

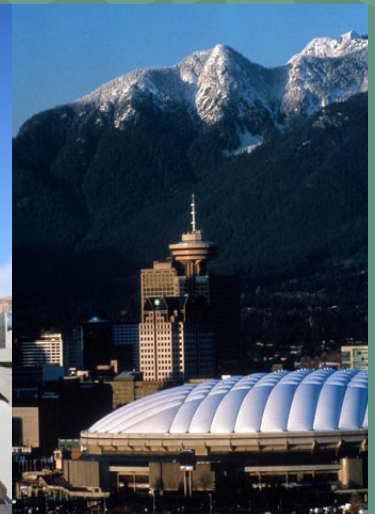


National Energy Board

Office national de l'énergie

# Canada's Energy Future

## CONSULTATION SESSIONS FEEDBACK



STAKEHOLDER INPUT 2006

Canada

National Energy  
Board



Office national  
de l'énergie

**ENERGY FUTURES PROJECT:  
CONSULTATION SESSIONS FEEDBACK  
JULY 2006**

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## **Background**

In developing the 2007 Energy Futures Report, the Board sought the views of Canadians interested in energy matters by visiting eight cities across Canada in May 2006. The National Energy Board (NEB) met with over 160 groups representing industry, government, non-governmental organizations (NGOs) and academia. In this regard, the NEB creates a dialogue on key energy issues and takes into consideration feedback from stakeholders in building the Energy Futures Report. The objective of the consultations is to provide stakeholders with an opportunity to comment on the Board's methodology and analysis of long-term energy supply and demand in Canada. In addition to the May sessions, the Board will hold another round of public consultations, to be held in early 2007. The first round, the subject of this particular report, focused on the proposed analytical approach, major assumptions for the reference case and the scenario storylines and assumptions. The second round of consultations will focus on preliminary results.

The purpose of this document is to share key messages taken from the first round of consultations and outline common feedback with regard to the reference case and scenarios. Additionally, this report will provide an overview of current jurisdictional energy issues, based on views expressed by consultation participants. This information does not reflect the National Energy Board's (NEB) views, but rather it is a summary of the input provided across the country.

The Board will use this information to help shape the 2007 Energy Futures Report. Over the next few months, all the stakeholder inputs will be evaluated in the preliminary analysis and modeling of the long-term outlooks.

## Key Messages

Consultation discussions with Canadian stakeholders brought to light several key messages which were echoed by participants across Canada. The key messages focus specifically on the current energy environment in Canada in addition to the evolving role of the NEB.

### 1. New Energy Paradigm

There is consensus that the energy system in Canada has transitioned into a new paradigm characterized by tighter energy markets, high and volatile energy prices, high value currency, higher inflationary pressures, ageing infrastructure at all levels, and an uncertain demand response.

- **The New Price Threshold:** The general acceptance of NEB price assumptions reflects the existence of a new price paradigm in Canada: the public has come to expect high and volatile energy prices. This shift is indicated by the acceptance of a \$50 per barrel (bbl) oil price (real dollars) as a “given”, whereas just a few years ago Canadians were learning to adjust to a \$20/bbl oil price.
- **The New Supply Portfolio:** It was generally accepted that there now exists a new “supply portfolio” consisting of liquefied natural gas (LNG), frontier and unconventional resources. Consultation participants generally agree that LNG will become a “big thing” over the next 10 years, despite difficulties posed by public opinion. An area of interest was to understand how the declining production from the Western Canadian Sedimentary Basin (WCSB) and LNG imports will affect traditional price differentials, and whether the WCSB supply for gas has peaked. The NEB’s expertise on the supply side was recognized.
- **Emphasis on Alternatives:** There is a strong interest in alternatives and renewables, including wind power, generated by the need to diversify supply and meet other objectives including environmental sustainability. The interest is also fuelled by the higher fossil fuel prices and consideration of health and life cycle costs. However, the renewables industry is fragmented and some participants felt that it needs an umbrella organization to successfully exploit the potential. The suggestion was also made for stronger government leadership in facilitating the development of renewables, including a consistent and acceptable definition.
- **Slower Consumer Demand Response:** As long as commodity prices are not drastically affecting lifestyle, Canadians continue to adapt to the new price environment. Consultation dialogue concluded that despite the higher energy prices, there is not yet significant evidence to suggest Canadians are taking drastic actions to mediate the effects of high energy prices. The effect of higher incomes (the income effect) supersedes the effect of higher prices (the price effect). The introduction of new gadgets seems to mitigate any significant energy savings that could be gained from concerted conservation efforts. The increased level of

disposable income among Canadians has further driven us to embrace more energy services and bigger homes. Energy efficiency, although heralded as important, does not seem to be impacting the decisions of the average consumer in our country. However, these changes could still be forthcoming as consumers' expectations change and they foresee higher energy prices as a long-term reality. Some impact is already being felt in the industrial sector due to the higher energy costs coupled with higher value of the dollar. Participants suggested some loss of competitiveness in certain high energy consuming industries. However, for the aggregate economy, it is not clear how the high energy prices have affected economic growth.

- **Emphasis on Environmental Issues:** More and more, Canadians are interested in environmental sustainability. NIMBYism (not in my backyard) is also surfacing, and is expected to affect the viability of the energy projects. The participants expressed a need to factor in the environmental objectives into the NEB analysis and expressed interest regarding where the federal government stands on Kyoto.

