

A CLEAN ELECTRICITY STANDARD IN SUPPORT OF A NET-ZERO ELECTRICITY SECTOR

Opening the Loop Webinar

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Environment and Climate Change Canada's 50th anniversary
50^e anniversaire d'Environnement et Changement climatique Canada

Meteorological Service of Canada's 150th anniversary
150^e anniversaire du Service météorologique du Canada



Environment and
Climate Change Canada

Environnement et
Changement climatique Canada

Canada

WELCOME

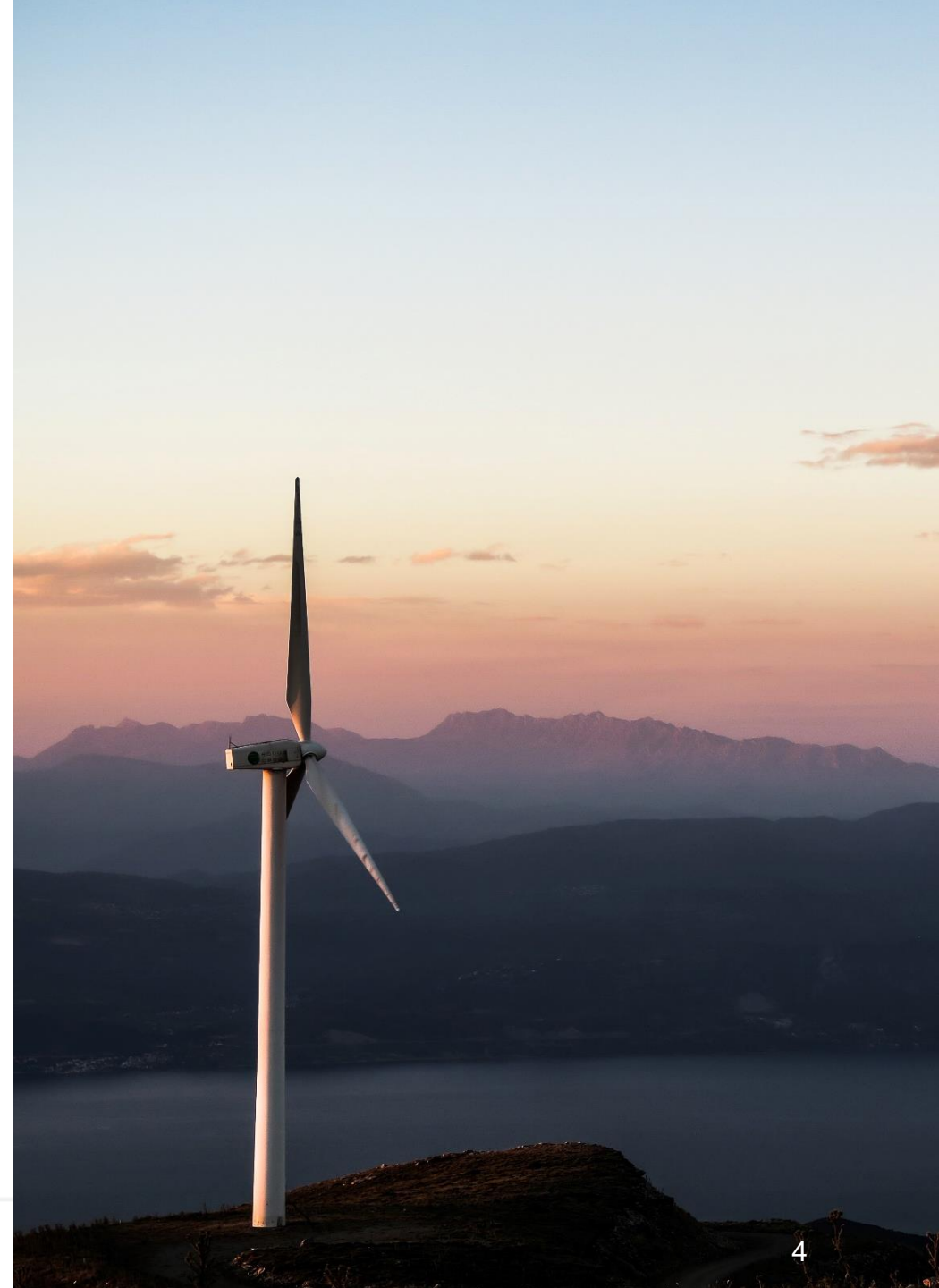
A vertical photograph of a white wind turbine on a rocky hilltop. The turbine has three blades, with the top one pointing upwards. The background shows a sunset or sunrise sky with orange and pink hues, and distant mountains and a body of water.

