



National Energy
Board

Office national
de l'énergie

Canada's Energy Future

SECOND ROUND - CONSULTATION SESSIONS FEEDBACK



STAKEHOLDER INPUT 2007

Canada

National Energy
Board



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Second Round Consultation Sessions Feedback

Stakeholder Input 2007

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Introduction

A critical input in developing the National Energy Board's (NEB) flagship publication, the Energy Futures Report, is seeking the views of Canadians interested in energy matters. In the last year, the NEB has engaged Canadians in two rounds of stakeholder consultations, in an effort to gather industry, government, non-governmental, and academic perspectives on key energy issues. Through this dialogue, the NEB listens to Canadians' observations and considers stakeholder feedback in the development of the Energy Futures Report.

The objective of the first round of consultations, held in 2006, was to provide stakeholders with an opportunity to comment on various facets of the developing Energy Futures report, including: the proposed analytical approach; major assumptions for the reference case, scenario storylines and assumptions; and the Board's methodology and analysis of long-term energy supply and demand in Canada. As a result of the first round of consultations, the Reference Case was extended to cover the time period 2005-2015, the range of energy prices to be considered was expanded, and the scenario logic was strengthened. Results of first round consultations can be accessed at <http://www.neb-one.gc.ca/clf-nsi/rnrgynfmrn/nrgyrprt/nrgyfr/cnslttrnd1/cnsltnssnsfdbck-eng.pdf>.

One year later, the NEB expanded the second round of consultations, held in spring 2007, to include a more diverse group of participants, inviting more aboriginal and environmental representatives, as well as individuals from the financial and banking sector. Additionally, the NEB visited two more cities than the previous round, for a total of 10 Canadian cities. Of note, over ten percent of RSVPs received by the NEB came via word-of-mouth invitations, an indication of the interest in Canada's energy future.

The objective of the spring 2007 consultations was to provide stakeholders with an opportunity to comment on the Board's preliminary results, developed subsequent to the 2006 round of consultations. Specifically, this report serves to reflect stakeholder feedback on: macroeconomic and price assumptions; energy supply and demand results; oil and natural gas liquids, natural gas, electricity, and greenhouse gas analysis. This summary focuses on aspects of analysis where stakeholders suggested further exploration of issues for the final Energy Futures report. This feedback does not necessarily mirror the NEB's views, but instead provides a summary of the input heard from across the country.

The NEB would like to thank the many participants who we met with, whose observations have been both constructive and welcomed. Across the country, consultation participants expressed their interest in the Energy Futures report, noting the unique comprehensive nature of the analysis, which covers all jurisdictions, fuels and sectors, while employing a consistent methodology. Additionally, the content of the upcoming Energy Futures report, to be released in the fall of 2007, may be helpful in informing public policy. Participants expressed their appreciation for both the "big picture" context of the Energy Futures report, as well as the emphasis the NEB places on involving stakeholders throughout the development of the report.

Macroeconomic and Price Assumptions

Participants across Canada generally agreed that certain macroeconomic drivers may be aggressive. Specific factors cited as being high include labour productivity, personal disposable income, and high economic growth in energy intensive industries. Most notably, participants questioned why both the inflation and exchange rates remain constant across scenarios, stating that this trend is “counter intuitive”.

Industrial sector growth assumptions were specifically mentioned as being high. Participants felt that these assumed growth rates would result in some demand estimates being high as well. Specific industries such as the pulp and paper and manufacturing industry were the primary focus of participant feedback. The pulp and paper sector was viewed as growing at a particularly high rate, and some participants stated this sector should perhaps show no growth. The manufacturing industry is currently on the decline and participants noted that the assumed high exchange rate is expected to further erode this sector’s growth.

Some participants felt the analysis was conservative regarding the Canadian (and particularly the Albertan) economy. Despite the change in oil price, the anticipated dramatic shifts in economic growth may not have been adequately captured in the current analysis.

With regard to prices, feedback indicated that the natural gas to oil price ratio should change with the scenario storylines. Additionally, there was some discussion around prices, where some participants felt the range may be narrowed. The prices in the Fortified Island (FI) scenario were considered too high, and participants agreed that it need not be this high to support the scenario storyline. Also, some felt that the prices in the Triple E scenario were too low.