## **2. Factor Constraints Across Canada**

Across Canada, consultation participants expressed concerns about the current demand for factor inputs, the largest of which relate to skilled labour. The economy is operating at full capacity, fuelled by several mega-projects being undertaken across the nation. Skilled labour is ageing in several regions, while younger workers are leaving fledgling regional industries and settling in cities with burgeoning business opportunities. There is a large inter-provincial migration of population, the touchstone example being the labour force migration from Newfoundland to Alberta to work in the oil sands industry. Further, actual available labour reflects a lack of skilled or professionally-qualified workers, such as engineers and skilled tradesmen. Also, there currently exists significant opportunities in developing countries and this may put further pressure on Canada's ability to attract and retain skilled employees. Participants indicated these issues should be highlighted in the reference case.

## **3. Need for Energy Policy Framework**

Given the fast pace of change and the challenges cited above, there is a need for energy policy frameworks that are flexible and responsive. Several jurisdictions in Canada have either developed or are in the process of developing energy strategies at the provincial level. More proactive initiatives are required at both the federal and provincial levels.

## **4. NEB Role, Visibility and Partnerships**

With specific reference to the NEB's mandate or role, participants encouraged the NEB to continue to take proactive measures to encourage an energy dialogue with industry and the Canadian public, with some citing the specific need to connect with Canadian youth on energy matters. The Board is perceived to be in the best position

to determine “hot button” issues, as well the ability to discuss energy security and sustainability with greater regularity and visibility.

Of note, the public would also like the NEB to continue in the same vein we have recently adopted, and that is one of making recommendations and taking a leadership role in shaping Canadians’ knowledge of the energy industry. This practice does not necessarily have to be confined to our release of Energy Market Assessments. Additionally, feedback suggested the future evolution of the Board’s role could possibly incorporate the regulation of the carbon market, or to have some hand in carbon pricing.

The NEB and provincial regulators need to heighten interaction, while increasing the NEB’s visibility as a federal department. Some participants, particularly in Atlantic Canada, suggested the NEB improve its leadership role on electricity matters by better marketing its knowledge in this area and more frequently liaising with the electricity industry.

Several groups suggested the NEB could better align with other departments, such as Natural Resources Canada, with the specific goal of defending the differences in our historical databases. Many energy industry representatives wish to see the NEB and relevant partners in Ottawa increase sharing of information and data, in order to better serve the Canadian public in providing accurate, consistent information. Additionally, several consultation participants wish to see the NEB have more influence on decisions and policies coming from Ottawa, specifically related to energy and environment.

## **5. Value of Energy Futures Reports**

Canadians want to see Energy Futures reports more frequently and firmly grounded in sharing of information and increased dialogue like that conducted in the recent cross-Canada consultations. While the report is primarily used by governments and policy makers, industry participants do see this work as a valuable reference point for their own projections. Several participants suggested the reference case be extended to 2015. The scenarios were generally seen as plausible, although they may not be equally as likely to happen. The value of energy information was emphasized for effective decision making.

## **Participant Input: Price Assumptions, Reference Case and Scenarios**

The primary goal of the May 2006 stakeholder consultations was to gather input from industry, government and association representatives specifically related to the NEB's reference case assumptions and scenario storylines for the next release of the Energy Futures Report. Specific input received during the consultations on the proposed methodology and assumptions is summarized below.

### **Price Assumptions**

Consultation participants generally agree that a \$50/bbl oil price assumption is a reasonable estimate and represents a new threshold; Canadians are "comfortable" or have adapted to this benchmark. However, given that the current West Texas Intermediate price hovers around \$70/bbl, some participants queried how the NEB will account for the decrease in our reference case to \$50/bbl. Some even suggest that we use a much higher price band, anywhere from \$70/bbl to \$100/bbl.

On the gas side, the \$7.50/gigajoule (GJ) price assumption prompted some participants to note that this aggressive price might not be sustainable as it will decrease demand for natural gas in the longer term and will prompt Canadians to investigate the use of coal-fired or nuclear power and also may drive hydrogen demand. Several participants proposed an alternative price of \$6.50/GJ, as many were confident this would ensure more constant gas demand. Additionally, participants felt that LNG could play a role in driving the North American gas price down. However, some stakeholders felt that natural gas is a premium fuel and that the \$7.50/GJ price is reasonable.

Consultation discussion also revealed several alternatives to the traditional 6:1 oil to gas ratio, which is based on the relative heat contents of the two fuels. The oil to gas relationship has recently been closer to 10:1, and several industry representatives suggested we adopt a 7:1 or 8:1 ratio for purposes of the Energy Futures analysis. Participants agreed that factors other than crude oil price will affect the gas price, including the ability to substitute to coal.

### **Reference Case**

Overall, there was considerable support for the NEB's reference case. Participants suggested that this reference case be extended to 2015 to support the multiple uses of the report by stakeholders. Some even suggested extending it to 2030.

Most of the feedback surrounding the reference case centred on the proposed inclusion of such factors as peak oil, climate change, geopolitical storylines and capacity issues (specifically, labour shortages and water constraints). Participants also stated the importance of demographic assumptions and the adequate inclusion of the most current data and information. In finalizing the reference case, the NEB is

encouraged to consider how best to address these matters, be it in the reference case or in one of the three scenarios.

### **Scenarios: General Feedback and Reactions to Three Future Possibilities**

The scenario approach is considered to be an effective approach to explore Canada's energy future. Each of the three scenarios is considered to be plausible, although their occurrence is not equally likely. The NEB is encouraged to "push the envelope" and explore the extremes of each of the three scenarios as well. At the same time, several participants questioned whether or not scenario development is even within the mandate of the Board.

