, exporters of natural gas require a short-term export order or a long-term license. Long-term export licences have reserve conditions similar in nature to the 25-year reserve requirement killed by NAFTA. Unfortunately, the safeguards for Canadian supply provided by the

Figure 4: Gas production declines despite more wells



Source: Based on data from the CAPP (Canadian Association of Petroleum Producers) Statistical Handbook 2003

long-term license have been undermined. Exporters have bypassed them, shifting instead towards short-term export orders (Figure 5).

Exports are locked in

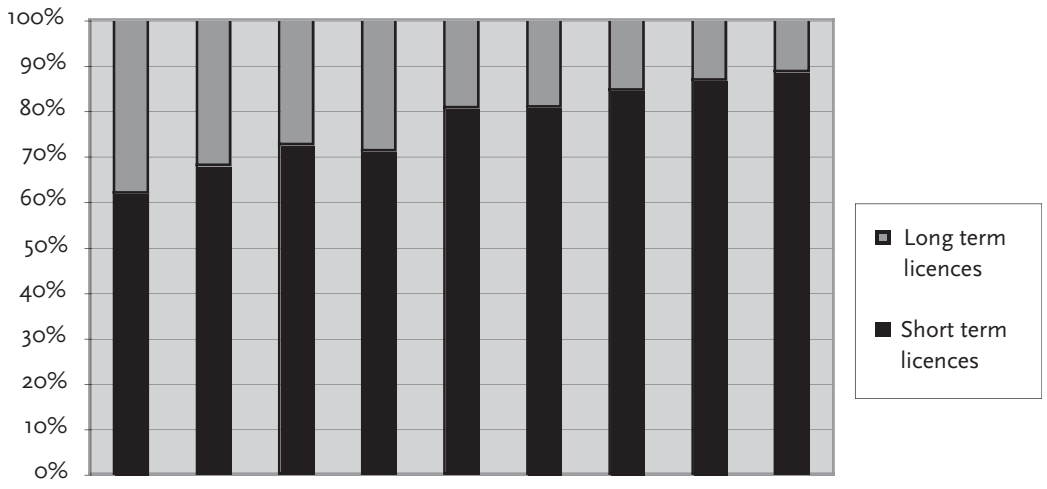
Although previous export limits that protected Canadian supply and industries were eliminated, a new regulation was introduced to instead protect U.S. interests: the "proportional sharing" system. This provision, introduced in the FTA and reinforced by NAFTA, guarantees supplies to the U.S. indefinitely. It has the effect of forcing Canada to cut its own consumption if it plans to cut exports to the U.S. in order to ensure that the proportion being exported stays the same. The federal government is prohibited from reducing the proportion of production that is exported below the level set over the preceding 36 months. This proportional sharing rule locks in the high level of export even as Alberta's conventional gas reserves dwindle. Rather than freer trade and more choice, under NAFTA Canada has lost control over how much and to whom it can sell its own energy.

The means of enforcement

Though a strong case can be made for the federal government to intervene to protect the petrochemicals industry's high paying jobs through measures that would ensure cheaper feedstock prices or availability, this could open Canada to legal proceedings by the U.S. government under NAFTA. Even more troubling is the fact that U.S. corporations that anticipate negative impacts on their profits would be able to sue the Canadian government directly under NAFTA's Chapter 11. They would not need to elicit the support of the U.S. government. This clause, also known as the investor rights clause, allows corporations to enforce the proportional sharing and other NAFTA rules by suing governments for a perceived loss of profits due to government regulation. This clause has been used often enough to be considered a serious risk and to put a significant chill on regulation.

One well-known example of such a case is that of Manganese-based MMT, an anti-knock additive to gasoline. The Canadian federal government banned the importation of and inter-provincial trade in this gasoline additive. One reason for banning MMT was

Figure 5: Short and long term export licences



1998 to 2003 monthly figures for December

Source: National Energy Board, Natural Gas Exports, Detailed Monthly Statistics, http://www.neb-one.gc.ca/Statistics/NaturalGasExports/index_e.htm#ExportStatisticsMonthly

that automakers claimed it interfered with automobile on-board diagnostic systems. Another was the potential health hazards. Manganese-based MMT was once described by former Prime Minister Jean Chrétien, as "a dangerous neurotoxin."[44] On April 14, 1997 Ethyl Corporation, a Virginia-based U.S. chemical company, filed a complaint under Chapter 11 of NAFTA. Ethyl Corporation charged that the Canadian government ban violated NAFTA's Article 1102 on national treatment, Article 1106 on performance requirements, and Article 1110 on expropriation and compensation, and claimed U.S. $250 million in damages. After preliminary NAFTA tribunal judgments against Canada, the Canadian government backed down, repealed the MMT ban, issued an apology to the company and settled out-of-court with Ethyl for U.S. $13 million.

Alberta's and Canada's governments are under threat: if they cut exports of oil or gas or try to regulate energy in such a way as to protect Canadian industry or citizenry, NAFTA's Chapter 11 weapon will almost certainly be used in retaliation by corporations whose future profit could be affected, regardless of the impact on the health and jobs of Canadians.