Informative discussion took place with several regional experts regarding the health of specific provincial economies and industries. Participants provided valuable information on issues affecting growth in sectors, with special emphasis on energy-intensive industries. Specific provincial projects were also cited that may have implications for the energy industry. Short and long term trends resulting from these projects were also discussed. While the macroeconomic data in the Energy Futures analysis reflects national trends, the NEB heard valuable comments regarding the need to remain cognizant of regional trends.

Energy Demand

There was a fair amount of discussion regarding trends in energy intensity, and how efficiency improvements might unfold for various sectors. Of great importance was the discussion around the energy use in the energy producing industries.

Greater detail on energy demand detailing fuels, sectors, and provinces is appreciated by the stakeholders. Participants look forward to greater detail on demand breakdown in the final Energy Futures report. Additionally, a clearer breakdown or discussion of energy efficiency technologies or programs, including solar PV, solar thermal and geothermal use was indicated to be beneficial. With the final Energy Futures report, we will make available detailed tables and appendices, similar to previous reports.

Participants discussed the strong economic growth rates, in particular for energy intensive industries, reflected in the analysis. Assumed growth rates may be too high, particularly for sectors such as pulp and paper, other manufacturing, and cement and chemicals, leading to higher than expected energy demand growth rates. This is most apparent in the high electricity demand results in the current analysis.

The growing importance of ethanol was also highlighted in consultations. Some attendees felt the popularity of ethanol will wane, with some referring to ethanol as a “flavour of the month”. Full life-cycle analysis may require a study into the full environmental implications of ethanol use, including implications for water and fertilizer use.

Demand trends in various scenarios were discussed, with participants noting that none of the scenarios depicts a declining trend. Interest was expressed in exploring how various government policies are incorporated into outlook assumptions. Some participants suggested that governments are adopting more and more environmental policies, and therefore these should be included in the “Continuing Trends” scenario. It also was suggested that a sensitivity analysis could be presented exploring the elasticity of demand according to price, income and demand policy.

Participants expressed interest in the model used for the Energy Futures analysis. Specifically, discussion revealed that, ideally, the introduction of renewables should occur during the time-frame period. Additionally, discussion took place regarding the possibility of a broader definition of renewables.

Lastly, the consultation sessions emphasized the integrated Canada-U.S. energy environment, with participants noting the U.S. influence on Canadian energy price. Participants agreed that Canada can not realistically be treated independently in the analysis, given the existence of an integrated North American market.

Oil and Natural Gas Liquids (NGLs)

Participants showed considerable interest in the assumptions surrounding oil sands. Specifically, discussion centered on what types of fuels will be used in the oil sands industry (e.g., natural gas, nuclear), the cost of oil sands, and the future of oil sands at different price levels.

Participants, particularly in Atlantic Canada, discussed the prospect of increased production in the region, noting the major challenge of getting rigs for exploration: deep water rigs are in short supply, while new rigs are costly. The potential for development of a smaller satellite field may make a difference to production levels. With regard to refining, participants agreed that a new refinery in Atlantic Canada is possible, and if constructed, would likely be designed for heavier crude oil.

Audiences also inquired why enhanced oil recovery (EOR) using CO₂ is included in the Triple-E scenario yet not in the higher price FI scenario. A qualitative discussion of this issue will be forthcoming in the final report.

Significant discussion occurred in the sessions on the possibility of carbon capture and storage. Participants distinguished between “capture-ready” sequestration versus policy-induced sequestration. It was felt that for a large amount of carbon capture and storage to occur, economic instruments will be required.

Participants mentioned that concern for the environment may encourage the development of nuclear power in the oil sands. It was also communicated that the oil and gas industry is under pressure to simplify processes and address labour shortage issues. Nuclear is an unfamiliar technology for the oil and gas industry, so the prospect for nuclear is relatively low. At the same time, governments and the nuclear industry are optimistic about the potential construction of nuclear energy in the oil sands.

Some discussion also occurred on the need for additional refining capacity, although the location for this was not known.

Natural Gas

Discussion with regard to natural gas focused on the natural gas to oil price ratio, LNG viability, and forecasted unconventional resources such as coal bed methane (CBM).

