Goodmans LLP Update

Cleantech

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Cleantech and Climate Action January 2017 – Looking Back at an Eventful 2016 and Looking Ahead to Opportunities in 2017 and Beyond

Viewed from the perspective of the first month of 2017, the past year has been a highly consequential one for Canadian and global action on climate change, and for the future of the Canadian and global cleantech sectors.

Globally, 2016 marked an important inflection point for both climate action and cleantech. The year set new global temperature records, with temperatures around 1.3°C higher than the typical pre-industrial levels and almost 0.2°C warmer than the previous record in 2015.[1] On November 4, 2016, the Paris Climate Change Treaty came into force and shortly thereafter on November 17, 2016, in connection with the 22nd Conference of the Parties in Marrakech, Canada became one of the first parties to submit a long-term (2050) climate action strategy to the UNFCCC.

The global cleantech sector hit many important milestones in 2016. The cost of solar panels continued to decline exponentially, and solar became the cheapest source of power, with prices falling below 3 cents ($US) per kWh in a number of auctions.[2] Similarly, as the cost of lithium ion batteries continued to decline, electric vehicles began to move from niche markets to the mainstream with the first deliveries of the Chevrolet Bolt, the introduction of other similar long range / low cost cars, and the rapid expansion of electric buses. The use of batteries in residential power storage applications also gained critical mass in 2016, in addition to the continued growth of grid scale battery storage systems (all of which promises continuing reductions in the cost and rapid growth in the deployment of electric vehicles and battery storage).

In Canada, climate action and support for cleantech moved forward on a number of fronts, culminating in the December 9, 2016 release, by most of Canada's First Ministers,[3] of the Pan-Canadian Framework on Climate Change (the "**Pan-Canadian Framework**"), and the implementation, beginning on January 1, 2017, of carbon pricing in Ontario and Alberta.

The Pan-Canadian Framework was developed under the March 3, 2016 Vancouver Declaration on Clean Growth and Climate Change (the "**Vancouver Declaration**"), which set out a roadmap for the development of strategies to reduce Canada's greenhouse gas (GHG) emissions and grow the economy. The Vancouver Declaration established four working groups (the "**Working Groups**") for: (i) innovation and jobs; (ii) specific mitigation opportunities; (iii) carbon pricing mechanisms; and (iv) adaptation and climate resilience. Before the Pan-Canadian Framework was released, each Working Group released an Interim Report in June 2016 and a Final Report in September 2016, which provide the foundation for the Pan-Canadian Framework and insights into how it may be put into action.

In addition to the Vancouver Declaration and the Pan-Canadian Framework (and the Interim Reports and Final Reports), notable 2016 climate action developments included:

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[1] See https://climate.copernicus.eu/news-and-media/press-room/press-releases/earth-edge-record-breaking-2016-was-close-15%C2%B0c-warming

[2] See https://www.bloomberg.com/news/articles/2016-08-19/solar-sells-in-chile-for-cheapest-ever-at-half-the-price-of-coal and https://www.greentechmedia.com/articles/read/jinko-solar-and-marubeni-bid-2.4-cents-for-solar-power-plant-in-abu-dhabi

[3] The Premiers of Saskatchewan and Manitoba did not sign on to the Pan-Canadian Framework.

- The release by Ontario of its Climate Change Action Plan on June 8, 2016;
- Canada's announcement of its carbon pricing model on October 3, 2016;
- Canada's submission of its long-term (2050) climate action strategy to the UNFCCC on November 17, 2016; and
- Canada's announcement concerning the transition from coal powered electricity on November 21, 2016.

Under the Paris Agreement, Canada had provided a 2030 GHG emissions reduction INDC (intended nationally determined contribution) of 30% below 2005 levels by 2030. The Pan-Canadian Framework sets out the joint federal / provincial / territorial strategies for meeting Canada's INDC. The following provides an overview of the Pan-Canadian Framework, and of the evolution from the Interim Reports to the Final Reports and the Pan-Canadian Framework.[4]

Overview of the Pan-Canadian Framework

The Pan-Canadian Framework contains an introductory chapter, a chapter for each of the four Working Groups, and Annexes summarizing measures to be taken by the signatories to assist Canada to meet its 2030 GHG emissions reductions targets.