Opening Remarks

- Land acknowledgement
- Purpose of Meeting: Review of the discussion paper “**A Clean Electricity Standard in support of a net-zero electricity sector**” published on March 15, 2022 and a description of ECCC’s engagement plans

Housekeeping

- Questions can be submitted through the Q&A function and will be addressed near the end
 - We will answer clarification questions about the engagement process at the end of the webinar
 - Technical questions will be discussed at later engagement sessions



Agenda

Our starting point

Further actions needed to meet Net-Zero 2035

Considerations for engagement

Clean Electricity Standard engagement process

Q&A

Closing remarks

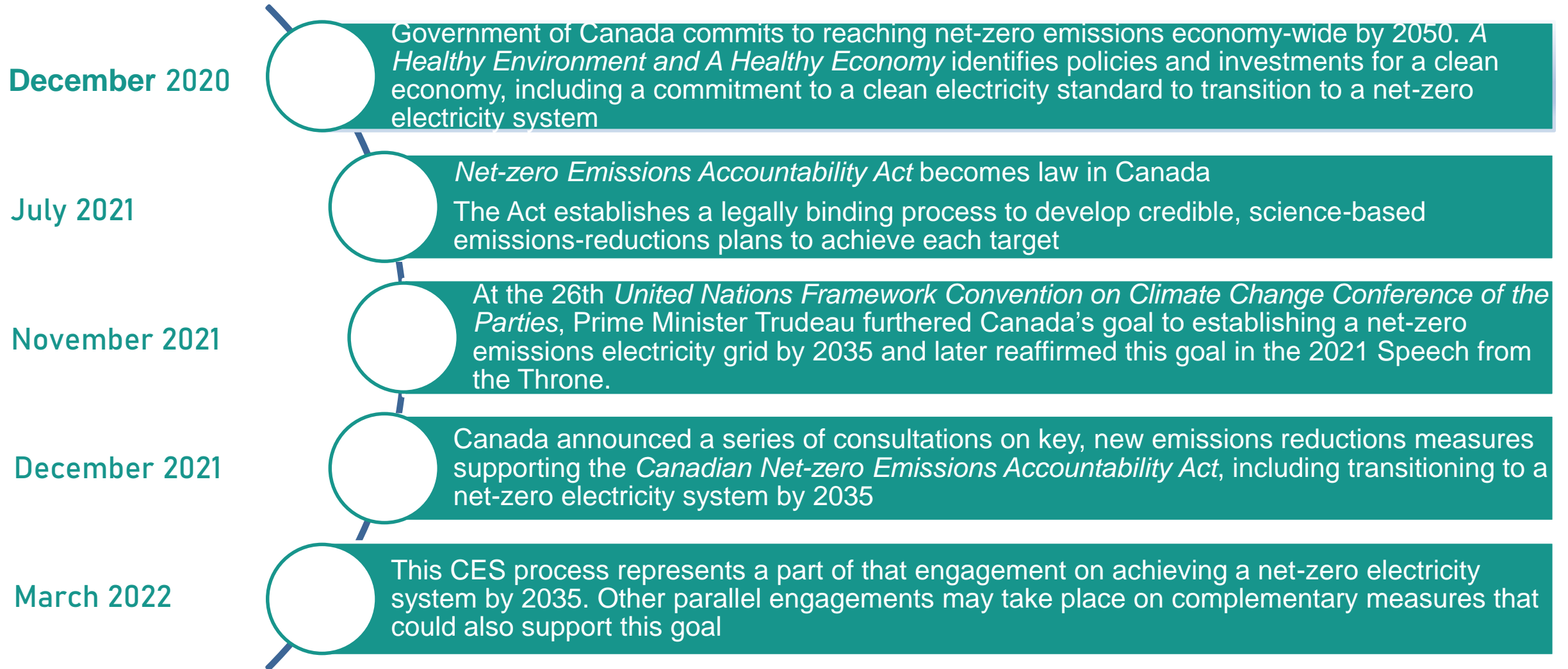
OUR STARTING POINT