Concern was expressed in all regions about how the NEB can address Kyoto and climate change issues, which will have impacts on energy supply and demand as well as economic growth. Additionally, consultation participants recommended:

- addressing variations in population in each of the scenarios;
- placing more emphasis on electricity;
- exploring the impact of peak oil and gas;
- setting the Canadian scenarios inside a geopolitical context; and
- clarifying our definition of renewables in the context of the Energy Futures Report.

Lastly, some supported the addition of a fourth "wild card" or "all hell breaking loose" scenario.

- *TREEEs*

*"TREEEs" explores a world where energy, environment and economic criteria are considered in key decision making processes. Sustainability is the overarching theme of this scenario.*

Of the three depictions of Canada's energy future, the *TREEEs* scenario garnered the most abundant feedback in all regions the NEB visited. Because of this scenario's emphasis on global factors, some questioned the usefulness of *TREEEs* in terms of the message it sends to local and national governments. Therefore, participants proposed that the NEB focus on what issues Canadian governments can intervene on. Another major issue cited in the *TREEEs* scenario is the apparent inconsistency between low energy prices and the connection to technological innovation. Many were confused by the low-price environment supporting technological breakthroughs, as there is not a clear incentive. Most consultation participants strongly questioned the assertion that increased energy conservation would occur in a low-price environment, as is suggested in the *TREEEs* scenario. Of the three scenarios, this depiction of our energy future was considered to be the most implausible as some participants felt *TREEEs* is too "rosy" and "unduly optimistic".

- *Fortified Islands*

*“Fortified Islands” explores a world where security issues become more and more relevant and leads to slower economic growth and demand for energy, ultimately impacting the Canadian economy.*

Participants encouraged the NEB to highlight the role of wind and hydro in this scenario, while nuclear should be minimized given security concerns. Regarding the definition of “security”, some participants wondered if security of energy supply equals self sufficiency, and encouraged the NEB to carefully define what is meant by “security of supply”. Additionally, discussion focussed on whether or not there is enough investment in North America versus international locations to provide sufficient supply for expected demand.

- *Continuing Trends*

*“Continuing Trends” assumes the force of globalization continues with strong global economic growth fuelled by the developing world, which leads to strong demand for Canadian resources and a strong Canadian economy.*

This scenario was viewed by some to be an extension of the Reference Case. It was also considered to be the most plausible of the three scenarios.

## Session Summaries by Region

In addition to the key messages that were gathered during the consultations, the NEB also determined many specific, region-based energy concerns. Each jurisdiction has a unique energy profile and accompanying issues which impact the regional energy environment. High level messages, by region, follow.

### St. John's (May 8, 2006)

The \$50/bbl price of oil should see most new projects come on stream, although higher costs that accompany higher prices could pose a challenge. The light oil supply is declining in the area and more extensive supply sources are being developed. However concerns remain about the appropriate infrastructure and the capacity to refine. The high price of energy is viewed as a benefit to satellite fields, and the development of these fields in the Jeanne D'Arc Basin is viable. The White Rose project is economic, but requires further delineation. The high price of gas is making it economic, but the focus remains oil.

There is significant interest in wind in Newfoundland and Labrador and several wind projects are on the drawing boards. Barriers to increasing wind projects include icing in Newfoundland, although this is not a concern in Labrador. A 1,000 megawatt (MW) wind proposal for Labrador targeting the export market is at the planning stage. There is concern that increased imports of LNG into the U.S. northeast will adversely affect the development of more hydro projects in Labrador. Due to population out-migration, Newfoundland currently has excess supply of electricity.

Newfoundland is unique in Atlantic Canada in its dual-fired capacity (wood and oil) in the residential sector. This facilitates consumer demand response to higher energy prices. Conservation is happening, but is overtaken by a larger number of energy using gadgets. The high resource prices, including energy, is impacting the Canadian exchange rate, which in turn is hurting the pulp and paper industry, as indicated by the shut down of several operations in Newfoundland. However, high resource costs are driving a "second look" at mining in Atlantic Canada. The Inco mining development and the Voise Bay nickel development represents important energy users in the province.

Both Newfoundland and Prince Edward Island regulate gasoline and home heating fuel. The regulation was introduced to create transparency and accountability. Consumer approval for this endeavour is high. The province is currently enhancing its capacity for forecasting and developing an energy strategy for the province. Quebec's energy strategy, which aims to add 4,500 MW to their total capacity, will have an impact on the development of electricity projects in Newfoundland, especially in Labrador.

The proposed GDP forecast of 1.7 per cent for Atlantic Canada is viewed as low. It was noted that trends in Ontario will affect other areas in terms of growth and will act as a key indicator of labour availability in the rest of Canada. The province is facing labour and

skill shortages, and higher labour costs. There is competition for resources from many major projects across the country. The skilled labour force is also aging.

## **Halifax (May 9, 2006)**

As in the rest of Atlantic Canada, the impacts of high oil prices and exchange rates are being felt. Specific to the area, high prices are viewed as both a blessing and a curse since the higher prices are generally accompanied by increasing costs of rigs and labour. The cost of deep water exploration is viewed as being the highest ever. The economics of hydrocarbon pool size are an issue as are finding costs. Deep Panuke is not expected to come on line for at least the next four years. These supply issues are key in driving the LNG projects.

In terms of alternate supply, wind and tidal energy is garnering interest in Atlantic Canada, but further research and development is required. Nova Scotia has the highest wind capacity factor in North America - between 35 per cent and 40 per cent. New Brunswick has about 400 MW of wind power planned. Forecasting wind for the next day is an issue. NIMBYism and transmission integration are also issues affecting wind development. New Brunswick is reviewing a regional Atlantic Plan for the development of renewables. The share of renewables is expected to increase to 33 per cent by 2016. Nova Scotia also wants to invest in clean technologies. Carbon dioxide sequestration is a consideration. Natural gas is considered a premium fuel which has valuable uses outside electricity generation.