While the Pan-Canadian Framework provides a framework and some specific examples of programs, much of its content is fairly high level. However, as discussed below, the Interim Reports and the Final Reports can provide some further insights into the likely implementation of the Pan-Canadian Framework.

As noted above, all provinces and territories signed on to the Pan-Canadian Framework except for Saskatchewan and Manitoba. It remains to be seen how these two provinces plan to address climate change and the Cleantech sector.

Chapter 2: Pricing Carbon Pollution

The Pan-Canadian Framework emphasizes the need for carbon pricing pollution while providing the provinces and territories with the flexibility to design their own policies to meet emissions-reduction targets.

Annex I of the Pan-Canadian Framework provides benchmarks for carbon pricing that must be in place by 2018. The goal of these benchmarks is to ensure that carbon pricing applies to a broad array of emission sources and with increasing stringency over time, either through a rising carbon price or declining caps.

The Pan-Canadian Framework adopts principles to guide the pan-Canadian approach to pricing carbon pollution, which are largely based on those proposed in the Final and Interim Reports (discussed in greater detail below). These principles include:

- Carbon pricing policies should be introduced in a timely manner to minimize investment into assets that could become stranded and maximize cumulative emission reductions;
- Carbon pricing policies should minimize competitiveness impacts and carbon leakage, particularly for emissions-intensive, trade-exposed sectors; and
- Carbon price increases should occur in a predictable and gradual way to limit economic impacts.

Finally, the Pan-Canadian Framework calls for a review of the federal and provincial governments' approach to the pricing of carbon pollution by 2022.

Observations from the Interim and Final Reports

The Final Report analyzes the effects that implementation of carbon pricing may have on the private sector, noting that while carbon pricing leads to GHG emission reductions, it also creates several issues that may require the implementation of corresponding policy options, such as revenue recycling, border tax adjustments, differential treatment for affected sectors, competitiveness issues for businesses across jurisdictions, and carbon leakage.

Both the Final and Interim Reports recognize that revenue recycling—how the proceeds from carbon pricing are recycled back into the economy—will be a key determinant of the economic impact of any carbon pricing mechanism. While the Interim Report outlines several options for revenue recycling

[4] For background information on the Vancouver Declaration, see our March 11, 2016 update, *Paris to Vancouver and Washington DC: Sunny Days Ahead for Cleantech in Canada!*

(including offsetting competitiveness issues between jurisdictions, boosting sustainable growth, and investing in Cleantech to facilitate the transition to a low-carbon economy), the Final Report suggests that a mixture of these options may be necessary.

The Final Report provides a more robust analysis of the economic implications of carbon pricing (for example, noting that economic modelling projections show that the impact of carbon pricing on GDP is smallest when the revenues are used to reduce broad-based corporate and personal income taxes). The Interim Report speculates that carbon pricing may create competitive pressures in Canada if other jurisdictions do not impose similar pricing mechanisms. In contrast, the Final Report states only that carbon pricing would create competitive pressures if Canada implemented policies "well beyond" those of other jurisdictions.

The Final Report concludes that clear expectations regarding carbon pricing would promote certainty and provide comfort to private sector investors, particularly in regards to the ongoing impact of carbon pricing on their investments. For example, emitters may be more inclined to make investments in Cleantech in the short-term if they are confident in long-term gains.

For details on Prime Minister Trudeau's previously-announced federal plan to price carbon across Canada, see our October 4, 2016 update, *Pricing Carbon to Support the Clean Energy Transition*.

Chapter 3: Specific Mitigation Opportunities

The Pan-Canadian Framework adopts actions to be undertaken in seven different sectors: (i) electricity, (ii) built environment, (iii) transportation, (iv) industry, (v) forestry, agriculture, and waste, (vi) government leadership, and (vii) international leadership.

The Pan-Canadian Framework emphasizes the importance of clean (non-emitting) electricity systems, stating that such systems will be the cornerstone of Canada's clean-growth economy. To create such an electricity system, the Pan-Canadian Framework calls for connecting clean power across Canada through stronger transmission-line interconnections, expanding energy storage, and deploying smart-grid technologies to improve the reliability of electricity grids and allow more renewable power to be added over time. In addition, the Pan-Canadian Framework aims to accelerate the phase out of traditional coal-generated electricity, which is currently set for 2030.