Some participants believed the natural gas to oil price ratio should “delink” from the historical 1:6 ratio in the different scenarios. It was felt that \$12 gas was too high in the FI scenario, even with an \$85 oil price. Conversely, in the Triple-E scenario, \$5 gas was considered too low given the relative environmental attractiveness of the fuel.

Participants expressed interest in where LNG would be sourced in the Triple-E scenario, and also noted that building import capacity may not induce LNG imports due to worldwide competition for LNG supplies. Participants noted that LNG imports into B.C. in particular may be unlikely to occur prior to 2015. It was also suggested that LNG imports could continue throughout the FI scenario because once facilities are built, they will continue to be used. Participants also suggested a more in-depth discussion be provided of the assumption that widespread LNG availability in the Triple E scenario would help to lower natural gas prices in North America. A mention of the possible development of a cartel of LNG exporting countries was also suggested.

Additional revisions to the scenarios were suggested by participants, in order to reflect updated project costs and a possible earlier start date for a Mackenzie Valley Gas Project, if approved. Additionally, participants noted that current and future gas drilling should be adjusted to reflect reduced industry spending in response to rapid cost escalation. Further, Newfoundland offshore production may occur sooner than what the Continuing Trends and Triple E scenario currently implies

Some groups commented that the unconventional gas production forecast may be aggressive. It was suggested that CBM resources and production in the CT and Triple E scenarios be reduced to reflect higher costs and lower productivity. Several participants also requested a description of how CBM may impact the environment with specific reference to water disposal. The potential for CBM development in Nova Scotia was proposed as being sufficient to warrant its inclusion in the scenarios.

Participants suggested that the potential development of gas hydrates could be considered qualitatively but not quantitatively in the analysis. Some believed that production of gas hydrates may come to pass by the end of the projection period, albeit in small amounts. Others suggested that development of gas hydrates will likely fall outside the time frame of the analysis.

Electricity

Wind generation assumptions were considered very aggressive and several participants noted that wind should not represent more than 10 to 15 percent of installed capacity. Feedback also indicated there are additional issues to be considered with regard to wind, such as low temperature shut-offs and the fact that 50 percent of wind occurs in off-peak periods. As well, operational inefficiencies and NIMBYism concerns were raised as a constraint to the amount of wind power that could be developed.

Participants suggested that the integration of wind power is a major issue that could be addressed in the Energy Futures analysis. Further, discussions also explored the prospect of an east-west electricity link in Canada. In response, participants suggested that alternative sources should be better addressed in the analysis, including the future of biomass generation, fuel cells, clean coal options, tidal power and the possibility of polygeneration projects. It was also noted that the pace of renewable growth is dependent on the pace of the approvals process.

Discussion on nuclear energy indicated that with reference to oil sands, nuclear should be considered as an alternate energy source, although Alberta industries may be unfamiliar with nuclear options. Additionally, development in the oil sands is already causing labour shortages and project management pressures. Hence, the addition of nuclear development may be outside of the industry's comfort level.

Lastly, discussion also focused on the high potential for demand-side management (DSM) policies to reduce electricity demand, and the potential for such policies within the Energy Futures scenarios. Participants also agreed that renewable energy will only continue to grow in importance in the future, and that the penetration of renewables will be much higher than previously exhibited.

Given high fuel prices, participants considered the Fortified Islands (FI) scenario to be ideal for penetration of new energy efficient technologies, and Integrated Gasification Combined Cycle (IGCC) generation was specifically mentioned in this context

Greenhouse Gases (GHGs)

Attendees expressed their interest in the inclusion of a scenario wherein absolute GHG emissions decline. Such a scenario would also illustrate the resultant impacts on the economy. The Triple-E scenario was not deemed to be aggressive or “green” enough and some participants viewed the emissions intensity improvements in the scenario to be nearer the “business as usual” scenario. Additionally, it was suggested that there could be sensitivities incorporated surrounding declining GHG emissions, such as changes to the GDP, energy prices, energy efficiency improvements, and a higher CO₂ tax. Participants would also like to see the environmental programs that were modeled for the analysis in greater detail.

Feedback was also received with reference to carbon capture and storage (CCS). Specifically, participants would like to see a discussion on net versus gross energy requirements as CCS will require higher energy to store CO₂, and this will push energy prices higher. It was also noted that capital stock turnover is important in the discussion of CCS, with utilities making investment choices in the current time frame.