In response to high and volatile energy costs, New Brunswick is moving towards gasoline price regulation and Nova Scotia is under pressure by consumers to follow suit. This is of particular importance to the region, given a uniquely large rural population, which has no direct access to public transit. The driver for regulation is stability.

On the natural gas side, gas penetration for residential and space heating is being targeted, however the appropriate infrastructure is missing for distribution. There is also a need for significant investment in this area.

There is limited evidence that the rising energy prices are changing consumer behaviour. Change is occurring only around the edges. Some loss of competitiveness is experienced in the industrial sector such as in the forestry industry.

The New Brunswick economy is experiencing the effects of high energy prices and the higher dollar. The forestry industry was quoted as being “on life support” due to high costs in the region. At the same time, the high tech industry, which uses little energy, is growing in Atlantic Canada and housing sales in Halifax are booming due to apparently increasing population. However, as with other areas in Atlantic Canada, many “knowledge workers” are leaving the area for other parts of Canada, such as Ontario and Alberta. The challenge is also to attract new industries. Secure and sustainable energy supply is a priority and is the target for the provincial strategic plans.

## **Montreal (May 10, 2006)**

Electricity pricing is currently causing much debate in Quebec. Almost half of the province's electricity is used by the industrial sector. There is great concern that if the province does not keep electricity costs down, the result may be an industry departure to lower-cost areas such as the southern U.S. Currently, the province's electricity pricing is tied to heritage pricing. There is a 15 per cent price increase expected this year, to be followed by another 10 per cent increase in 2007. Another energy cost issue in Quebec relates to the prospect of LNG imports into the province, which will impact end-use prices.

In regard to wind energy in the province, some Quebecers consider NIMBYism to be an "overblown" debate in the province given the large population and large land mass (as compared to Germany, for example, where NIMBYism is a much more visible issue).

The province plans to implement energy efficiency measures within its Energy Strategy Plan, starting with opening an energy efficiency office. The provincial government is endeavouring to act as an "example" via more energy-efficient buildings and vehicle fleet. Additionally, energy efficiency initiatives are expected to be announced for public transit in the province, along with new building code standards, much of which is modeled after California energy efficiency standards. Bio-fuels are also being considered.

There may be regional impacts due to a change in the exchange rate. It was suggested that increased resource exports from the West is affecting exchange rates and having negative economic consequences on Eastern Canada. Consequently, GDP is negatively affected in the area. The pulp and paper industry is going through a phase of consolidations. There is also commitment to save energy in big industries. As with other eastern areas, Quebec too is witnessing the migration of their work force west; specifically, engineers and skilled trades people are in short supply in the province. As with other regions, young people in particular are leaving the area. Provincial regulatory processes were also cited as a constraint to economic development.

## **Ottawa (May 11, 2006)**

The Ottawa session included a number of national organizations and as a result several of the issues raised were national in nature.

The east-west electricity grid in Canada needs more discussion. It requires policy dialogue between the various provinces and there needs to be a consideration of externalities. Much stronger federal-provincial links are required to move this forward. Hydro power will continue to be a major source of energy in Canada. There is potential for new hydro in the North, as well as in Ontario and B.C. Quebec has also announced new hydro energy in its Energy Strategy. There is also greater interest in renewables, although there are variations in individual provincial commitments. The renewable strategy should include the “invisible” energy to account for “off-grid” power. A consistent and acceptable definition for renewables needs to be developed. There may be a more gradual phase-out of coal extending past the announced year 2009.

Energy fuel consumption in the oil sands sector is a concern. Gasification of bitumen and the use of nuclear are unlikely due to many constraints. However, co-generation has potential and is not limited to natural gas.

It is important to consider both the income and price effects in energy demand analysis. As well, the distribution of wealth is an important determinant of demand in Canada. The higher incomes result in more SUVs and bigger houses, and energy savings become less of a concern. Data suggests that the trend towards increased sales of SUVs and light trucks is falling. The potential for hybrid vehicles needs to be examined. As well, consideration should be given to the Memorandum of Understanding with the auto industry. Canada accounts for 10 per cent of the transportation market in North America. Legislation in the U.S. will have an impact on Canadian trends. Quebec may adopt California transportation standards.

Some fuel switching is expected in Quebec out of electricity into natural gas in the residential and commercial sectors, and into biomass in the industrial sector. Generally, the availability of capital constrains fuel switching. Some switching may also occur to wood waste gasification from gas use in the pulp and paper industry. Overall, near-term efficiency gains are expected and the trend is expected to be stronger in this decade than the previous one. A change in fuel price ratios will trigger fuel switching. In the residential sector, there will be a shift to electricity; in industrial to biofuels; and in transportation to ethanol, affected more by policy.

Labour constraints are considered significant in all parts of Canada. Inter-provincial migration is limiting some provinces. Water constraints, high energy prices, together with labour shortages, are critical issues in the reference case period. The pulp and paper industry is a large energy user in Canada. There is a trend away from the use of fossil fuels and this will continue. More co-generation possibilities will also be considered. There are concerns regarding how the incremental power needs will be met in the North for establishments such as the Voise Bay nickel project. The chemical industry is

constrained by the availability of petroleum feedstock, particularly ethane. The pulp and paper industry is feeling the impact of the higher exchange rate.