Deeper integration on the horizon

In spite of the obvious negative implications of NAFTA for Canadian energy supply, price and sovereignty, the trend may be toward further integration through expanding NAFTA to other countries in the hemisphere with the Free Trade Area of the Americas (FTAA), and through "deep integration" with the United States. There are also initiatives underway to include energy under the General Agreement on Trade in Services (GATS).

Corporate lobbying groups in the U.S., with such members as Chevron-Texaco, Conoco-Philips, El Paso Energy and Exxon-Mobil, have been working closely with U.S. negotiators in designing U.S. positions on energy.[45] The FTAA was launched in Miami in 1994 during the Summit of the Americas, but strong opposition means it is not likely to come into force on target in 2005. The energy sector is affected by several of the major areas of negotiation, and in particular the services negotiations.

The FTAA would further entrench the energy provisions of NAFTA, and would allow enforcement through the inclusion of an investor rights clause based on Chapter 11 of NAFTA. The inclusion of energy in GATS would take this beyond the Americas. The GATS proposals go beyond trade to govern internal national policy with respect to energy. They include a tribunal similar to that of NAFTA's Chapter 11, through which corporations would be able to prosecute governments. The GATS proposal would also establish an "independent" body to oversee the activities of the energy industry and set energy policy, removing control of this important policy area from the national domain.

Alberta's and Canada's governments are under threat: if they cut exports of oil or gas or try to regulate energy in such a way as to protect Canadian industry or citizenry, NAFTA's Chapter 11 weapon will almost certainly be used in retaliation.

Outside of The NAFTA and the FTAA, the U.S. is also seeking Canada's deeper integration or harmonization with its policies. Anyone familiar with Canada-U.S. relations knows that harmonization can only be one way. A major goal of deeper integration is to strengthen U.S. access to Canada's energy resources.

Given the negative impacts that NAFTA's energy provisions have had on Canada's energy security, the proposals for expansion of those provisions need careful public scrutiny and debate. Further, the compromise of Canada's energy security has not secured access to U.S. markets, as the BSE and softwood lumber fiascos illustrate, making the purpose of further compromises questionable.

CHAPTER 5

Pipelines and prioritizing raw exports

Though NAFTA can be given the lion's share of the responsibility for recent damaging price and supply trends, provincial policies cannot be ignored. Most notable here are pipeline and gas export policies. The Alberta government claims to give high priority to value-added industry based on natural gas and oil.[46] This commitment is not apparent in its policies, which have instead had negative implications for the province's petrochemical industry. Export policies such as the expansion of the pipeline capacity to the U.S., policies that allow the export of feedstock rich gas, and royalties that favour raw exports have all had serious negative impacts on value-added manufacturing, especially in the petrochemicals industry. These are considered in turn below.

Pipeline expansion

As noted earlier, although NAFTA laid the groundwork for the elimination of the two-price policy by banning any policy of preferential pricing for the Canadian industry, there was still a limited capacity to export gas. Thus, supply remained high in the Alberta market, keeping prices down. In 1999, the TransCanada pipeline – one of the key pipeline for gas from Alberta to the U.S – was operating at capacity. It was only after the Alliance Pipeline came on stream in December 2001, allowing additional gas to be shipped directly to American markets, that the Chicago rate was imported into Alberta. For the first time, consumers in Alberta were pitched into direct competition with American consumers for gas. Though initially prices fell, in the 2000s prices have doubled and even tripled. Ironically, the rationale for the creation of the Alliance pipeline was expected growth in gas finds in Alberta. These new reserves have not materialized. Instead, Alliance has taken a portion of the gas previously exported through TransCanada.

Rich gas goes south

The problems created by this excess pipeline capacity are exacerbated by policies governing how gas is exported. In the 1970s when Premier Lougheed's government pursued the establishment of a petro-

chemicals industry in Alberta, feedstock (natural gas liquids (NGLs) or 'constituents') was stripped from natural gas before the remaining gas was exported as a combustion fuel or used as a fuel in Alberta. In 1985 the policy requiring pre-export stripping was reversed on the condition that any export of natural gas constituents could not negatively affect ethane supply to the province's petrochemical industry.[47] This condition has not been met, but the exports have continued.

In the early 2000s ethane shortages were apparent and prices escalated. Both the Canadian Chemical Producers' Association (CCPA) and Industry Canada acknowledged this problem in 2003. A study by the CCPA reported "supply cost increases and uncertainties" for the major feedstock, ethane, while Industry Canada noted, "In Alberta today there is sufficient NGL to support modest expansion in existing petrochemical capacity, but insufficient volumes of feedstock to support any major new investment."[48]

When ethane is not extracted from the natural gas stream within Alberta, it leaves the province as combustion fuel. The provincial government is essentially exporting ethane to the U.S. petrochemicals industry. Alberta's royalty policies exacerbate this situation, as they too are biased toward the export of rich gas. The Alberta government assesses a royalty on constituents such as propane, butane and condensates extracted in Alberta. This royalty was based on the constituents' market value, which was typically higher than that of natural gas. As a result, if gas producers and exporters do not strip raw gas before export, they pay a lower royalty. Additionally, companies selling exported natural gas in the U.S. charge a price that includes the cost of transport and the cost of the gas itself, and make a profit on both. Hence, for these companies it is not attractive to sell the gas in Alberta and, in fact, the value of ethane is higher in other market areas such as Chicago and the U.S. Gulf Coast.[49]

