GOVERNMENT OF CANADA RESPONSE TO THE SEVENTH REPORT OF THE STANDING COMMITTEE ON NATURAL RESOURCES ENTITLED "STRATEGIC ELECTRICITY INTERTIES"

MARCH 29, 2018

INTRODUCTION

The Government of Canada has reviewed the report of the Standing Committee and thanks its members for their efforts in developing this report. The Government also wishes to extend thanks to the numerous witnesses who provided expert testimony to the Committee, providing the members with a diversity of perspectives on the electricity sector.

The Pan-Canadian Framework on Clean Growth and Climate Change identifies electricity as the cornerstone of a modern, clean growth economy. Canada starts from a position of strength in this respect, as it is a global leader in the generation of clean electricity. Nearly 65 percent of our electricity comes from renewable sources and, when accounting for nuclear power, about 80 percent of the electricity generated in Canada produces no greenhouse gas (GHG) emissions. The Government has committed to put Canada on a pathway to achieve 90 percent of electricity generation coming from non-emitting sources by 2030.

Over the years, the electricity sector has made significant progress in reducing GHG emissions. Since 2005, the electricity sector has outpaced all other major industries in Canada in emissions reductions, with emissions from electricity generation falling by 33 percent between 2005 and 2015. In 2015, the electricity sector accounted for only 12 percent of Canada's emissions, down from 16 percent in 2005.

Even so, there remains significant opportunity to reduce electricity sector emissions even further. The Government of Canada is taking steps in this respect by putting in place a regulation to phase out conventional coal-fired electricity generation by 2030. The need to reduce emissions is coupled with a concurrent need to accommodate widespread electrification, the main strategy to reduce emissions in many other sectors. The global energy sector finds itself in the middle of an unprecedented transition to a cleaner future; this represents a significant opportunity for Canada to position ourselves as a global leader.

Generation Energy is a nation-wide dialogue on Canada's energy future led by Natural Resources Canada (NRCan). Over the course of 2017, NRCan engaged with Canadians on ways to meet Canada's climate goals, create jobs and keep energy affordable. The initiative culminated at a Forum held in Winnipeg in October 2017 where experts, youth, industry, Indigenous peoples and government built on the input provided by Canadians to start taking steps to address Canadians' energy ideas. During the Generation Energy process, the Government heard from Canadians across the country that a diverse set of solutions will be required to respond to the challenges of electrification and decarbonisation of the electricity sector. These solutions could include variable renewable energy resources (i.e., wind and solar energy), energy storage, large and small hydro, small modular reactors, refurbishment of existing nuclear facilities, and distributed energy systems.

Given that many of these solutions will require improved transmission between and within jurisdictions, the Government agrees with the report's assertion that strategic transmission interties will be important for addressing these challenges. The Committee expert witnesses highlighted potential benefits of developing strategic interties, including benefits relating to interprovincial trade, opportunities for

electricity exports to the United States (U.S.), displacement of coal-fired electricity, system reliability, electrification as a GHG emission reduction strategy and a greater share of renewable electricity on the grid.

Overall, as set out in the Pan-Canadian Framework on Clean Growth and Climate Change, Canada is pursuing a multi-pronged approach to help the electricity sector's transition to one that can underpin a low-carbon economy. This approach includes: (1) increasing the amount of electricity generated from renewable and low-emitting sources; (2) connecting clean power with places that need it; (3) modernizing electricity systems; and (4) reducing reliance on diesel by working with Indigenous Peoples and northern and remote communities. These key elements are also reflected in the Council of the Federation's Canadian Energy Strategy.

Many of the federal activities to contribute to this transition are part of the $21.9-billion green infrastructure portion of the Government's Investing in Canada Plan laid out in Budget 2017. Investments to support Canada's transition to a clean economy will flow through three distinct streams: (1) Integrated Bilateral Agreements (IBAs) with the provinces and territories, (2) the Canada Infrastructure Bank, and (3) national programs.

The Government of Canada will provide $9.2 billion in green infrastructure funding over the next decade through IBAs with the provinces and territories. Green stream allocations are calculated on a base-plus-per-capita allocation basis to support priority projects that enhance resilience to natural disasters and other impacts of climate change, improve overall environmental quality, and mitigate GHG emissions – including through better connected electricity systems. These agreements represent one means of supporting strategic electricity projects.