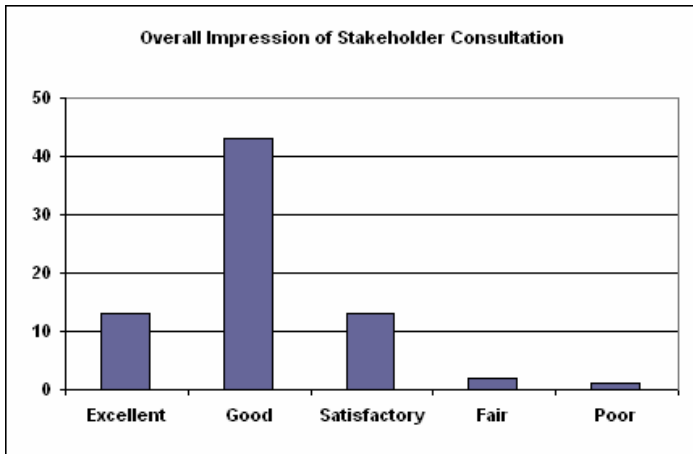
In addition to geologic sequestration, participants encouraged an exploration of biological sequestration as well, referencing forest management practices and agriculture, for example. Biological sinks were considered to be a possible way to solve the GHG issue.

Conclusion

The Energy Futures consultations afforded the NEB the opportunity to gather valuable insights from a wide cross-section of Canadians, from all regions of the country. Discussion in each venue was enlightening and provided a means to engage stakeholders from industry, government, academic, and environmental groups.

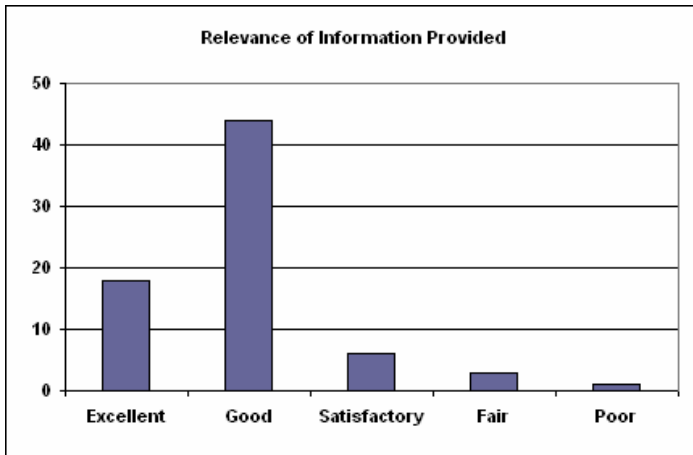
In response to the feedback received, revisions to the Energy Futures analysis are underway in preparation for the final report. The NEB thanks the many interested participants who made the second round of consultations a success.

Appendix - Comment Card Feedback



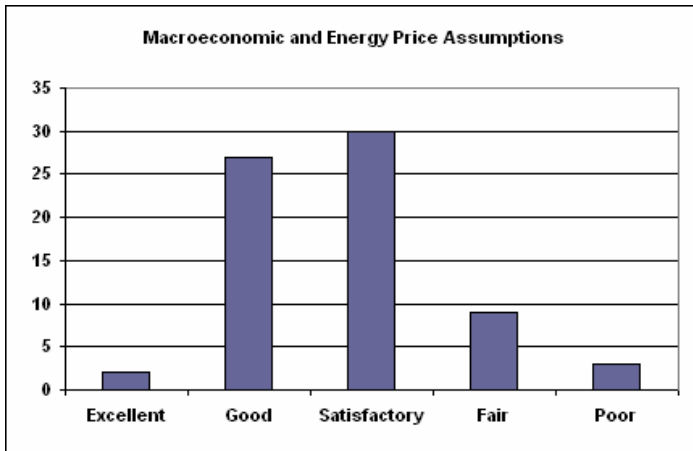
In rating the overall impression stakeholders had of the consultation process, 77 percent of respondents rated the process as “Good” or “Excellent”.

Participants suggested that the NEB hold such sessions more often, as "objective dialogue on energy futures is vital for Canada." The sessions were considered "well-facilitated" and demonstrated "good time management" by NEB staff.