In response to concerns raised on the royalty front, Alberta's Minister of Resource Development announced in December 1999 that the province intended to make changes in the royalty schedule. This was to happen in two phases. First an NGL Royalty Advisory Committee identified ethane as a distinct resource, and approved the calculation of royalty on the value of natural gas after subtracting certain costs associated with stripping NGLs at the various extraction plants. Second, consideration was to be given to a royalty structure that would motivate producers to extract ethane in the province.[50] Unfortunately the provincial government failed to follow through and the royalty structure has not been changed.

Other policy changes

The pipeline developments and policies allowing petrochemical feedstock constituents to be exported illustrate the Alberta government's failure to prioritize value-added processing in the province. This failure is further evident in other policy choices introduced by the Klein government in the early-2000s including: a ban on production of natural gas in those cases in which such production would reduce the quantities of tar sands oil that could be cheaply produced; the assurance that 'frontier' natural gas from the Mackenzie Valley and Arctic would be used for tar sands production rather than for industrial feedstock; and in general, support for privatization and "deep integration" with the U.S.

The pipeline developments and policies allowing petrochemical feedstock constituents to be exported illustrate the Alberta government's failure to prioritize value-added processing in the province.

This failure is compounded by the Alberta government's policy choice to significantly subsidize development of the tar sands. Klein's administration has offered preferential terms to companies active in the tar sands, such that many of those operations will pay royalties of only 1 per cent until 2015. This type of selective intervention in the market to promote energy extraction and not value-added processing reinforces Alberta's reliance on raw material exports.

CHAPTER 6

Reclaiming energy sovereignty

In spite of growth in China and low feedstock prices elsewhere, there could still be a future for petrochemicals in Alberta. Though firms are currently expanding petrochemical manufacturing capacity in the Asia Pacific region, it is projected that the Asia Pacific region will remain a large net importer of petroleum products for the foreseeable future.[51] This could bode well for the Canadian industry, but the Alberta government would need to choose a different path, one with effective provincial and federal energy security strategies that manage production and exports in the interests of maximizing the benefits to Canadians of those natural resources. Also necessary would be an active industrial strategy that prioritizes building value-added manufacturing in Alberta and values diversifying away from exporting raw materials. This would require both provincial and federal changes in export policies, royalty structures and other policies that currently favour raw exports over value-added manufacturing.

It is more than low labour costs and environmental standards that are making Mexico and China look favourable for chemicals and other manufacturing. Both countries have active industrial strategies that support the industry. For example, the Chinese authorities require that production plants have a certain minimum size so that investments will result in projects with competitive economics, while Mexico has negotiated NAFTA exemptions on energy that allow them to offer favourable feedstock pricing and a more secure supply.

What policy initiatives could ensure that Alberta's citizens have access to well-paid fossil fuel based manufacturing employment in the short term and sustainable high paying, high skilled jobs in the future? There are a number of aspects to the issue of feedstock supply and energy price addressed in this report, from export regulations to competing demands to pipelines policies. The policy options involve hard questions.

Then there is the bigger picture: How can citizens transform policies to ensure the public benefits from those energy resources in an ecological, responsible way? How can fossil fuels be used, not as short-term

expendable commodities, but as transitions to a sustainable future? What is the place of the petrochemicals industry in this larger perspective?

Fundamentally, however, none of these questions can be answered, nor can the industry's concerns be properly addressed, until Canadians have re-examined our economic relationship with the U.S. and regained sovereignty over our energy resources. An energy strategy is needed at both the provincial and federal levels to manage competing demands and limited and falling reserves, and to plan for the future. Even the U.S. has a national energy policy, one in which Alberta's tar sands figure heavily.

There is some room to manoeuvre within NAFTA, but to manage the energy resources in such a way that prioritises Canadian consumers and industries, Canada will need to exit NAFTA's energy provisions and secure the kind of control over its energy resources that Mexico and the U.S. have.

Mexico negotiates NAFTA exemption

There are three important aspects of energy resource development that must remain under state control if Canadian sovereignty is to be meaningful: production, pricing and exports. Although Canada ceded control over these in NAFTA negotiations, the Mexican government, also a signatory to NAFTA, did not.[52] The centrality of petroleum to Mexico's history prevented that country's government, when negotiating NAFTA terms, from yielding sovereignty over its energy resources.