## **Toronto (May 12, 2006)**

The supply mix and fuel diversity is a significant discussion issue in Ontario. Nuclear energy is an important alternative, especially given the current energy price environment. The debate is centred on whether to build new plants or refurbish old ones. A report on the issues surrounding nuclear energy in Ontario, including proposed actions, is expected to be released by the Ontario Power Authority. Price volatility surrounding natural gas makes it a riskier alternative, especially if it is used to displace coal. Wind energy is viewed as unreliable in the province and so needs to be “backed up” by natural gas. The major issue, as in Atlantic Canada, is the ability to plan ahead with reference to wind production and transmission. As it stands, the province assumes a 10 per cent capacity factor. There is an increased focus on renewables with the objective of obtaining 10 per cent of total supply from renewables.

In terms of transmission between Ontario and neighbouring Quebec, a direct current (DC) link is required between the two provinces, especially for the integration of electricity from Labrador. In terms of east-west versus north-south transmission lines, some consider infrastructure spending on east-west links to be less economical, because it is more costly and the line losses are significant. Additionally, some east-west sales may not be as lucrative as north-south sales, and may discourage interest.

Ontario energy customers recognize the difference in pricing of various energy commodities. While there is acceptance for the fact that with respect to oil and gas, they are price takers, there may be expectation for government intervention when the electricity prices become high and volatile. It was also suggested that the government policies that limit the utility’s ability to pass on cost increases to customers may result in financial implications for the utilities.

It was suggested that high energy prices are not resulting in demand reduction in the commercial sector because the fuel costs are still a small component of the total cost structure. A possible response mechanism could be to buy into the long-term forward market. It is expected that smart meters will cause some behaviour changes, but to be effective, the smart meters need to be accompanied by “smart” appliances and time-of-use pricing.

Labour is shifting west out of Ontario, and as with Quebec, there are concerns that unless energy costs are kept low, Ontario may lose industry participation as jobs could be “exported” south of the border. Labour shortage is also a particular problem in Ontario, especially with respect to larger projects, such as the building of new nuclear operations. Attracting technical and professional immigrants is becoming a challenge as significant opportunities emerge in the developing countries. There has been a reduction in manufacturing sector activities, as a result of softening demand from the U.S. However, the sector is surprisingly resilient and is making changes to improve economics. This reduction is also due, in part, to the rapid rise in the exchange rate as well as rising energy costs. The automobile sector appears to not be as affected since it is not energy-intensive. Ontario will, in fact, not lead Canada in terms of economic growth, and may

even be lower than the national average; again, this is a result of the labour move west. The province's growth rate is comparable to that of Quebec.

## **Calgary (May 18, 2006)**

The most obvious buzz in Alberta, primarily voiced by Calgary participants, surrounds the oil sands and high energy prices. Specifically, the increasing fuel demand in oil sands is an issue given the abundant growth in this sector. Another source of long-term prosperity in the province may be coal. Outgoing Premier Ralph Klein says clean-coal technology is key to the potential. Furthermore, clean-coal technology could ease volatile gas prices and may be the “ticket” to long-term reliable power and reduction of greenhouse gases. However, as cited by Calgary participants, the “long lead time” and regulatory approval turnaround versus that for approvals for natural gas generation will drive the natural gas side despite the high price environment.

High energy prices will have an impact on both demand and supply. Some felt that a price of \$7.50/million cubic feet (Mcf) (90 per cent of crude oil) will negatively affect natural gas demand. There was debate surrounding the oil/gas relationship proposed by the NEB and it was clear that there is significant uncertainty on how this relationship will change over time. It was also suggested that research indicates there is a short term decrease in the demand for gasoline at approximately \$1.18 per litre. However, the effect plateaus and demand increases again. Some long-term effects occur at prices above \$1.50 litre. Bio-diesel fuels have potential but this needs to be carefully brought out by coordinated policies, efficient technologies and appropriate infrastructure. The electric vehicle technology may be at an early stage of penetration. There has been a pushback in the California market due to several reasons including the requirement to rewire garages to allow appropriate plug-in capacity. It was suggested that hybrid cars do not perform well in the Canadian winter conditions.

Despite much of the labour force moving out of other areas of Canada and flocking to Alberta to take advantage of the economic boom in the province, there are still not enough workers in the province to keep up with development. Housing costs are skyrocketing, making it difficult for first-time home buyers to enter the market, and this is particularly evident in Calgary. Wage inflation may also be occurring. There may be some binding constraints facing the future of energy projects including labour, water and capital. These should be reflected in the analysis. It was felt that the costs were increasing globally and not just in Alberta.

### **Edmonton (May 19, 2006)**

Edmonton participants also expressed views focused on the oil sands boom. One concern is water constraints in oil sands projects. Oil pipeline capacity and refining capacity for bitumen could be a limiting factor in getting to the three million barrels per day capacity. Also, it is possible that a high carbon price could result in nuclear being enabled in the oil sands.

While the high energy prices are seen as a “plus” for many Albertans, it is in fact hurting the ethane-based petrochemical plants in the province. In response to flattening natural gas production from the WCSB and rising demand, natural gas prices, and therefore ethane prices, have increased significantly since the late 1990s and impacted operating profitability. Additionally, some questions were raised on the type of economic impact a dampened oil price might have on the Alberta economy and this includes the possibility of recession according to some analysts.

How much and when will the consumer demand response occur in response to the higher energy prices? Demand experience from the 1970s may help in understanding the response. However, in general, the income effect will dominate the substitution effect. Non-transport energy demand has become less sensitive to price, but if price is high enough, the demand response may reverse.