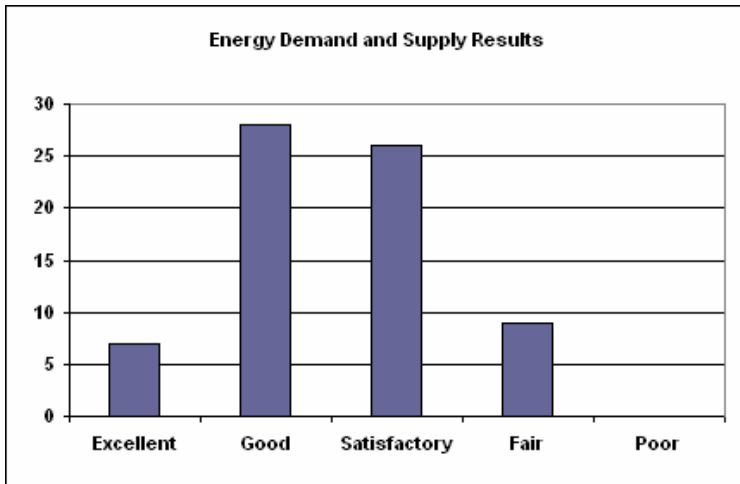


The relevance of the information provided to consultation participants, which included a Backgrounder document and slide presentations, was rated by 86 percent of attendees as being of “Good” or “Excellent” quality.

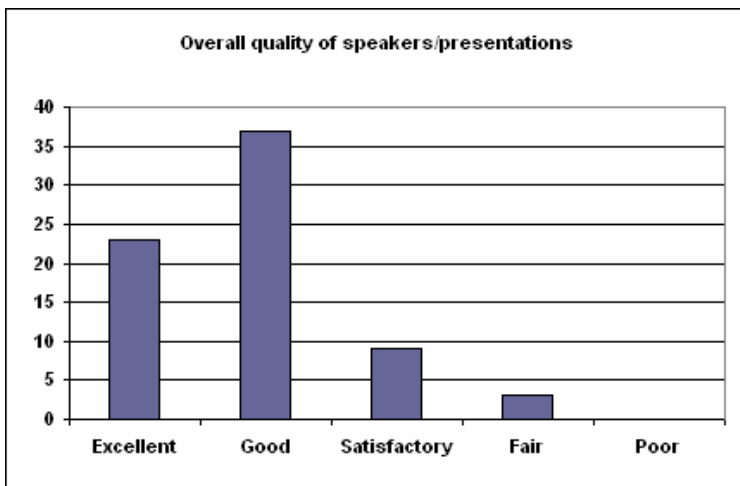
The NEB’s macroeconomic and energy price assumptions for the next Energy Futures Report received favourable support, with 80 percent of respondents rating the approach either “Good” or "Satisfactory".



Participants expressed the desire to better understand the models used to arrive at energy price assumptions. Additionally, some participants suggested an exploration of "green issues" be included in the analysis.



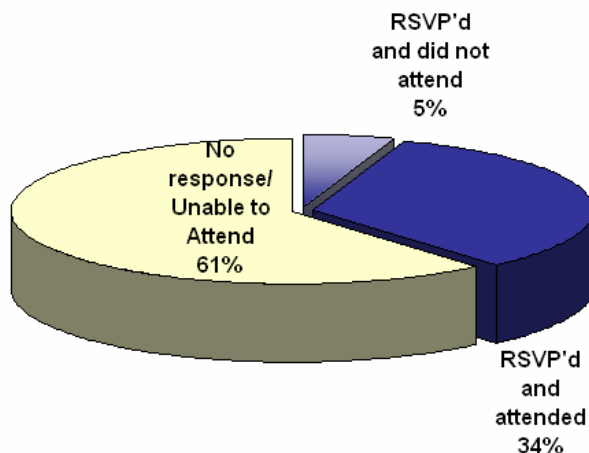
The energy demand and supply results received positive support from consultation participants, with 87 percent of respondents rating the analysis “Satisfactory”, “Good”, or “Excellent”.



Participants suggested the NEB consider provincial energy plans in the Energy Futures analysis, especially with regard to climate change policy. Additionally, participants suggested a more conservative wind generation position in the analysis.

NEB representatives were considered competent, quality speakers with well-produced presentations: 96 percent of respondents rated the overall presentation quality as “Satisfactory” or above.