The first measure that Mexico's government retained was the power to set prices for oil and gas. In 1991 the Mexican government resisted U.S. pressure to integrate into the North American market and to allow commodity speculators to dictate natural gas prices. Pemex, the state petroleum corporation, determines the 'primary' price at which Pemex supplies natural gas from the wellhead. The 'secondary' price for this natural gas levied on buyers from Pemex is set by the government, with some reference to the Henry Hub reference price used by NYMEX gas traders. The Mexican government retained the ability to intervene to stabilize prices when they became too volatile and has not hesitated to use this power. In 2001 the Mexican government intervened to establish a medium-term fixed 'secondary' price for natural gas of U.S. $4 per MMBtu for three years to December 2003. This was extended to 2006. Two further mechanisms were subsequently introduced for maintaining relatively low and stable prices for natural gas, which, according to the North American Energy Working Group, were intended "to protect residential, commercial and distribution services and industrial users against natural gas [price] fluctuations, particularly those users that do not have access to financial instruments to mitigate such volatility."[53]

The second measure that Mexico's government retained throughout the NAFTA negotiations was the power to set production levels, and the third was to determine export quantities and destinations for oil and gas. Unlike Canada, Mexico is not required to maintain export volume proportions. This means that Mexico can limit natural gas exports and gas production. Citizens have, in theory, the right to exercise democratic power to allocate the costs and benefits of a non-renewable resource between present and future generations. Some environmental goals can be pursued. The government can decide how much gas is to be produced, where it is to be used, and at what price, allowing opportunities for gas-based industrialization to open up.

It is more than low labour costs and environmental standards that are making Mexico and China look favourable for chemicals and other manufacturing. Both countries have active industrial strategies that support the industry.

However, it would be inaccurate to ignore certain concessions Mexico has been forced to make under NAFTA. According to a 2004 study by Nadia Martinez of the Institute for Policy Studies, when Mexico became part of NAFTA the country "was able to retain some protections for its vibrant oil industry – mainly in oil exploration and production."[54]

However, NAFTA's government procurement rules required Pemex, the state-owned oil company, and the Federal Electricity Commission (CFE), to extend procurement contracts to U.S. companies,[55] thus taking initial steps to open the sector to foreign corporate involvement. The biggest oil services companies in the world, particularly Halliburton and Schlumberger, have rapidly expanded operations in Mexico, often with World Bank, Inter-American Development Bank, or U.S. government financial support. Moreover, petrochemicals and other downstream activities are open to foreign ownership. A December 2001 study of the impacts of NAFTA on the energy industry in Mexico reveals major accelerations in environmental degradation and the depletion of natural resources, along with a decrease in economic growth in the country.[56]

There are three important aspects of energy resource development that must remain under state control if Canadian sovereignty is to be meaningful: production, pricing and exports.

Though Mexico was forced to agree to some compromises, it maintains control over the three key aspects of energy resource sovereignty: pricing, production and export levels. Mexico's continued sovereignty over its energy resource reveals that Canada could choose a different path.

Other Southern countries separate from the pack

There are governments in Brazil, Venezuela, Cuba, Argentina and Bolivia and, most recently, Uruguay that oppose the corporate-driven continental trade and economic regime manifested in NAFTA. Venezuela, for example, has opposed the FTAA steadfastly since before the agreement was formalized.

Beyond opposition to the FTAA, there are other countries in addition to Mexico that are taking control of their energy resources. Popular struggles in Bolivia halted the export of natural gas to Chile in 2003[57] and in Venezuela there is a strong movement for a citizens' energy policy.[58]

Venezuela is forging its own path, trying to transform oil from a 'curse' into a basis for poverty elimination and new international solidarities.[59] Under the direction of the democratically-elected government of Hugo Chavez, Venezuela since 1998 has gone the farthest of any country in building alternative energy and economic arrangements in Latin America and beyond. This alternative model is based on using petroleum wealth to expand the production of life-supporting food, services and other goods for national consumption and trade.[60]

The time is right

The time is right for Canada to exit the energy and corporate investment agendas embodied in NAFTA, the proposed GATS and FTAA, and the myriad 'competitive liberalization' impositions emanating from Washington. An opening is available because high petroleum prices combined with peak oil have increased the bargaining power of citizens and governments in charge of energy-rich territories. Because it is likely that high prices will endure, so will this power endure.

The energy crisis of the 1970s illustrates how these high prices provide producing and exporting countries with considerable leverage. In the 1970s the governments of energy-rich provinces and countries used this strategic advantage to repudiate contracts with major and independent oil companies. They extended state control over petroleum, determined prices and production volumes, and decided who could buy their oil.[61] It was in this context that PetroCanada was created.

Additionally, the U.S. has made it clear that it will be ignoring the recent NAFTA disputes tribunal decision on softwood lumber. The U.S.'s unwillingness to respect NAFTA's rules opens the door for Canada to exit the agreement. The time is right for Canada to take action to regain energy sovereignty and shift its economic relationship with the U.S. onto more balanced terms.

