Brief to the Standing Senate Committee on Energy, the Environment, and Natural Resources on Transitioning to a Low-Carbon Economy

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Main Points in Brief (see attached supporting information)

1. Canada’s Infrastructure: Legacy and Future
   a. National transportation, communication, and energy projects have created the Canada we know. Past projects were successfully launched through public/private sector collaboration. Their legacy continues. A unique model for private/public sector collaboration, the Alberta Oil Sands Technology and Research Authority (AOSTRA), was created by former Alberta Premier Peter Lougheed.
   b. New national or regional infrastructure projects are the pathway to a lower-carbon economy but must meet both environmental and economic criteria. The challenge of meeting these two overarching objectives, often competing, is the number one issue facing Canadians in this century.

2. The Custodians of Canada’s Natural Resources
   a. The Premiers and Territorial Leaders, now acting as the Council of the Federation, are the custodians of our natural resources. Their 2015 Canadian Energy Strategy (CES) identified significant infrastructure opportunities to upgrade our natural resources (a major wealth generating pathway) and to capture Canada’s huge untapped renewable electricity potential (a major pathway to a low-carbon economy).
   b. We have an opportunity to establish a new AOSTRA, conceptually a Canadian Interprovincial Technology and Research Authority (CITRA). The Council of the Federation has already prepared an appropriate vision for CITRA: “Canada is a global leader in providing a secure, sustainable, and reliable supply of energy that is delivered with a high standard of environmental and social responsibility, consistent with efforts to reduce greenhouse gas emissions, and contributes to continued economic growth and prosperity for all Canadians.”

3. The Environment and the Economy: A Win-Win Strategy
   a. Past Canadian big projects have been one dimensional: e.g. building a bridge, opening a seaway, connecting two places or regions. We must now power our economy to generate the wealth needed to sustain our quality of life and to meet our internationally established environmental goals.
   b. A process is needed to create an integrated energy system, meeting economic targets and environmental commitments. Canadian energy experts have created such a process.

4. Suggested Recommendation for the Senate Report:

   Develop an integrated system of transformational projects as the pathway to power our economy and meet our environmental commitments. Encourage the Premiers and Territorial Leaders to follow in the footsteps of Peter Lougheed and move Canada to a dramatically higher level of economic and environmental performance.
Supporting Information

Brief to the Standing Senate Committee on Energy, the Environment, and Natural Resources on Transitioning to a Low-Carbon economy

1. Canada’s Infrastructure: Legacy and Future

The basis of this brief is that achieving a low-carbon economy will require a strong economy and a commitment to a multi-year big project nation-building program.

This is not new. Can you imagine Canada without the twelve big projects shown on the right?¹

Our past big projects were led by visionaries, in both the public and private sectors. How did they get started? Eight were launched as Crown Corporations, four as private sector initiatives with a level of government risk sharing. What has happened to them? Five have been divested to the private sector and three are still government operated, a wonderful legacy for the visionaries who started them. But the game has changed: new big projects must meet both economic and environmental objectives.

As always, the question comes down to ‘who leads?’. Is it the public or private sector? Peter Lougheed found an answer in the 1970s when he created the Alberta Oil Sands Technology and Research Authority (AOSTRA), which went where no government had gone before, using a unique formula:

- a regional/national vision;
- government puts first money on the table;
- projects identified and performed by the private sector;
- program managed by an arms-length authority;
- 50/50 public/private sector funding;
- new technology owned and made accessible by the government.

By advancing technology, AOSTRA created a new industry. Annette Hester and Leah Lawrence documented the details in A sub-national public-private sector strategic alliance for innovation and export development, a United Nations initiative.² Jim Balsillie, co-founder of Research in Motion, told the Globe and Mail, “Our best 20th -century example of mission oriented economic

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¹ http://www.bowmancentre.ca/MarceauSymposium/ClementBowmanPresentation.pdf
² A sub-national public-private strategic alliance for innovation and export development: the case of the Canadian Province of Alberta’s oil sands; Annette Hester Leah Lawrence; Economic Commission for Latin America and the Caribbean (ECLAC).
development leadership was Alberta Premier Peter Lougheed’s 1974 establishment of AOSTRA, the Alberta Oil Sands Technology and Research Authority.”

