



Canadian Renewable
Energy Association

WIND. SOLAR. STORAGE.

Association canadienne
de l'énergie renouvelable

ÉOLIEN. SOLAIRE. STOCKAGE.

Presentation to AESO Board

The Decarbonization Imperative

November 17, 2021



Agenda

- Introduction to CanREA
- The Decarbonization Imperative
- CanREA's 2050 Vision
- AESO's Role



The Canadian Renewable Energy Association

The Canadian Renewable Energy Association (CanREA) was established on July 1, 2020, when the Canadian Wind Energy Association and the Canadian Solar Industries Association united to create one voice for wind energy, solar energy and energy storage solutions.

CanREA represents more than 300 companies active in the deployment of wind energy, solar energy and energy storage in Canada.

Our membership includes project developers, owners and operators; manufacturers and component suppliers; and a broad range of service providers to the industry.



The Decarbonization Imperative (1)

- The Government of Canada has committed to a target of net-zero greenhouse gas emissions by 2050. This commitment is supported in law by the *Canadian Net Zero Emissions Accountability Act*, which not only sets a legislated target of net-zero, but also requires approval of five-year milestones toward this goal.
- Furthermore, the Liberal Party's 2021 election platform commits the government to the introduction of a Clean Electricity Standard, which would require that a “100% net-zero emitting electricity system” be achieved by 2035, across the country.

The Decarbonization Imperative (2)



- Bottom Line: The Government of Canada is not the only organization planning for net-zero!

The Decarbonization Imperative (3): Market Forces Driving Grid Decarbonization

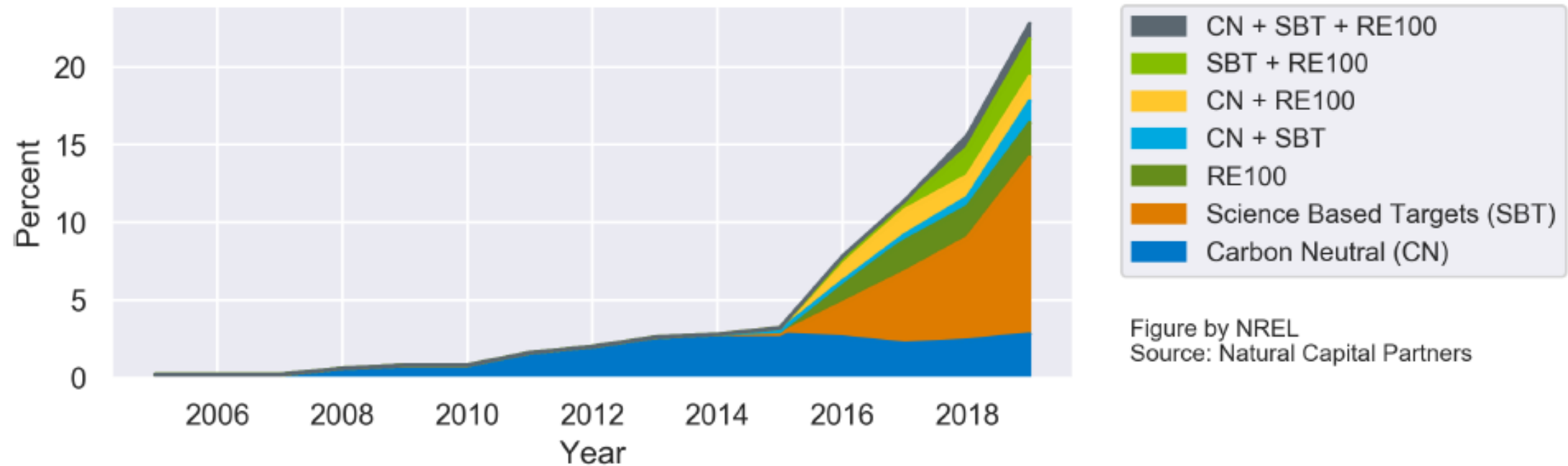


Figure 2. Percentage of Fortune 500 companies with public clean energy commitments