Exiting NAFTA

There are provisions within NAFTA for signatory countries to exit the agreement, either because another country is not complying or for other reasons. These provisions are in Articles 1905 and 2005. Article 1905 sets out that a signatory country can open the agreement if another is violating its provisions. The softwood lumber dispute gives Canada those grounds as the United States is violating the agreement by refusing to comply with the rulings of the Disputes Settlement Panel. By enacting this Article, Canada would be able to withdraw benefits extended to the U.S. under NAFTA, such as the energy provisions. Article 2005 provides a much simpler means of exiting the agreement: that any party may withdraw from the agreement by providing six months notice in writing to the other parties.[62]

The petrochemicals industry could be protected from negative impacts on imports or exports to the U.S. that might result from exiting NAFTA. Those tariffs will soon be covered under the General Agreement on Tariffs and Trade (GATT) under the World Trade Organization (WTO). During the Uruguay round the Chemicals Tariff Harmonization Agreement was developed which, when it is implemented, will eliminate all petrochemicals tariffs. Canada and the U.S. are both signatories.[63]

CHAPTER 7

A value-added industrial strategy

As mentioned previously, an active industrial strategy that promotes value-added and high paying jobs is needed to secure a future for Alberta's petrochemicals industry. There have been governments in Alberta's past that have made better efforts in this regard than has the Klein administration. The most obvious example is Premier Lougheed, whose government successfully built Alberta's fledgling petrochemicals industry into the large sector it is today. This chapter explores aspects of the Lougheed government's policies that stimulated this development. Some of these policies would not be feasible today and some were misguided; this section by no means indicates an endorsement of the particular policy tools he chose. Rather, this example is meant to illustrate Lougheed's goals of diversification and building high paying jobs for Albertans through value-added manufacturing and to show that Alberta's current government could also have those priorities.

How Premier Lougheed built diversity and value-added

Expanding the very small Alberta petrochemical industry in the 1970s by government intervention to subsidize the establishment of petrochemical plants was part of Premier Lougheed's larger philosophy of governance, one that emphasized economic diversification and Canadian ownership. In 1974 Lougheed told the Calgary Chamber of Commerce that "Since entering public life over nine years ago, my theme has been that this province's economy is too vulnerable, it is too dependent upon the sale of depleting resources, particularly oil and natural gas for its continued prosperity." Because the province was nearing maturity as an oil-producing region, an activist government was needed to diversify over the next decade through fostering 'natural' industries such as petrochemicals and agriculture processing.[64] Though some of these policies, such as the FTA agenda, were not well thought out long term strategies, the agenda was one that prioritized value-added processing and diversification in the province over the export of raw resources.

The results were impressive. Between 1975 and 1985, billions were invested in the Alberta petrochemical complex. At Joffre, near Red Deer, Alberta Gas Ethylene (a subsidiary of Nova Corporation) brought a 544,000 ton ethylene plant on stream in 1979 and completed a second unit of 680,000 tons in 1984. Adjacent plants included the 300,000-ton Nova polyethylene unit and Union Carbide's 160,000-ton ethylene glycol facility. Dow Chemical in Fort Saskatchewan built new plants and expanded old ones to consume ethylene for the production of ethylene oxide, ethylene dichloride and vinyl chloride. In the decade to 1984 the value of shipments increased from about $100 million to $2 billion and employment doubled to 2,000 (compared to 14,000 at Sarnia).[65]

Local ownership and diversification a priority

Through the 1972 Natural Resource Revenue Plan, the Alberta government raised royalties. This was not in response to prices going up, but preceded the price increase (caused by the Yom Kippur War) by 18 months. Lougheed thought the rates were too low even before the price hikes and wanted to see the revenue used for the Alberta Heritage Savings Trust Fund (AHSTF) "to stimulate substantial diversification of the Alberta economy over the next 10 to 15 years... [and] to help finance industry for Albertans including fostering Alberta's own world-scale petrochemical industry."[66] In 1973 a Crown corporation, the Alberta Petroleum Marketing Commission, was set up, in part to "ensure that new petrochemical industries locating in Alberta could be given priority in the provision of feedstocks."[67] In 1974 as world oil prices approached an unprecedented high, Lougheed's Conservative government doubled royalties on oil and gas production. This royalty initiative was undermined in 1974 by oil companies that imposed a 'capital strike' or slowdown until Alberta capitulated and reduced royalty charges. However, Lougheed's government did succeed in building the AHSTF to the highest level it has ever been.

Prices set for the Alberta advantage

Large deposits of natural gas had been discovered in Alberta in the late 1970s, providing about 35 years of Canadian consumption at 1980s levels. Given this abundance, demand was stimulated by pricing natural gas low relative to oil. As a result, projected petrochemical plants in Alberta had access to relatively cheap ethane (a natural gas condensate that is a feedstock for the ethylene industry). This advantage "lasted until world oil and gas prices began to decline in the early 1980s."[68] Until the end of 1981, Alberta had a cost advantage for feedstock, which comprised 75 to 80 per cent of total costs in the production of ethylene. In 1979 natural gas was priced by the Alberta government (for consumption within the province) at about $1 per million Btu compared to a crude petroleum price of about $2 per MMBtu in Sarnia.[69] Alberta's feedstock advantage over the U.S. Gulf Coast in 1980 was about $1.30 per MMBtu, making Alberta producers price competitive in the U.S. despite higher transportation charges and U.S. taxes on imports.