Not much can be expected in terms of growth in the pulp and paper industry, especially at the current exchange rate. Population in Alberta is increasing and declining in Saskatchewan. There is a need for higher immigration to sustain the economic growth. The demographic assumptions should constitute an important component of the Energy Futures analysis. Besides the demographic and labour market constraints, there are many other constraints to the development of large projects, including aboriginal issues, environmental policy, NIMBYism and regulatory approvals. It was suggested that institutional constraints rather than ineffective markets would be an issue.

## **Vancouver (May 16, 2006)**

In comparison to other areas, British Columbia has a noticeable “appetite” for clean energy. This is evidenced by several community-scale projects within the province making use of wind and alternative energies. Additionally, BC Hydro is actively studying the impacts of climate change and examining the use of smart metering. There are some reliability concerns on transmission lines. The north-south connection is more economic than the east-west linkages.

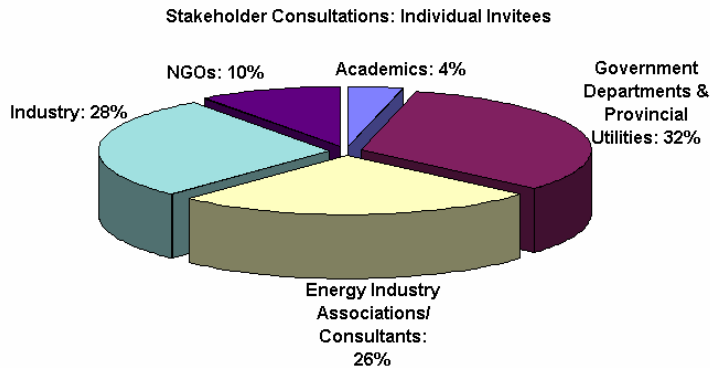
Regarding offshore oil exploration, some industry participants would like the opportunity to explore offshore areas, while on the other hand, environmental groups emphasize the sentiment that environmental damages may occur in the exploration phase. Aboriginal issues also need to be considered along with any environmental impacts.

Other supply interests in the province center on an increased interest in mining (due to high commodity prices) and oil and gas. However, there is debate regarding who is to manage the cost of supplying gas, given the current lack of infrastructure. Producers will require some certainty on any investment and will naturally want to flow gas to the highest value market. Gas load profile has changed in B.C. due to changes to the industrial composition. Some industries, such as aluminium, are lost; and others, such as pulp and paper, are trying to get off gas. The pulp and paper industry is being hit hard by the rising dollar. It is expected the mountain pine beetle will force a boom in the reference period, but then will fall.

The provincial government is updating its energy policy in 2006 and will address several of these issues along with the consumer demand for “proper” pricing signals.

Participants expressed the desire to see the inclusion of more radical scenarios, including climate change impacts. The Board was also encouraged to explore a number of methodologies for developing scenario storylines.

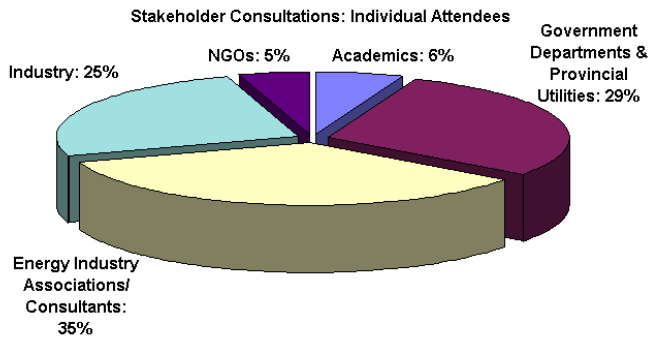
## Comment Card Feedback



In early April 2006, the NEB sent out invitations to 299 industry, government and association representatives, requesting their participation in May 2006 Energy Futures consultation sessions. The sessions were held in eight cities, representing each region of the country and a range of unique jurisdictional energy concerns.

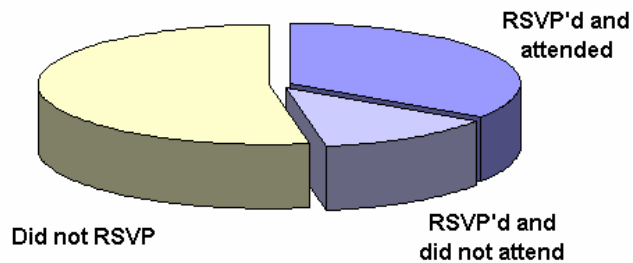
Over half of those who were invited and attended were energy industry representatives, including a cross-section of attendees involved in oil, gas, electricity and other commodity initiatives.

Of interest, 10 per cent of invitations were addressed to NGO representatives, but only half of those groups actually participated in consultations. Another notable trend was that



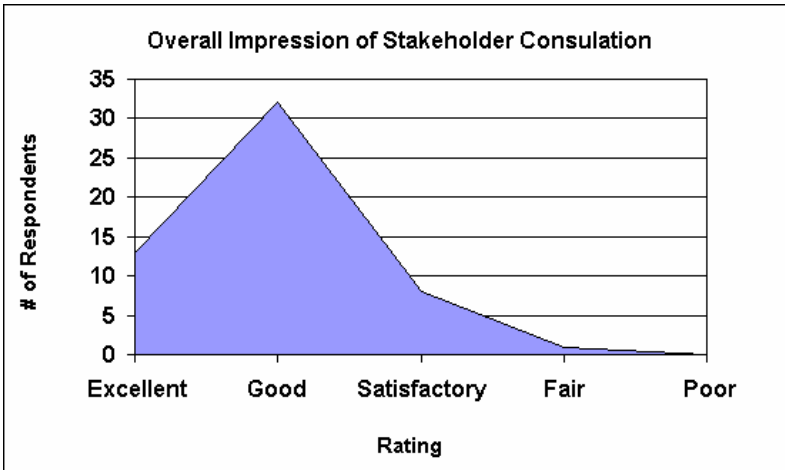
more energy industry associations or consultants attended the cross-Canada sessions than were actually invited. This is noteworthy, being that such associations represent a diverse selection of energy industry players, and as such reflects industry interest in discussion of energy future issues generally.