The Government of Canada has established the Canada Infrastructure Bank to provide innovative financing for infrastructure projects, and help more projects get built in Canada where private capital can be leveraged. The Bank will invest at least $5 billion over 11 years of its $35-billion capital allocation in green infrastructure projects that meet key criteria (e.g., attract private sector and institutional investment, are revenue-generating, are in the public interest and can be structured under the partnership model that allows for private investment), including projects that reduce GHG emissions, deliver clean air and safe water systems, and promote renewable power. The Bank's investments will be made strategically, with a focus on large, transformative projects, such as electricity grid interconnections. More information is available at the Bank's website: http://canadainfrastructurebank.ca/.

Relevant national programs under the green infrastructure portion of the Investing in Canada Plan include:

- the Smart Grid Program, supporting the deployment of smart grid integrated systems and demonstration of near-commercial technologies;
- the Clean Energy for Rural and Remote Communities Program, funding renewable electricity and heat systems and supporting technology demonstrations in rural and remote communities and industrial sites;
- the Electric Vehicle Infrastructure Demonstration Program and the Electric Vehicle and Alternative Fuel Infrastructure Deployment Initiative, supporting the deployment of infrastructure for electric vehicle charging; and

- the Emerging Renewable Power Program, supporting renewable energy technologies not yet established in Canada to expand the portfolio of renewable generation options.

Of particular relevance for the topic of strategic interties, the Regional Electricity Cooperation and Strategic Infrastructure (RECSI) initiative, which was announced in Budget 2016, is focused on identifying the most promising electricity infrastructure projects with the potential to achieve significant GHG reductions. The RECSI initiative will provide an evidence base that will inform future infrastructure decisions. Results of the study will be made public in 2018.

The Standing Committee report also identifies various potential social, economic and environmental challenges from developing intertie projects in Canada. The Government's review of federal environmental assessment and regulatory processes included broad engagement with provinces, territories, Indigenous Peoples, public, and industry. The feedback and insights we received played an important role in designing the new environmental assessment and regulatory review legislation and will continue to do so as the Government develops related policies and regulations. The goal of this new legislation, which was introduced during the week of February 6, 2018, is to put in place better rules for major resource projects that protect the environment and to rebuild public trust in how resource development decisions are made.

These initiatives will help Canada achieve its objectives. The Government's responses to the specific recommendations made by the Committee follow. We discuss these recommendations in light of ongoing and upcoming government initiatives, while giving due consideration to our existing domestic and international obligations.

RECOMMENDATIONS #1 AND #3:

#1: The Committee recommends that the Government of Canada work with industry, provincial/territorial governments, and Indigenous governments and communities to assess the economic opportunities of increased electricity interties in different regions across Canada, including:

a. *Interties that increase interprovincial trade of electricity and provide other benefits for electric utility operators, such as reliability and resilience, according to the findings of the Regional Electricity Cooperation and Strategic Infrastructure Initiative;*

b. *Interties to increase Canada-U.S. electricity trade and provide safe, secure, reliable, clean and efficient power to market;*

c. *Interties that could help reduce economic losses from the electricity sector by stemming curtailment and spillage of renewable resources.*

#3: The Committee recommends that the Government of Canada work with industry, provincial/territorial governments, and Indigenous governments and communities to improve low-carbon electricity delivery by examining:

a. *How electricity interties can support provincial renewable electricity targets and help manage the variable output of some renewable electricity resources;*

b. *Opportunities to coordinate interprovincial electricity trade between low-carbon electric-dominant provinces and their neighbouring provinces.*

GOVERNMENT RESPONSE:

The Government agrees with these recommendations, and is looking to facilitate the development of interties as a strategy to reduce GHG emissions and encourage clean economic growth. Under the RECSI initiative, the Government is working in collaboration with provinces and utilities to identify the most promising electricity infrastructure projects with the potential to achieve significant GHG reductions. RECSI studies are being carried out for Western Canada, which includes the Northwest Territories, British Columbia, Alberta, Manitoba and Saskatchewan, and for Atlantic Canada, including Newfoundland and Labrador, Nova Scotia, New Brunswick and Prince Edward Island. Working with provincial and territorial partners is key to the Government's approach to facilitating the development of clean, renewable and reliable sources of electricity, creating jobs for Canadians, and reducing GHG emissions.

For each of the two regions, RECSI is undertaking a detailed modelling exercise to examine regional interconnections, electricity demand, provincial renewable energy targets, new and retiring electricity assets and plant maintenance schedules. The studies are evaluating the emissions reduction potential and cost competitiveness of proposed generation and transmission projects, as well as overall grid impacts, long-term production costs and renewable resource integration by simulating market dispatch of new and existing generating assets. The studies will also identify electricity intertie projects that increase grid flexibility and allow greater integration and more efficient use of variable renewable energy sources such as wind and solar (e.g. avoiding curtailment/spillage). By engaging with utilities and other planning experts, the studies are leveraging long-term resource planning knowledge and regional asset development plans. The studies will be available to the public in 2018 and will provide an evidence base that will inform investment decisions on electricity infrastructure and support the Council of the Federation efforts to increase access to affordable, clean, and reliable supplies of energy for all Canadians, as part of its Canadian Energy Strategy.