Going to bat for the industry

In the face of Ottawa's support for a Petrosar petrochemical expansion in Sarnia, Lougheed argued that Alberta had "a natural economic advantage over other areas since the importance of assured feedstocks under current energy conditions is becoming as significant as proximity to markets."[70] Alberta's Progressive Conservative government employed three strategies to promote the development of petrochemicals in Alberta while discouraging expansion of the Petrosar complex in Sarnia. The fist strategy was to attempt to deny Petrosar the necessary crude petroleum feedstock. This was foiled by federal jurisdiction over interprovincial trade. Second, Lougheed subsidized Alberta Gas Ethylene (Nova) to give it an edge over competitors in building world scale capacity. Third, and unsuccessfully, Lougheed attempted to "enter direct negotiations on reducing American tariffs on petrochemicals in return for a commitment to increase sales of Alberta natural gas to the United States at a time when that nation was experiencing an increasing shortage of energy."[71]

Feedstock subsidies

Late in 1984, the Lougheed government introduced a temporary 'bridging' method of reducing prices for petrochemical plants' feedstock and energy in Alberta by requiring gas producers to supply ethane to the petrochemical operations at Joffre and Fort Saskatchewan at a lower price. Then, as of November 1984, a subsidy program was started to compensate gas producers for their loss of revenue. The program was designed as a 20-month bridge "to aid petrochemical producers until a new pricing arrangement could be negotiated."[72]

What the Alberta government can do now

History has shown that Alberta governments shape 'markets' to create benefits for Albertans. There are some promising steps being taken that show there is a will in some areas of the provincial government to see this industry become more of a priority, but as yet these are ideas, not action. The provincial government has committed to review royalty rates for feedstock and natural gas, but has not followed through. More than talk will be needed to alter the path Alberta is on. Some key concerns that need to be addressed include securing feedstock and managing competing demands for natural gas. According to Industry Canada,

> *From an economic development perspective, and certainly for the future growth of the Canadian petrochemical industry, upgrading of natural gas and NGL to petrochemicals and subsequent downstream products is much more attractive than either leaving the NGL in the natural gas and consuming it as fuel, or exporting NGL rich gas to the United States.*[73]

The federal ministry noted that a major new development is needed to change this scenario. Ethane and other NGLs have far greater value for Albertans in terms of jobs and economic spin-offs when they are extracted in Alberta than when they're exported from the province as natural gas. The royalties structure and export policies need to be revisited to ensure there is an effective incentive to keep these jobs in the province.

With over 50 per cent of Alberta's declining reserves of conventional natural gas being sent south of the border, it is clear that the most direct means of securing the future supply for Alberta industry and consumers is through changing export policies. Additionally, a change in policy is needed to manage competing demands, especially the issue of gas use in the tar sands, and the potential impacts of introducing coal bed methane.

CHAPTER 8

Conclusion and recommendations

Natural gas price and supply changes were significant factors in the Celanese closure. And it appears that the petrochemicals industry in the province, and elsewhere in Canada, is significantly challenged by these same factors. Recent price spikes and falling conventional gas reserves are the direct result of federal and provincial government pipeline, NAFTA and export policies.

Two other significant observations can be made with respect to economic agreements and industrial strategy. First, the foregoing review indicates that the NAFTA energy provisions, specifically the national treatment rules, and the loss of export limits and the 25 year vital supply safeguard have seriously undermined Canada's ability to protect value-added manufacturing and manage Canadian energy supply. Second, the Klein government is not placing a priority on value-added manufacturing. Instead, through royalty policies, pipeline expansions, prioritizing of gas use for the tar sands, and export policies, the Klein administration is favouring the rapid production and of oil and gas in its crude state.

This report recommends that the citizens of the province and the country engage in serious debate on the development of a national energy security strategy. The first step in this initiative should be extricating Canada from the energy provisions of NAFTA. As conventional oil and gas reserves decline and the industry moves into controversial, high environmental and high social cost developments such as the tar sands and coal bed methane, provincial and national debate on the implications and alternatives are needed.

A sovereign energy strategy is required that prioritizes Alberta's needs first, and Canadian needs next, before exporting any surpluses. It would also focus on long-term supply as well as conservation, reducing dependence on fossil fuels, and building an economic transition plan for high wage industries. Policy elements of such a strategy are suggested in the following list.

Rather than being comprehensive, this list is aimed at sparking a discussion on the formulation of such a strategy; such a discussion is a top priority in an age of declining finite resources, and accelerating consumption.

Export strategy

- Place a moratorium on increased energy exports.
- Re-introduce vital supply safeguard policies before any exports.
- Exit NAFTA's energy provisions.

Environmental strategy

- Ensure that applications for coal bed methane developments undergo thorough environmental and social impact assessments with full public consultation.
- Develop an energy strategy that prioritises meeting climate change goals, protecting wildlife, habitat conservation, water conservation, reducing dependence on fossil fuels, and recognition of indigenous rights and culture.

Energy strategy

- Eliminate policies that would guarantee energy priority for the tar sands and instead manage competing demands in the short and long term of Albertans and Canadians.
- Prioritise value-added industries in both fiscal and regulatory functions of Alberta's government.
- Commit increased resources from fossil fuels to investing in renewables.