Rationale

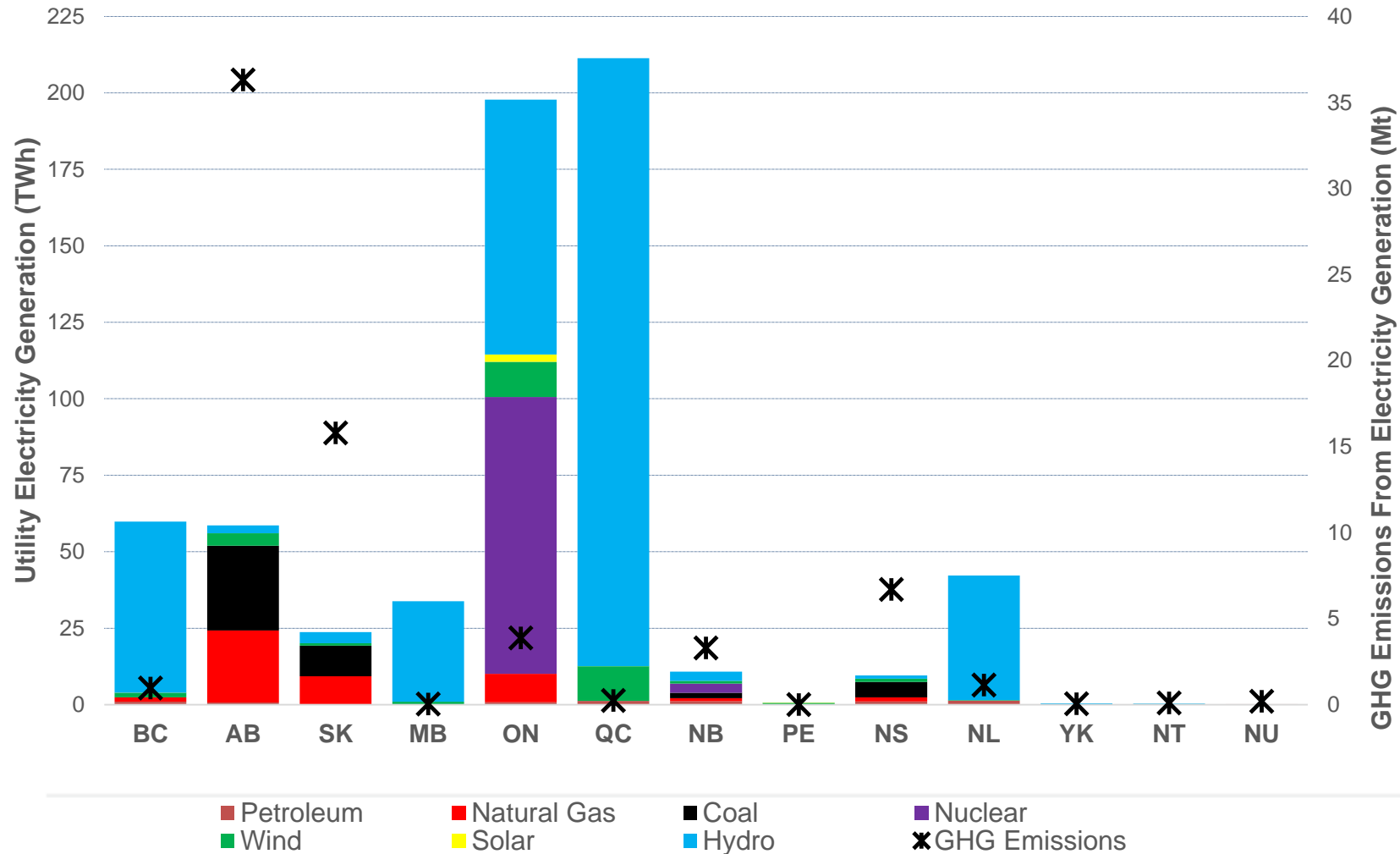
- Government of Canada is taking further action to reduce greenhouse gas (GHG) emissions from the generation of electricity to achieve a net-zero electricity supply by 2035 (NZ2035).
- This will contribute significantly to meeting Canada's broader goal of achieving net-zero emissions economy-wide by 2050.
- The goal of a net-zero economy by 2050 is in line with ambitious targets that companies, provinces and territories and other countries have pledged in response to the Intergovernmental Panel on Climate Change's (IPCC) Special Report on Global Warming of 1.5 °C and concludes that achieving net-zero global GHG emissions by 2050 is necessary to avoid the worst impacts of climate change.