2. The Custodians of Canada’s Natural Resources

There is now a new strategic player in Canada’s energy future, the Council of the Federation (i.e. the Premiers and Territorial Leaders). Their 2015 Canadian Energy Strategy (CES) identified new big project opportunities. This included upgrading our natural resources (a major wealth generating pathway) and capturing Canada’s huge untapped renewable electricity potential (a major pathway to a low-carbon economy). The Premiers have noted these objectives will require “new interconnected transportation and transmission infrastructure.”

The Premiers’ Canadian Energy Strategy describes how provinces and territories can work together to build an energy future for Canada that is environmentally responsible, economically productive, and contributes to prosperity for all Canadians. What better way to act on this than to create a new AOSTRA? Conceptually this could be called the Canadian Interprovincial Technology and Research Authority (CITRA), a name suggested by Guy Van Uytven. This would be the right vehicle to: a) launch projects to develop the resources owned by the Provinces and Territories; and b) press the Federal Government to prepare the pathways for interprovincial and international trade. These strategic projects would power our economy over the next half century and meet our low-greenhouse-gas emission targets.

The vision of the Council of the Federation is “Canada is a global leader in providing a secure, sustainable and reliable supply of energy that is delivered with a high standard of environmental and social responsibility, consistent with efforts to reduce greenhouse gas emissions, and contributes to continued economic growth and prosperity for all Canadians.” Former Premier Gordon Campbell recently stated, “Canada can be a global economic—and environmental—leader. It will take leadership but it can be done.” Provincial leaders are indeed calling for action.


Selecting winners is the holy grail of venture capitalists, and many techniques have been developed and reported. Venture capitalists go from tranche to tranche, looking for profitable exit strategies. But these are not the models to follow: Canada is not looking for an exit ramp.

Most of Canada’s Big Projects in the past have been one dimensional: e.g. building a bridge, opening a seaway, connecting two places or regions. But we now have two overarching objectives: a) powering the economy to generate the wealth needed to sustain our quality of life; and b) meeting our internationally-established environmental goals, failing which our global market pathways will close and our planet could be in peril.

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3 “Canadians can innovate, but we’re not equipped to win”; Jim Balsillie; Globe and Mail, May 8, 2015.
5 http://www.bowmancentre.ca/MarceauSymposium/GuyVanUytvenPresentation.pdf
6 Canada can be a global economic—and environmental—leader; Gordon Campbell, Globe and Mail, Dec 12, 2016.
In decision making, moving to two dimensions is a huge challenge. Lowry and Hood in their book *The Power of the 2x2 Matrix* define the many situations in business and personal affairs where one is faced with two independent and often competing options. They illustrate the dilemma by placing options in one of four grid quadrants, with the upper right-hand quadrant representing a higher level of performance.

Building on Lowry and Hood’s grid concept, a team of experienced technology managers have developed a rigorous process for placing energy projects in appropriate quadrants, with economic and environmental performance as the two grid axes. In a beta test, the team was able to populate this grid with projects of differing levels of economic and environmental performance. The methodology is called ProGrid and real-life case studies are provided in the book *Intangibles*. Such an approach would help Canada move to a higher level of economic and environmental performance.

Big energy projects only happen when visionaries see the need for a major change in the current trajectory of Canada. Small energy projects happen without any intrusive action by society. Peter Madden, former Director of Green Alliance, Ministerial Advisor to the British Government, notes that scaled-up conventional project management methods are overwhelmed by the asymmetries of multiple stakeholder interests and the long time frames of major projects having complex dynamic objectives. He stresses the need for a new paradigm. The Lougheed project management model and the ProGrid decision-assist methodology provide the new paradigm.

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- Founding Chairman of Peter Lougheed’s Alberta Oil Sands Technology and Research Authority (AOSTRA);
- Past President of the Alberta Research Council;
- Past President of the Chemical Institute of Canada;
- Past Chairman, Canadian Research Management Association;
- Past Chairman, Energy Pathways Task Force of the Canadian Academy of Engineering;
- 2008 Laureate, Global Energy International Prize;
- Associate, Bowman Centre for Sustainable Energy.

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