### Stakeholder Consultation: Response



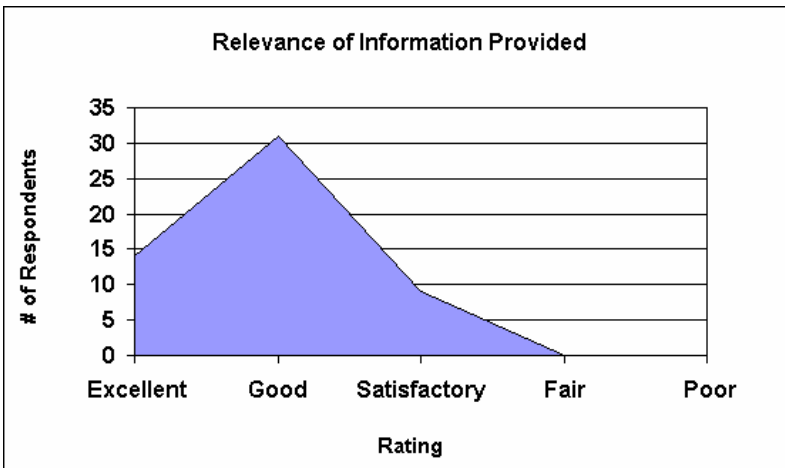
Out of the 299 invited, 141 people RSVP'd. Of those who RSVP'd, actual participation was 103 attendees.

Total Invited: 299

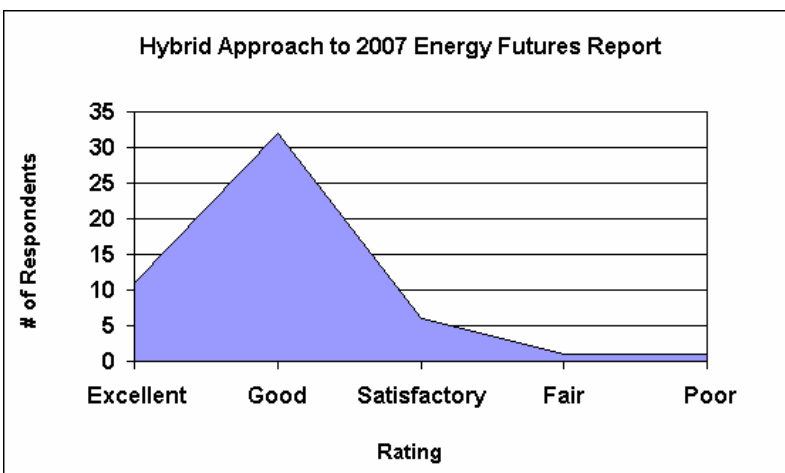


In rating the overall impression stakeholders had of the consultation process, 83 per cent of respondents rated the NEB “Good” or “Excellent”. Respondents agreed the session was “helpful” and “appreciated being included” in the discussion. Additionally, participants felt the NEB

had invested “good, interesting effort” in consultation design and background materials. Furthermore, several participants commended the NEB’s consultation and production of Energy Futures reports as there are not many similar reports available, and so “this makes it even more valuable”.

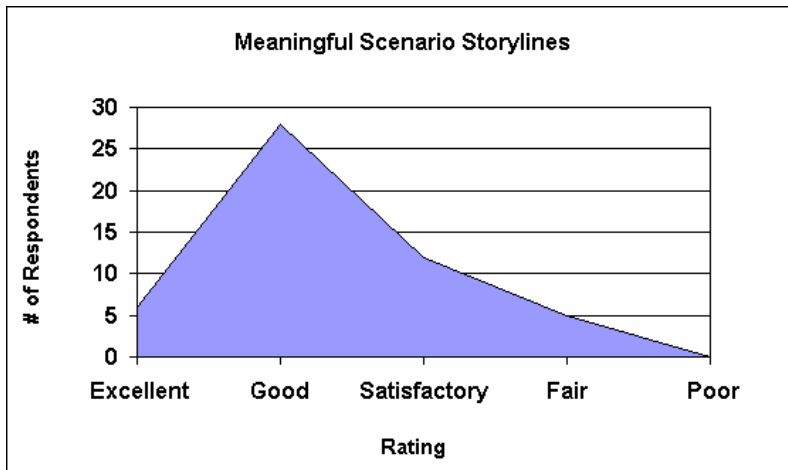


The relevance of the information provided to consultation participants, which included a backgrounder document and slide presentations, was also rated by 83 per cent of attendees as being of “Good” or “Excellent” quality.