Context on Canada's Net-Zero Commitments

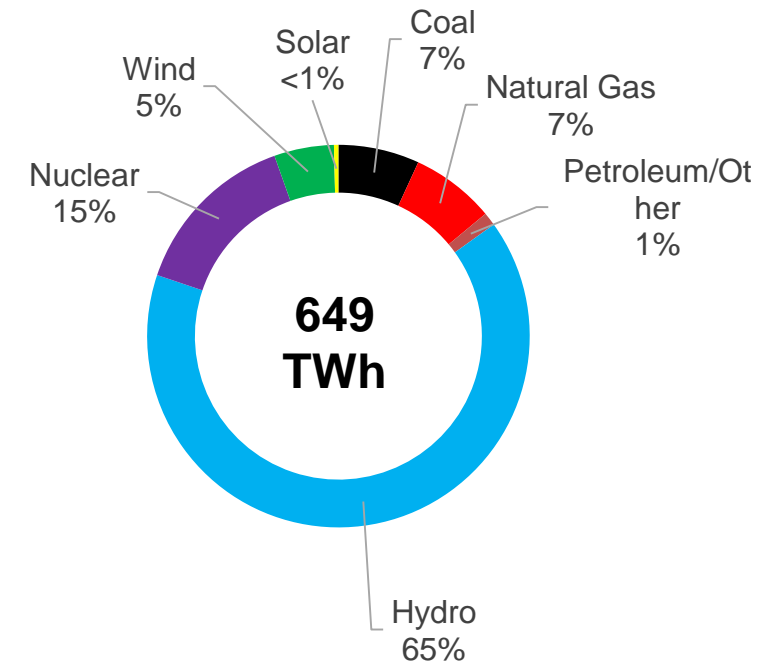


Canada's Electricity Generation

Provincial GHG emissions and generation by energy source (2019)



Generation by source, Canada, 2019



Current Federal Measures to Support Clean Electricity

- Support for the necessary investments in renewable energy and next-generation clean energy and technology solutions is available to a variety of interested parties:
 - Budget 2021 set out an additional \$17.6 billion in new, green recovery measures beyond what was announced under *A Healthy Environment and A Healthy Economy*
 - Under the Growth Plan, Canada Infrastructure Bank set a long-term target of \$2.5 billion in financing for clean power
- Natural Resources Canada has been given a mandate develop and implement strategies to decarbonize electricity systems, including to establish a Pan-Canadian Grid Council to promote infrastructure investments, smart grids, grid integration and electricity sector innovation
- Finance Canada has been given a mandate to support clean energy and clean technologies by introducing additional investment tax credits for renewable energy and battery storage solutions

A vertical photograph on the left side of the slide shows a white wind turbine on a dark, grassy hill. The sky is a mix of orange, pink, and blue, suggesting sunset or sunrise. In the background, there are dark, silhouetted mountains and a body of water.

Current Regulations on Electricity

- Regulation of electricity sector GHGs under the *Canadian Environmental Protection Act*.
 - Coal-fired electricity regulations require that coal units meet an emissions limit of 420 t CO₂/GWh by no later than 2030
 - Natural gas-fired electricity regulations set limits for new natural gas generation units and coal-to-gas conversions
 - Equivalency agreements with SK and NS exist for the coal regulations
- Carbon Pricing under the *Greenhouse Gas Pollution Pricing Act (GPPA)*
 - *Output-Based Pricing System Regulations* apply in backstop jurisdictions
 - Electricity output based standards apply at covered facilities for electricity generated by gaseous, liquid, and solid fuels with a differentiated standard for new (post 2020) gaseous generation
- PTs regulate electricity as well (including carbon pricing systems)

What We've Heard Since Announcing Net-Zero Electricity

- Concerns about reliability if natural gas is not permitted
- Natural gas may be necessary to bridge the technology gap as emerging sources become available
- Interest in using emerging technology like small modular reactors as a source of firm power
- Electricity rates must remain affordable for Canadians
- Federal environmental regulations affecting the electricity sector are beginning to “pancake” on top of each other, making compliance more complicated and costly
- While addressing concerns regarding affordability and reliability, we need to stay focused on the broader emissions reductions goal which is critical to the larger climate change context.