Industrial strategy

- Reinstate the policy that gas must be stripped before export, or amend the royalties structure to ensure there are adequate incentives for rich gas to be removed in province.
- Revisit the royalties holidays and special royalties reductions granted to the tar sands. Normalizing the royalties would remove the artificial acceleration of development in the tar sands, thus reducing the drain it places on natural gas supplies. This easing of pace would also allow time for development of a proper energy strategy, and at the same time, would allow for proper assessment of the environmental impacts of the tar sands development and evolution of better technologies.
- Place a moratorium on any further oil and gas pipeline expansion for export.
- Create a provincial crown corporation for extraction and value-added processing of gas and oil. A people and environment centred energy policy implemented through a crown corporation could maximize employment, research, environmental goals and the transition to climate-friendly jobs.

Fiscal strategy

- Develop a revenue-neutral program for taxing natural resource extraction and using the revenues to provide incentives for value-added processing, scaled to the number of jobs created. This tax would not need to be substantial as the extraction industry is so much larger than the value-added sector, but it would increase the ratio of value-added to raw production. A small tax would provide significant revenues to put towards incentives for value-added processing.
- Add a revenue-neutral charge on fossil fuel consumption to fund energy efficiency audits and upgrades for residential, commercial and industrial establishments.

This report is meant to spark a broad public debate in the province and in the country. It is hoped that it will form the basis for discussions leading toward an alternative path of development provincially and nationally – one that prioritises the interests of the majority of citizens, rather than those of a few large multinational corporations; one that aims to conserve non-renewable resources as much as possible, rather than selling them off fast; one that shifts away from burning them, and instead uses them to provide quality jobs that support families and communities over the long term.

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[5] Explaining how hedge funds, [called that because of their fee structure] have become investors, Laura Cohn (Business Week, February 28, 2005, p. 32-35) noted that "Flush with hundreds of billions of dollars in cash from investors and hard-pressed to maintain the double-digit returns they promise as competition stiffens, many hedge funds are reinventing themselves as private investment firms.... they're seizing control of companies. Simon Clark adds that "Some of the new raiders simply want to make changes, rake in the rewards, and move on. Others plan to hold on to companies and rebuild them over the long haul." In "Days of 'quick flips' are over, Kravis says." National Post, February 23, 2005, p. 12.

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[9] Ibid.

[10] Though the methanol industry is contracting across North America as well, the methanol side of Celanese is still profitable because the production is for a local niche market. Thus producers can pass the higher gas prices on down the line. The Acetate tow, on the other hand, is for international export within a competitive market where there is not the same flexibility in pricing.

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[25] NOVA Chemicals press release, News, April 14, 2004, "Year-end results show improvement as Nova Chemicals' share price outperforms peers," www.novachem.com

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[27] Cicio, Paul. 2003. "41 Month Natural Gas Crisis has Cost U.S. Consumers Over $111 Billion," EnergyPulse, http://www.energypulse.net/centers/article/article_display.cfm?a_id=578.

[28] Statistics Canada Table 301-00031,2,3,4,6,9,10,11 – Annual survey of manufacturers (ASM), principal statistics by North American Industry Classification System (NAICS), incorporated businesses with employees having sales of manufactured goods greater than or equal to $30,000 (Dollars x 1,000). Principal statistics: Cost of fuel and electricity.

[29] Ramachandran, op cit.

[30] Personal conversation with Al Schulz, Regional Representative, Canadian Chemical Producers Association, September 2005.

[31] Ibid.

[32] NOVA Chemicals Corporation 2005 Annual General Meeting: Wednesday, April 6, 2005, www.novachem.com, p.3.

[33] Pappas, Chris, op cit.

[34] The chemical styrene is a clear, colorless liquid that is an essential component in the making of thousands of everyday products, providing strength, flexibility, and light weight. Products made from styrene range from packaging such as jewel cases that protect CDs and yoghurt containers and myriad consumer electronics, construction, transportation, medical, health and safety applications.

[35] Ramachandran, Ramesh, op cit.

[36] Industry Canada. 2003. What benefits do Albertans receive from the petrochemical industry?

[37] Ibid.

[38] Barlow, Maude, The Free Trade Area of the Americas: the Threat to Social Programs, Environmental Sustainability, and Social Justice, The International Forum on Globalization (IFG), February 2001. Cited in Martinez 2004:9.

[39] Wilson, 2004. For more on the role of pipeline and export capacity in prices, see Fred Wilson's chapter in Co$tly Energy, published by the Canadian Centre for Policy Alternatives.

[40] Proved reserves are the quantity of gas that can be produced and brought to market under current conditions.

[41]. Statistics Canada, 1991 to 2000b, Table 6.

[42] This calculation is made based on statistics taken from the Canadian Association of Petroleum Producers table, Alberta Statistics for the Past Eight Years, website address: http://www.capp.ca/raw.asp?x=1&dt=NTV&e=PDF&dn=34090.

[43] Calculated from Statistics Canada, 1991 to 2000b, Table 6 and Table 7. See also Anonymous. "Report predicts falloff in western gas production." National Post. Apr 2, 2004. FP6.

[44] Barlow and Clarke. 2001:117.

[45] Polaris Institute. 2000.

[46] See the Alberta government website. http://www.energy.gov.ab.ca/1309.asp.