While the Government has taken the initiative to convene regional dialogues through RECSI, ultimately, the provinces have ownership over the natural resources that lie within their boundaries, including electricity generation, transmission and distribution, and the supporting regulatory environment. We will continue to work with our provincial counterparts on how best to address our national goal of reducing GHG emissions while ensuring a reliable supply of electricity. More details on federal, provincial and territorial actions targeting GHG emission reductions in the electricity sector can be found in the First Annual Synthesis Report on the Status of Implementation of the Pan Canadian Framework on Clean Growth and Climate Change published in December 2017.

Increased trade in clean electricity with the U.S. is a Canadian priority in our energy relationship with the U.S. In our view, clean electricity exports can play an important role in both supporting U.S. energy security needs and clean power goals. The Government, through an interdepartmental effort, defends and promotes Canadian interests in the U.S. on the matter, working with relevant stakeholders. In addition, the Government works closely with the U.S. Department of Energy on collaborative projects that help to demonstrate the benefits of increased electrical integration between the two countries. For example, NRCan is working with the U.S. and Mexico on the North American Renewable Integration Study (NARIS), which is looking at how the three countries can increase their share of renewables in the electricity supply mix, including through increased system planning, trade and transmission. The study is expected to be published in 2019.

RECOMMENDATION #2:

The Committee recommends that the Government of Canada explore, in collaboration with industry, provincial/territorial governments, and Indigenous governments and communities, ways to maximize the value of Canadian electricity exports to the U.S., by:

a. *Evaluating how emerging regulatory reforms in certain U.S. markets could create opportunities for Canadian electric utilities to export more electricity;*

b. *Encouraging provinces, territories and utilities to implement systems to tag and track the emissions attributes of electricity, potentially adding value to, and facilitating increased exports of, verified, low-carbon Canadian electricity;*

c. *Including international greenhouse gas emission accounting rules in negotiations to leverage the low greenhouse gas emissions of Canadian electricity and increase the value of electricity exports to the U.S.*

GOVERNMENT RESPONSE:

Overall, the Government agrees with the general intent of this recommendation. The Government is willing to continue working with partners and stakeholders to explore export opportunities. As part of this exploration process, we initiated the RECSI study in 2017, which might identify potential projects that could contribute towards Canada's trade. Results of the NARIS study will also contribute towards identifying pathways that could augment Canada's electricity trade with the U.S.

Sub-nationally, the provinces and utilities are exploring opportunities to maximize the value of Canadian electricity exports. Ultimately, given that electricity falls under provincial jurisdiction, the decision to take advantage of any opportunities lies with the provinces.

Canada and the U.S. have a robust, two-way electricity trade. There are currently 34 active major transmission lines between Canada and the U.S. In recent years, seven new major cross-border transmission lines have been proposed, with one of these projects fully permitted (Lake Erie Connector) and several others are in the approvals process (e.g., Great Northern Transmission Line). Taken together, these transmission lines could expand import-export capacity between Canada and the U.S. by about 7,000 megawatts (MW).

Canada and the U.S. collaborate on energy issues not only on the federal level, but also sub-nationally in order to optimize cross-border electricity trade. North American leaders met at the 2016 North American Leaders Summit and discussed ways to advance clean and secure electricity. More recently, energy leaders from the U.S., Canada and Mexico met in November 2017 to discuss their individual and collective efforts to ensure regional energy security and pursue thriving energy sectors that foster economic growth while reducing overall emissions; this meeting is discussed at further length in the response to Recommendation #6.

As noted by the Committee, individual states have recently made regulatory reforms to count Canadian hydroelectricity as contributing towards renewable portfolio standards. In March 2017, the State of Massachusetts and five electric utilities jointly issued a request for proposals for 1,200 MW of power from renewable energy sources. Canadian companies submitted bids, demonstrating that Canadian electric utilities are exploring the economic opportunities created by these reforms.

With respect to the recommendation relating to GHG accounting rules, the Government acknowledges the value of cooperating with other countries under Article 6 of the *Paris Agreement* to increase ambition on emission reductions over what could be achieved through domestic efforts. We will continue to work with the U.S. and other countries in Article 6 negotiations to develop robust accounting rules, including for the avoidance of double counting, ensuring environmental integrity and transparency, and promoting sustainable development.