FURTHER ACTIONS NEEDED TO MEET A NET-ZERO 2035 ELECTRICITY SYSTEM



Net-Zero Electricity Sector

- Committed to achieving a 100% net-zero electricity sector by 2035, the Government of Canada is determining how it will achieve net-zero electricity
 - Conveyed in Glasgow at COP26 and in the 2021 Speech from the Throne
- The path to Net-Zero by 2035 (NZ2035) will need to address the following challenges:
 1. Sector has to move away from significant fossil fuel usage, from both new and existing sources of generation
 2. Electricity generation may need to double by 2050 to support electrification
 3. Electricity must be reliable for all Canadians – “lights must stay on”
 - Emerging technologies will be necessary to support the transition (e.g., small modular nuclear reactors, energy storage, geothermal, hydrogen fuel, etc.)
 4. Electricity must remain affordable for consumers
 - To support electrification by end users, electricity will need to be cost-competitive relative to fossil fuels



Net-Zero Electricity means having the electricity sector achieve, in effect, no emissions of GHGs by 2035, or offsetting any emissions by other actions

Further Action is Needed

- Carbon pricing is a foundational measure in Canada's approach to decarbonization. While it incentivizes an economy-wide shift away from fossil fuels, on its own it is insufficient to avoid an over-investment in natural gas in the medium-term
- While the phase-out of conventional coal-fired electricity generation by 2030 will reduce emissions, a shift from coal to natural gas generation, together with increased demand for electricity, would lead to increased emissions from electricity generation beyond 2030
- In particular, the current suite of policies is insufficient to reduce the well established role of natural gas-fired electricity generation due to attributes such as low cost, availability, and technological familiarity of use

Departmental analysis indicates current policies are necessary but not sufficient to achieve a net-zero electricity sector by 2035

Federal Policy Levers to Support Clean Electricity

Research,
Development &
Demonstration



Incentives



Federal
Procurement



Stewardship &
Partnership



Regulations



Infrastructure



Tax Measures

Suite of Measures Needed to Achieve NZ2035

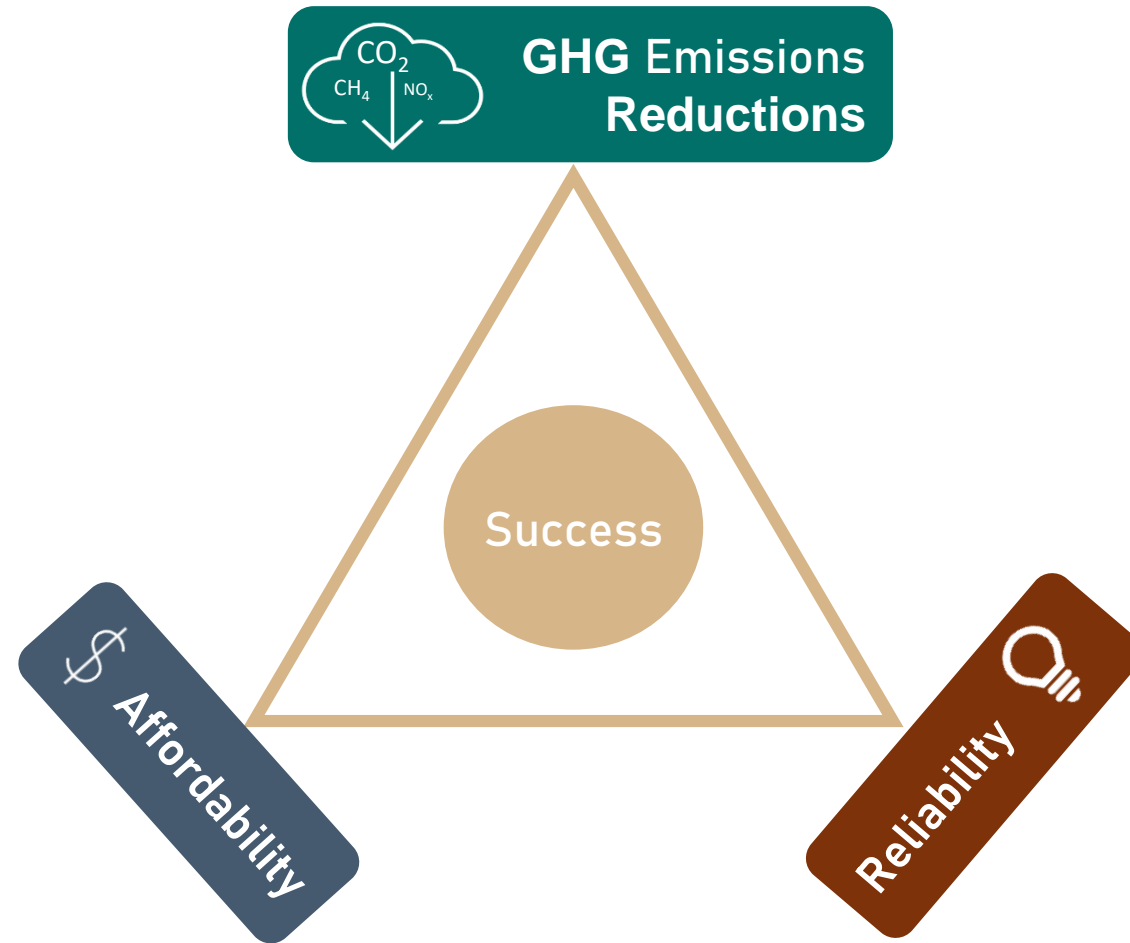
- NZ2035 presents an unprecedented challenge – and an unprecedented opportunity
- New measures to assist the electricity sector in achieving net-zero will need to be developed in close collaboration with other government departments, utilities, and other interested parties
- Other new federal measures may include the creation of a Pan-Canadian Grid Council that could promote collaboration between provinces, territories, utilities and various interested parties in the electricity sector
- Engagement on these other measures will be led by NRCan and other federal departments and undertaken separately from this CES engagement process