Starting in 2020, advances in Cleantech will be deployed to allow for the creation a "net-zero energy ready" building code for new buildings by 2030, in addition to adopting a clean-growth building code for existing buildings by 2022. No timeline has been set for the adoption of new standards for equipment and appliances, although stringent new standards are clearly planned.

Government procurement is to help drive Cleantech adoption, with the federal government setting a goal of using 100% clean power by 2025. To achieve this, all levels of government will prioritize opportunities to help Canadian businesses grow and will scale up investment which pushes Cleantech development and deployment forward.

Observations from the Interim and Final Reports

The Working Group on Specific Mitigation Opportunities developed policy options to reduce emissions across all sectors of Canada's economy. It developed 46 policy options, separated into eight groups: large industrial emitters, transportation, built environment, electricity, agriculture, forestry, waste, and government operations and leadership. These groupings are largely reflected in the Pan-Canadian Framework.

The transition to a low-carbon economy will provide significant economic and employment growth opportunities in the development and provision of materials, technologies, and fuels needed to transition to a low-carbon economy, according to the Final Report. The transition will require significant short-term capital investments across a number of sectors, in particular in those where installation of new equipment is necessary to reduce emissions. This transition will be expensive, as most sectors will face new costs, largely in proportion to their emissions intensity. However, the Final Report notes that, in many cases, a company's investment to cut emissions will pay off over the medium- to long-term through operational savings.

A number of sectors will likely experience positive

economic benefits as a result of mitigation efforts (these trends can already be observed in other jurisdictions that have adopted low-carbon policies). For example, the construction sector will likely expand to meet demand for building retrofits. While the Interim Report was silent regarding specific policy options that could impact the construction sector, the Final Report provides several policy options that government could adopt (for example, a "net-zero" emissions code for new commercial and residential buildings by 2025 and increasing minimum standards for electronics and appliances beyond those required in the United States).

The domestic renewable and low-carbon fuels sector is another area with high growth potential. The Final Report states that policies requiring increased use of low-carbon fuels would create strong demand, although policy design can impact whether the fuels are produced domestically or imported.

Another key business opportunity is the development of carbon capture and storage technology, according to the Final Report; an area in which Canadian industry can potentially deploy its technology not just domestically, but as a global market leader.

The Interim Report considers the potential for carbon mitigation opportunities to act as a substitute for carbon pricing. However, no such references were made in the Final Report, suggesting mitigation opportunities must complement a carbon price, rather than act as a substitute.

For details on specific mitigation opportunities adopted in Ontario's Climate Change Action Plan, see our June 9, 2016 update, *The New Ontario Climate Change Action Plan Paves the Way for the Future of Cleantech in the Province*.

Chapter 4: Adaptation and Climate Resilience

The Pan-Canadian Framework identifies five areas where all levels of governments could act to build resilience to climate change:

1. Translating scientific information and knowledge into action;
2. Building climate resilience through infrastructure;
3. Protecting and improving human health and well-being;
4. Supporting particularly vulnerable regions; and
5. Reducing climate-related hazards and disaster risks.

The Pan-Canadian Framework calls for greater infrastructure development funding in the present so as to mitigate the costs of climate change damage in the future, recognizing that early investment costs pennies on the dollar when compared to the high costs of replacing infrastructure lost due to climate-related impacts such as flooding, drought, wildfires, and winter road failures.

The rehabilitation of public infrastructure to ensure climate resilience is to be achieved by 2020 under the Pan-Canadian Framework, supported by federal investments and revised national building codes for residential, institutional, commercial, and industrial facilities.

Observations from the Interim and Final Reports

The Interim and Final Reports on Adaption and Climate Resilience provide policy options that build climate resilience in Canada. The Final Report outlines a list of 20 options, which are organized into two broad categories: options that build a foundation for ongoing action, and options that address specific opportunities or vulnerabilities. Some of the options applicable to the private sector are:

- Establishing a multi-stakeholder Canadian Centre for Climate Services;
- Promoting investments in training, skills, and capacity development;
- Revising government procurement policies to ensure consideration of climate change and co-benefits in infrastructure decisions;
- Providing dedicated funding, top-up funding, or other financial incentives for advancing climate resiliencies through infrastructure; and
- Improving collaboration across practitioner communities, government institutions, and Indigenous organizations.