Participants thought NEB staff were "very open to obtaining views of participants and listened with genuine interest to suggestions" and were "well versed regarding the scenario storylines".



The second round of consultations saw a 40 percent response rate in the form of participant attendance or written feedback to the NEB. Of particular note, more than 10 percent of those who attended heard about the Energy Futures consultations via word-of-mouth. Ten cities were visited across Canada, with more invitations sent to environmental, aboriginal, and finance industry groups.

Participant List

Individuals from the following organizations were represented in the Energy Futures 2007 consultations. Any mistakes or omissions in this document are our own and not the participants.

Vancouver

BC Hydro
BC Energy
BC Ministry of Energy, Mines and Petroleum Resources
BC Sustainable Energy Association
BC Utilities Commission
David Suzuki Foundation
Hydrogen and Fuel Cells Canada
Ocean Renewable Energy Group
One Sky - The Canadian Institute for Sustainable Living
Powerex Corp.
Sierra Legal Defence Fund
Taylor Munro Energy Systems, Inc.
Terasen Gas Inc.

Calgary

AJM Petroleum Consultants
Alberta Electric System Operator
Alberta Energy and Utilities Board
Atco Power Canada Ltd.
BP Canada
Calgary Energy Consultants Ltd.
Canadian Association of Petroleum Producers (CAPP)
Canadian Energy Pipeline Association (CEPA)
Canadian Gas Potential Committee
Canadian Society for Unconventional Gas
Coal Association of Canada
Forward Energy Group Inc.
Geological Survey of Canada
Nova Chemicals Corporation
Pembina Institute
Shell Canada
Spectra Energy
TransCanada PipeLines Limited
Van Ham Resources Inc.

Edmonton

Alberta Department of Energy
Alberta Employment, Immigration and Industry
Alberta Energy Research Institute
Alberta Environment
Alberta Research Council
University of Alberta

Regina

NorthPoint Energy Solutions
Sask Power
Saskatchewan Finance
Saskatchewan Industry and Resources
SaskEnergy
TransGas Limited

Toronto

Association of Major Power Consumers in Ontario
Atomic Energy of Canada
C4SE
Citizens for Renewable Energy
City of Greater Sudbury
Conservers Society of Hamilton and District
CVRD Inco
Elenchus Research Associates
Enbridge Gas Distribution
Independent Electricity System Operator
Ontario Energy Association
Ontario Energy Board
Ontario Mining Association
Ontario Power Authority
Ontario Power Generation
Pollution Probe
The Centre for Spatial Economics
Ventus Energy Inc.

Ottawa

Biocap Canada Foundation
Canadian Chemical Producers Association
Canadian Electricity Association
Canadian Gas Association
Canadian Hydropower Association
Cement Association of Canada
City of Ottawa – Air and Energy Initiatives
COGEN Canada
Conference Board of Canada
Environment Canada
Forest Products Association of Canada
Industrial Gas Users Association
Informetrica Limited
Natural Resources Canada
Pembina Institute
Statistics Canada

Montreal

Association de l'industrie électrique du Québec
Gaz Métro
Groupe environnemental STOP
HEC-Montréal
Hydro-Québec Distribution
Hydro-Québec Production
Ministère des Ressources naturelles du Québec
Mouvement Au Courant
Natural Resources Canada
Université Laval

Fredericton

Friends of Rockwood Park
Green Party of Canada
NB Power Transmission Corporation
New Brunswick Department of Energy
New Brunswick Energy and Utilities Board
New Brunswick System Operator

Halifax

Atlantic Provinces Economic Council
Canada - Nova Scotia Offshore Petroleum Board
Conserve Nova Scotia
Ecology Action Centre
Jacques Whitford Ltd.
Maritime Conference
Maritimes & Northeast Pipeline Management Ltd
Nova Scotia Department of Energy
Petroleum Research Atlantic Canada
Ventus Energy Inc.
Youth Environmental Network

St. John's

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

NEB Participants

Abha Bhargava
Anita Dodd
Kevin Hnatiuk
John McCarthy
David Michaud
Paul Mortensen
Wendy Olan
Lorna Patterson
Christian Rankin
Bill Seney
Tara Smolak
Stéphane Thivierge
Bill Wall