The NEB’s hybrid approach (i.e., including a reference case as well as scenarios) for the next Energy Futures Report received favourable support, with 85 per cent of respondents rating the approach either “Good” or “Excellent”. The NEB’s methodology for the next report was deemed “reasonable”,

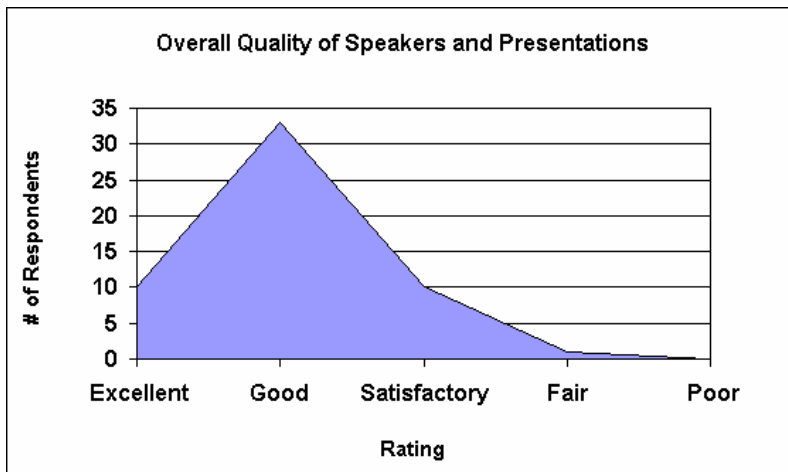
“helpful” and “solid”; a “realistic approach during these changing times”. Several respondents encouraged the NEB to extend the reference case to 2015.



The scenario storylines which will form the foundation of the Energy Futures report received positive support from consultation participants, with 90 per cent of respondents rating the storylines “Satisfactory”, “Good”, or “Excellent”.

The scenarios were said to span a reasonable

range of outcomes and were deemed to be “well-researched” and “worth pursuing”. Several respondents invited the NEB to create “more dramatic” scenario storylines and to “push the envelope” in describing the extremes of each scenario. Some respondents encouraged the NEB to place more emphasis on specific issues such as nuclear energy, energy security and climate change.



NEB representatives were viewed to be competent, quality speakers with well-produced presentations. One hundred per cent of respondents rated the overall presentation quality as “Satisfactory” or above.

Respondents indicated more time could have been allotted to

discussing the reference case assumptions and finer detail of the scenarios, with several participants suggesting full-day sessions for future consultations. Additionally, participants felt more structured discussion questions could have better focussed debate among participants, while some suggested a professional facilitator may help in keeping discussion on track.

Participants were also asked to provide suggestions on how to improve future stakeholder consultations. Common recommendations included:

- Encourage greater industry, provincial government and youth participation.

- Invite more discussion regarding energy infrastructure, including transmission lines, natural gas transmission, storage facilities and accompanying constraints.
- Physically arrange attendees to be seated closer together to encourage a better mix of opinion.
- Hold a concluding national session, where cross-Canada issues can be discussed.
- Hold consultations in all provinces.

## **Participant List**

The Board would like to take this opportunity to recognize and thank all the participants of the consultation session. The open discussion was very valuable to our work and the time that was provided to help shape the next Energy Futures report was much appreciated. Any mistakes and omissions in this document are our own and not the participants.

### **St. John's**

Canada Newfoundland-Labrador Offshore Petroleum Board  
Memorial University  
Department of Natural Resources and Energy Branch  
Centre for Marine CNG

### **Halifax**

Canada - Nova Scotia Offshore Petroleum Board  
Maritimes and Northeast Pipeline Management Ltd  
EnCana Corporation  
Electricity Consumers Alliance of Nova Scotia  
New Brunswick Department of Energy

### **Montreal**

Hydro-Québec Distribution  
Association québécoise des consommateurs industriels du Québec  
Association de l'industrie électrique du Québec  
Ministère des Ressources naturelles  
Régie de l'énergie du Québec  
Gaz Métropolitain  
Rabaska  
Union Québécoise pour la Conservation de la Nature  
Groupe Environnemental STOP

### **Ottawa**

Industry Canada  
Transport Canada  
Informetrica Limited  
Statistics Canada  
Natural Resources Canada  
Pembina Institute  
Canadian Chemical Producers Association  
Roland Priddle Energy Consulting Inc.  
Canadian Hydropower Association

Canadian Nuclear Association  
Canadian Association for Renewable Energies  
Cogen Canada  
International Institute for Sustainable Development  
Forest Products Association of Canada  
Canadian Gas Association

### **Toronto**

Ontario Ministry of Energy  
The Centre for Spatial Economics  
Standard & Poors  
Enbridge Gas Distribution  
Budd Energy Law  
Ontario Power Authority  
Ontario Energy Board  
Atomic Energy of Canada  
Energy Shop  
Canadian Manufacturers and Exporters  
Ontario Power Generation

### **Calgary**

University of Calgary  
Canadian Energy Research Institute  
Canadian Association of Petroleum Producers  
Canadian Energy Pipeline Association  
Purvin & Gertz Inc  
Alberta Energy and Utilities Board  
TransCanada Pipelines Limited  
EnCana Corporation  
Shell Canada Limited  
Nova Chemicals  
TransCanada Pipelines Limited  
Van Ham Resources Inc.  
Small Explorers and Producers' Association of Canada  
Duke Energy  
Canadian Gas Potential Committee

### **Edmonton**

Alberta Energy Research Institute  
University of Alberta  
Alberta Department of Energy  
Alberta Research Council  
Alberta Environment

R.A.S. Brown Consultants Ltd.  
Alberta Economic Development  
Air Liquide Canada  
Progrid Evaluation Solutions  
Alberta Economic Development

### **Vancouver**

BC Energy  
Terasen Gas  
BC Hydro  
David Suzuki Foundation  
Taylor Munro Energy Systems  
Ocean Renewable Energy Group

### **NEB Participants**

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Paul Mortensen  
Louise Niro  
Wendy Olan  
Tara Smolak  
Stéphane Thivierge  
Bill Wall