The Final Report states that the government and private sector should undertake education and awareness campaigns to build support for climate adaptation and related topics such as health impacts, natural infrastructure solutions, flood risk reduction, and wildland fire risk reduction.

Chapter 5: Clean Technology, Innovation and Jobs

The Pan-Canadian Framework identifies Cleantech as a core element of Canada's push for a clean-growth economy and encourages the provincial and federal governments to foster innovation and create new jobs, new technologies and new export opportunities for the Cleantech sector. The Pan-Canadian Framework is designed to help position Canada's private Cleantech sector to lead in the development of global solutions.

The provincial and federal governments are committing to make historic investments in Cleantech and innovation. Chapter 5 of the Pan-Canadian Framework, which deals with Cleantech, innovation and jobs, recognizes the need for concerted and coordinated efforts in building early-stage innovation and invites industry and other stakeholders to become more actively involved in the coordination of investment. The government will double its Cleantech investments over five years, primarily through its participation in "Mission Innovation" and related innovation challenges, in addition to providing other funding support and actions designed to accelerate Cleantech innovation, development, and deployment. Actions outlined in this Chapter of the Pan-Canadian Framework include:

- Supporting early-stage Cleantech innovation and development;
- Promoting exports of Cleantech goods and services;
- Expediting immigration of highly qualified persons;
- Providing strong leadership in international standards-setting for new Cleantech;
- Encouraging consumers, industry, and municipalities and other public sector entities to adopt Cleantech; and
- Establishing a data strategy for the collection and regular publication of comprehensive Cleantech data.

The Pan-Canadian Framework provides policy options for stimulating economic growth, creating jobs, and driving innovation across all sectors while transitioning Canada to a low-carbon economy. Such benefits to business have been a focus of recent government Cleantech sector publications, as further discussed in our November 24, 2016 update, *Federal Government Emphasizes Private Sector Opportunities in Long-Term Low-Carbon Development Strategy*.

Observations from the Interim and Final Reports

The Working Group focused on the following core themes in devising its Interim and Final Reports:

1. Building and strengthening early-stage Cleantech innovation and research, development and deployment (RD&D);
2. Accelerating the commercialization of Cleantech and growing Canada's commercial capacity in Cleantech;
3. Fostering greater Cleantech adoption within Canada; and
4. Strengthening and sustaining intergovernmental collaboration in support of Cleantech, and creating metrics of success.

The Final Report emphasizes that, for Canada to become a leader in the development and deployment of Cleantech, Canada needs a strong pipeline of innovative ideas. The Final Report recognizes the value of coordinating future government investments and activities in Cleantech RD&D, particularly in areas that support local economic development while expanding global market opportunities.

While the Interim Report divides its strategies into short-term (by 2030) and long-term (by 2050) objectives, the Final Report accelerates these timelines by creating short-term objectives (by 2020s), medium-term objectives (by 2030), and long-term objectives (by 2050). The Final Report emphasizes the need to accomplish its short-term objectives to enable the completion of its long-term objectives (which suggests the Pan-Canadian Framework measured the lead time necessary for bringing Cleantech innovations to market and for Cleantech products to gain market share).

The Final Report recognizes current gaps in Canadian financing, skills development, commercial capacity, and export development; all of which must be addressed for Canadian firms to be fully competitive with other international players in attracting and retaining global talent, accessing capital and resources, and developing robust international supply networks.

Both the Final Report and Interim Report recognize that, as compared with other technology sectors, Cleantech faces unique challenges. For example, Cleantech products typically take longer to get to market, making "patient capital" more important. While federal and provincial governments currently provide a range of supports, they do not match the industry's need for access to venture and working capital for large-scale commercial projects and deployments.

The Final Report provides that provincial and federal governments should lead by example as early adopters of Cleantech. Based on stakeholder feedback on the Interim Report, a "first sale" in Canada would boost a Cleantech company's chances of securing further sales abroad.

For further information, please contact any member of our Cleantech Group.