RECOMMENDATIONS #4 and #5:

#4: The Committee recommends that the Government of Canada collaborate with industry, provincial/territorial governments, and Indigenous governments and communities to improve low-carbon energy access, affordability, security and storage in northern and remote communities.

#5: The Committee recommends that the Government of Canada collaborate with industry, provincial/territorial governments, and Indigenous governments and communities to improve low-carbon electric energy access for resource development projects across Canada.

GOVERNMENT RESPONSE:

The Government agrees with these recommendations and recognizes the importance of securing affordable, low-carbon energy access for remote communities and resource development projects. A variety of approaches may be needed to help achieve this goal, including grid connections, renewable energy sources, micro-grids, smart grids, storage, or a combination thereof. In some cases, connecting remote, off-grid communities to the North American grid or a local grid system might be the best option. An example of this is the joint Canada-Ontario-First Nations effort to connect Pikangikum First Nation to Ontario's electricity grid. The Government of Canada is contributing up to $60 million for this project, which is led by Wataynikaneyap Power, an Indigenous-controlled company. The goal is to have the community connected to the provincial grid by the end of 2018.

Given that the Government seeks to provide economically viable and affordable low-carbon energy to its stakeholders, in some cases, great distances or other circumstances may make investments in interconnections uneconomical and may favour local alternatives. Federal departments have been working closely to develop and implement an integrated delivery approach for federal initiatives in order to maximize leverage and ensure clarity for communities. This includes the creation of a new website on reducing reliance on diesel that will help ease the burden on project proponents trying to access federal funding by connecting them directly to program staff. Several federal programming options are available for communities, provinces, companies and utilities who are interested in reducing reliance on diesel and pursuing renewable energy solutions, including:

1. NRCan's **Clean Energy for Rural and Remote Communities** (CERRC) will provide $217.8 million over six years starting in fiscal year 2018-19 for funding renewable electricity and heat systems and supporting technology demonstrations in rural and remote communities and industrial sites. This program also includes a capacity-building stream that will fund energy literacy, network development, community energy planning and resource assessments focused on rural and remote communities.
2. The Department of Crown-Indigenous Relations and Northern Affairs' **Northern Responsible Energy Approach for Community Heat and Electricity** (Northern REACHE) program supports

small-scale renewable electricity and heat systems, such as rooftop solar, in the North. Northern REACHE receives $5.4 million in yearly funding, and is supporting 28 projects and 5 capacity-building initiatives in the current fiscal year.

3. NRCan is leading the clean tech stream of the **Impact Canada Initiative,** a new program to help focus and accelerate efforts toward solving Canada's big challenges. One of the initial challenges under the clean technology stream is focused on reducing diesel reliance in remote communities. Engagement with Indigenous communities, and provinces and territories will be a focus of the Impact Canada Initiative. Co-creation of challenge targets is a priority, in order to set the right challenge targets and to mobilize stakeholders to achieve them.

Taken together, these initiatives will help deploy new renewable electricity and bioheat systems, test new technologies and help build local capacity in remote communities. These short- to medium-term projects will provide case studies that can create models for future energy decisions made by communities, utilities and provincial/territorial partners, rendering it easier for them to incorporate renewable energy into their future plans. These will help demonstrate how renewable energy can make long-term sense and gradually shift the default away from all-diesel energy supplies.

Government funding to be delivered to provinces and territories under integrated bilateral agreements negotiated by Infrastructure Canada will complement the programs targeting the reduction of reliance on diesel. The Green Infrastructure stream of these agreements can support new linkages to northern and remote communities, while an Arctic Energy Fund will help address energy security and efficiency concerns specific to fossil fuel dependent territorial communities.

In addition, the Government of Canada is co-developing in collaboration with Indigenous, territorial and provincial partners a new Arctic Policy Framework that will reorganize and reprioritize federal activities in the Arctic. Through co-development, Canada is seeking to ensure the interests, priorities and desired outcomes of our key partners are identified and reflected in the Framework; and, identify possible areas for joint/complementary actions to achieve shared goals. Of particular relevance, the Framework notes the importance of developing and implementing renewable energy solutions to decrease diesel dependency to reduce cost of business and/or provide new business innovation opportunities.

Given that moving off diesel or diesel-hybrid systems will not always be a viable option, the federal government is also developing regulations to reduce the short-lived climate pollutants associated with new stationary diesel engines.