[47] Natural gas, at the wellhead, is comprised mostly of methane (the gas burned in homes) but also ethane, butane, propane and other gases. These other hydrocarbons are called natural gas liquids (NGLs). Ethane in particular is used as a feedstock by the petrochemicals industry.

[48] Industry Canada. 2003. Op cit.

[49] Nova Chemicals, NOVA Chemicals & Ethane (Alberta): What is the Issue With Ethane (Alberta), Where We Stand? December 20, 2001. http://www.novachem.com/02_this/02_w_ethane.html

[50] Murray Last, op cit.

[51] Industry Canada. 2003. Op cit.

[52] Laxer 2005a.

[53] North American Energy Working Group 2005: 62.

[54] Martinez 2004: 10.

[55] U.S.-Mexico Chamber of Commerce. "Private Sector Opportunities in Mexican Energy," http://www.usmcoc.org

[56] Arroyo Picard, Alberto. Resultados del Tratado de Libre Comercio de America del Norte en México: Lecciones para la negociación del Acuerdo de Libre Comercio de las Américas, Red Mexicana de Acción Frente al Libre Comercio and Oxfam International, December 2001. http://www.rmalc.org.mx/documentos/tlcan-7 per cent20aos2.pdf

[57] Martinez 2004: 20-21. Martinez noted that "In Bolivia, for instance, capitalization of the oil company, YPFB, has resulted in little benefit for the majority of the country, though it has sparked massive protests from disgruntled citizens. After the now deposed president, Gonzalo Sanchez de Lozada, opened Bolivia's gas sector to private participation, Enron took over the entire gas network in that country. Together with Shell, Enron built a series of gas pipelines – despite strong opposition from the communities in the pipelines' path – to export Bolivian gas to Brazil. After the company's infamous demise, Enron continued to receive public financing for its operations, scoring a $132 million loan from the IDB, less than a year after its implosion." See also Shultz, Jim, "Bolivia's Next Challenge to Globalization," New Internationalist, No. 379, June 2005, p. 8.

[58] Gott 2005:5.

[59] Venezuelan president Hugo Chavez massively boosted royalty rates on that country's oilsands projects in October 2004. The percentage of revenue companies must pay is up to 16.67 per cent from 1 per cent. The change is expected to increase the country's tax revenue by U.S. $721-million a year. (Cattaneo, Claudia. 2004. Alberta wins in royalty row: Venezuela boosts rates: Higher company fees in S. America raise oil patch's appeal. National Post, Oct 27. FP1,FP5; and for the sharp contrast between Venezuela's policy of increasing revenues and Alberta's policy of cutting income in favor of the oil companies, see MacNamara, Kate. Alberta to ramp up royalty relief: Extraction encouragement. National Post. June 3, 2004. FP7.).

[60] Weinstein 2005. See also James 2004.

[61] Randall 2005: 269-294.

[62] See opinion piece by Bruce Campbell, Executive Director of the Canadian Centre for Policy Alternatives, titled "Canada should invoke powerful NAFTA provision" in The Toronto Star, August 13, 2005.

[63] See the Industry Canada's website industry overview for more details http://strategis.ic.gc.ca/epic/internet/inchemicals-chimiques.nsf/en/bt01135e.html#2.

[64] Premier Peter Lougheed, "Alberta's Industrial Strategy," Speech to the Calgary Chamber of Commerce, 6 September 1974 (Edmonton, Office of the Premier), quoted in Pratt, Larry, "The political economy of province building," in Leadbeater, David. Editor. 1984. The Political Economy of Alberta. Toronto: Hogtown Press. p. 207.

[65] Seifried.1989: 173.

[66] Government of Alberta. 1972. Tentative "Natural Resource Revenue Plan." Cited in Pratt. 1984:211. For more information on the Fund see Toombs, Ralph. 1996. Canadian Energy Chronology 1945-1995. Natural Resources Canada. http://www2.nrcan.gc.ca/es/es/EnergyChronology/index_e.cfm

[67] Pratt. 1984:213.

[68] Seifried. 1989:173.

[69] Lougheed resisted the expansion of petrochemical production in Sarnia by pointing first, to the overcapacity and therefore need to export to the protected U.S. market and second, to the superior efficiency of the Alberta operations. According to Seifried (1989: 174-175), "Premier Lougheed charged that the Petrosar [Sarnia] project would convert the majority of high-quality crude oil into lower-grade products (e.g., fuel oil), compared to the Alberta alternative of upgrading ethane into petrochemicals, which would terminate the practice of disposing of this fuel (in the gas stream) to export markets as a heating source."

[70] Lougheed, Peter. 1974. Statement by Premier Lougheed re Petrochemicals. 16. May. Cited in Pratt. 1984:209.

[71] Seifried.1989: 175.

[72] Sass. W. 1984. "Province aids petro industry." The Edmonton Journal. 6 November. p. 32. Cited in Seifried.1989: 176.

[73] Industry Canada. 2003. op cit.

About the Parkland Institute

Parkland Institute is an Alberta research network that examines public policy issues. We are based in the Faculty of Arts at the University of Alberta and our research network includes members from most of Alberta's academic institutions as well as other organizations involved in public policy research. Parkland Institute was founded in 1996 and its mandate is to:

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