Provinces and territories will play a critical role in supporting the transition given their key role in electricity planning and operation

CONSIDERATIONS FOR ENGAGEMENT



Three Key Pillars to Design of the CES





Overarching Design of the CES

Considerations include:

- Maintaining electricity system reliability and affordable supply
- Availability of existing and emerging non-emitting technologies
- Considering how a regulation under the *Canadian Environmental Protection Act*, 1999 (CEPA) can be designed to meet the NZ2035 objectives.
- Factoring in the level of emissions intensity performance standards required to support NZ2035

Compliance Flexibilities

Considerations include:

- How 'net' will be implemented
- The role of offset credits, including those from the Federal GHG Offset System
- The technological readiness, cost, and feasibility of large scale deployment of negative emissions technologies like bioenergy carbon capture and storage (BECCS) and direct air capture (DAC) by 2035





Alignment with Carbon Pricing and OBPSR

Considerations include:

- Interactions between the output-based standard (OBS) for electricity under the Output-Based Pricing System (OBPS) Regulation, and the Clean Electricity Standard (CES)

Treatment of Natural Gas Generation

Considerations include:

- The role of natural gas in the electricity system in the short, medium, and long term
- Maintaining electricity system reliability and affordable supply
- Availability of existing and emerging non-emitting technologies





Treatment of Industry and Remote Generation

Considerations include:

- Availability of non-emitting options to provide high temperature heat for industry
- Other federal programs to transition remote communities away from diesel
- Challenges associated with generating non-emitting electricity in northern and remote communities

CES ENGAGEMENT PROCESS



CES Engagement Process

- The Discussion Paper, published on [Canada.ca](https://www.canada.ca), is the first step in the CES engagement process
 - Interested parties are invited to provide comments for 30 days following publication. The deadline for comments is April 15, 2022
- Moving forward, ECCC will make itself available to interested parties to meet bilaterally on request and will further engage interested parties on the key elements of the CES design identified during the 30-day written comment period through:
 - Issue Exploration Webinar #1, mid-May
 - Issue Exploration Webinar #2, early June
- Interested parties will be informed of analysis and path forward via a webinar at the end of the pre-consultation period (tentatively late July 2022)
- A draft regulation will be published in the Canada Gazette Part 1 for public comment at the end of 2022

How to Provide Comments

- The discussion paper has been published on Canada.ca:
 - <https://www.canada.ca/en/environment-climate-change/services/canadian-environmental-protection-act-registry/achieving-net-zero-emissions-electricity-generation-discussion-paper.html>
- The 30-day public comment period ends on April 15
- Comments can be submitted to:
 - Soren Halverson,
 - Special Advisor to the Deputy Minister
 - Environment and Climate Change Canada
 - Email: ECD-DEC@ec.gc.ca
- While all comments will be considered, ECCC will not be directly responding to all comment submissions that it receives
- Feedback received after April 15 will be taken into consideration. This will not be the only opportunity to provide comments

Questions?

- Please submit your questions in the Q & A chat box
- We will answer questions about the engagement process today
- Technical questions will be addressed later in the engagement process



Thank you

- Submit comments in writing by April 15th to: ECD-DEC@ec.gc.ca