It is important to recognize that taking advantage of the opportunity presented by clean energy requires working with provincial and territorial partners. Similarly, the relationship between Canada and Indigenous Peoples is vitally important, not just to our shared socio-economic interests but to our respective identities as nations. Extensive consultation is part of all of these initiatives. For Northern and remote communities, locally-designed solutions benefitting from local support and ownership are critical for project success and represent a step towards Reconciliation with Indigenous peoples. The Government supports continued engagement and collaboration with all stakeholders to promote low-carbon energy options in remote communities.

RECOMMENDATION #6:

The Committee recommends that the Government of Canada engage provinces and territories to identify and address regulatory barriers between jurisdictions to facilitate developing transmission interties, increasing interprovincial and Canada-U.S. electricity trade, and modernizing electric systems and markets.

GOVERNMENT RESPONSE:

The Government agrees with this recommendation. Canadian provinces have different regulatory and market environments. To facilitate greater interprovincial electricity trade, provinces included a provision in the Canadian Free Trade Agreement that ensures all electricity transmission customers have open and non-discriminatory access to transmission services. This ensures no less favourable treatment to all transmission service providers within each province.

Furthermore, as noted in the introduction, the Government of Canada introduced legislation during the week of February 6, 2018 to reform federal environmental assessment and regulatory processes. Proposed modifications are expected to result in improved collaboration between federal and provincial regulators to improve efficiency in impact assessment.

As part of the RECSI initiative, project partners are examining regulatory considerations for interprovincial transmission projects and increasing interprovincial electricity trade. Under this activity, the partners will review existing regulatory frameworks in each jurisdiction, focus on multi-jurisdictional projects, identify any considerations regarding economic regulation, and, in the case of the Atlantic study, provide overview recommendations on how to address regulatory challenges.

The Government of Canada engages the U.S. at the federal level as well as sub-nationally in order to optimize cross-border electricity trade. In 2015, the Governments of Canada and the United States worked together under the Canada-U.S. Clean Energy Dialogue to produce a side-by-side comparison of the permitting process governing cross-border transmission lines as a first step in improving our understanding of the regulatory barriers associated with Canada-U.S. trade in electricity.

Canada's Minister of Natural Resources, the Honourable Jim Carr, United States Secretary of Energy Rick Perry, and Mexico's Energy Secretary, Pedro Joaquin Coldwell, held a trilateral meeting on November 14th, 2017, in Houston Texas, to discuss their efforts to ensure regional energy security and pursue thriving energy sectors that foster economic growth while reducing emissions. The energy leaders identified promoting energy trade and economic development among the three nations and facilitating cross-border infrastructure projects as national priorities. Additionally, they discussed the security, affordability, resiliency and reliability of our shared energy systems, and collaboration in areas such as critical infrastructure protection, cyber security, system modernization, diversification of energy sources, renewable energy integration, nuclear energy and security, and the importance of energy issues as they relate to women and gender equality. The three energy leaders committed to meet annually to review progress towards these goals. This process represents the next step in identifying and addressing opportunities and challenges to increased cross-border electricity trade.

With regard to the Committee's recommendation on modernizing electricity systems and markets, the Government has launched several initiatives that will contribute to this objective. As noted above,

Budget 2017 announced a $2.8-billion investment over the next 11 years through a series of national programs, including:

- $100 million for the **Smart Grid program** to support the deployment of smart grid integrated systems and demonstration of near-commercial technologies by utilities, electricity system operators, and transmission owners and operators with the objective of increasing electricity grid reliability, resiliency, efficiency and flexibility, as well as enabling GHG emission reductions, better use of existing electricity assets, and increased integration of variable renewables (e.g. solar and wind energy);
- $200 million for the **Emerging Renewable Power Program** that supports emerging renewable energy technologies not yet established in Canada, such as tidal, offshore wind and geothermal in order to expand the portfolio of investment-ready renewable generation options and support the development of new supply chains; and
- $120 million for the **Electric Vehicle Infrastructure Demonstrations** and the **Electric Vehicle and Alternative Fuel Infrastructure Deployment** initiatives in order to address barriers to adoption of low-carbon vehicle technologies by supporting the deployment of infrastructure for electric vehicle charging and completing the coast-to-coast network of electric vehicle fast chargers on the national highway system, in addition to the deploying natural gas refuelling stations along key freight corridors and hydrogen stations in key metropolitan centres.

These programs, combined with intertie projects that may be developed pursuant to the RECSI study, will help pave the way towards modernizing Canada's electricity trade, deploying more renewables, and modernizing electric systems and markets.