Decarbonized Electricity is Critical to Any Net-Zero Pathway

- The Canadian Institute for Climate Choices (CICC) examined 60 different pathways to achieve net-zero greenhouse gas emissions in Canada. While there are significant differences between the pathways, all require decarbonization and expansion of the electricity grid to help reduce greenhouse gas emissions in transportation, buildings and industry.
- The International Energy Agency's Net Zero Report concluded that the lowest cost pathway to net-zero would see industrialized countries decarbonize their electricity grids by 2035 and that global electricity production would increase 2.5X by 2050. Wind and solar energy would see their contribution to global electricity production grow from 9% to 68% by 2050.
- The CICC's 60 different scenarios found electricity production in Canada would need to increase by anywhere between 47% and 87% and wind and solar energy would need to grow to provide somewhere between 23% and 43% of total electricity by 2050 – with higher penetrations in Alberta. Across the scenarios, wind and solar energy accounted for anywhere between 50% and 97% of all new installed capacity.

CanREA's 2050 Vision

- On November 17, 2021, CanREA released its Vision for 2050. It includes an illustrative, but conservative, scenario that would see Canada's electricity production double, with wind and solar energy accounting for 2/3 of this new production.
- This would require Canada to deploy 5,400 MW of new wind and solar energy annually for the next 29 years. The most wind and solar energy deployed annually in Canada over any five-year period to date is 1,840 MW.
- Our illustrative scenario could be optimistic or pessimistic with respect to the future role of wind and solar energy. What is clear is that moving to net-zero greenhouse gas emissions will require a massive increase in deployment of wind energy, solar energy and energy storage.
- Developing strategies to understand and manage the potential impacts of grid decarbonization and expansion must become a priority as governments, customers and society in general work towards net-zero outcomes.

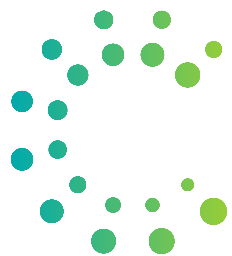
Recommended AESO Priorities for 2022 - 2023

- **AESO Long-Term Outlook (LTO)**
 - To address net-zero trends the next LTO needs to model a grid decarbonization scenario.
 - This LTO should also model a scenario with a substantial (50%+) increase in electricity production.
- **Grid Modernization**
 - The AESO needs to define and provide economic value for grid stability and security services.
 - The AESO needs to prioritize work to enable the largest possible number of service providers (e.g., energy storage, DERs) to provide these services by removing barriers to their participation in such markets to enable adoption of lowest cost solutions.
 - We are pleased to see the AESO moving on these files, but much more work is required.
- **Transmission Infrastructure**
 - The AESO must take actions to enable the most efficient use of existing transmission infrastructure, including fuller consideration of non-wires alternatives that have the potential to defer / avoid the need for new transmission.
 - The AESO must pursue increased planning coordination between DFOs and TFOs and we are pleased that the AESO is planning to prioritize this.
 - The AESO should also explore the potential for increased regional planning among jurisdictions.

Planning for the Decarbonization Imperative

- We have made the case that grid decarbonization and electrification will have a significant impact on the grid in the coming years, as governments, customers and society pursue net-zero outcomes. This will present some significant challenges for the AESO, particularly if these trends continue to accelerate.
- Finding low-cost solutions to these challenges while maintaining reliability will require positive and productive conversations with stakeholders and market participants. As a result, we recommend that the AESO take a proactive approach to these consultations to engage with stakeholders on how best to transition to a decarbonized and expanded grid.
- The speed of potential changes, and their impact across all AESO priority areas, lead us to recommend that this decarbonization conversation be front and center within the AESO's current engagement plans.
- CanREA is eager to participate in this critical conversation, and we believe that many other stakeholders would also appreciate the opportunity.

Questions?



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