CANADIAN ELECTRICITY ASSOCIATION

POWERING THE FUTURE: PARTNERING IN ENERGY DEVELOPMENT

CEA BOARD REPORT ON THE NORTHERN ENERGY SYMPOSIUM HELD ON JUNE 20, 2018 IN CARCROSS, YUKON

August 28th, 2018

Canadian Electricity Association | Association canadienne de l'électricité

August 30th, 2018

1. INTRODUCTION

On June 20th and June 21st, an important gathering took place in the Yukon. For the 127-year-old Canadian Electricity Association (CEA), it was the first Board of Directors meeting in Canada's North. The meeting also came at an important juncture in Canadian history—one defined by the pursuit of reconciliation with Indigenous peoples and prosperity for all Canadians.

On the first day, CEA, together with two of our member companies that operate in the North — Yukon Energy and ATCO — hosted a symposium addressing the energy needs of the North, in Carcross, on the traditional territory of the peoples of Carcross / Tagish First Nation.

Despite this backdrop of promise and commitment, Canada's remote and northern communities suffer from a significant level of "energy inequality", where the cost of electricity in many communities is estimated to be over ten times higher than the Canadian average. This lack of access to affordable power has limited their economic potential and stifled the region's economic development and prosperity. It also impacts their social fabric.

Yet, within the challenge of addressing this inequality lies the opportunity for industry, Indigenous peoples, communities, and all levels of government to work in partnership to invest in clean energy, spur economic development, address environmental challenges, and power tomorrow's low-carbon economy.

That is why CEA brought leaders from industry, governments, Indigenous organizations, academia and other community leaders to Carcross for a symposium entitled, ***"Powering the Future: Partnering in Energy Development"***, to discuss the unique challenges and opportunities that exist in Canada's North and how we can all work together to build a cleaner, more prosperous future for all.

The speakers and panelists at the symposium were impressive. It included, the Honourable Sandy Silver, Premier of Yukon; the Honourable Bob McLeod, Premier of the Northwest Territories; the Honourable Ranj Pillai, Deputy Premier & Minister of Energy, Mines, and Resources, Yukon; Grand Chief Peter Johnston, Council of Yukon First Nations; Andrew Hall, President & CEO, Yukon Energy; Wayne Stensby, Managing Director, Electricity, ATCO; Jay Grewal, President & CEO, Northwest Territories Power

Corporation; and Bruno Pereira, President & CEO, Quilliq Energy Corporation, among other distinguished speakers.

This report provides a high-level summary of the symposium. It also proposes a number of strategic recommendations for the federal government, that were drawn from the day's discourse and the CEA Board of Directors' statement on the energy needs for Canada's North *(see Annex I)*. We encourage you to review the recommendations, as well as the various takeaways that are found throughout the report. We also invite you to follow-up with us on further ideas or questions you may have.

Together, we will find ways to address the unique challenges and opportunities facing Canada's North, and ensure no one is left behind in Canada's transition to a low-carbon future.

2. SYMPOSIUM CURTAIN RAISER

The symposium was opened by Chief Andy Carvill of the Carcross Tagish First Nation by welcoming participants to the traditional territory of the peoples of Carcross / Tagish First Nation. He commended the participants for convening in Carcross to discuss energy development opportunities and Indigenous partnerships. Furthermore, Chief Carvill spoke of his community's desire to integrate clean energy solutions such as hydro, wind and solar to meet its energy needs, while preserving natural resources and the environment.

> *"Without partnerships, energy development in the North would be impossible"*
>
> ***- Andrew Hall, President & CEO, Yukon Energy***

3. HIGH-LEVEL SEGMENT

The first segment of the symposium was centred on high-level discussions and remarks led by the Honourable Sandy Silver, Premier of Yukon; the Honourable Ranj Pillai, Minister of Energy, Mines, and Resources, Yukon; the Hon. Bob McLeod, Premier of the Northwest Territories; and Grand Chief Peter Johnston, Council of Yukon First Nations.

While the themes of discussion in the high-level segments were similar, the session also highlighted the key differences between the three northern territories and the many communities within them. As Dr. Michael Ross of the Yukon College later reminded participants, "once you've seen one northern community, you've seen one northern community." Each is different, and there is no single solution or approach that will work in every northern community.

The political and Indigenous leaders of Yukon and the Northwest Territories had the following key take-aways:

I. KEY TAKEAWAYS

High-Level Segment: Top 5 Strategic Takeaways

1. ***Governments, industry and Indigenous communities continue to invest in renewable energy research, development and deployment projects, but there are significant challenges to overcome, including capital and operational costs.***
2. ***While investments are made in renewable energy sources, diesel will continue to play a large role into the foreseeable future to meet demand.***
3. ***Transmission interconnections with southern neighbours are crucial for further advancing local economic development and providing flexibility to meet demand for power.***
4. ***Significant and concerted federal funding is needed to make transformative changes to the energy system and reduce greenhouse gas emissions.***
5. ***Partnership opportunities for Indigenous communities are increasingly available, but it remains a work-in-progress.***

II. HIGH LEVEL SEGMENT: YUKON'S ENERGY LANDSCAPE

- Yukon has about 38,000 residents spread across approximately 3.5 million square kilometers – a small population covering a large swath of land.
- More than 96 percent of Yukon's electricity is generated by hydropower. The remainder is produced using diesel, natural gas, and increasingly, wind and solar. The significant hydropower capacity is what sets Yukon apart from its northern neighbours in the Northwest Territories and Nunavut.
- 95% of the Yukon population is served by an electrical grid, which was developed over time largely to serve the mining industry. While most southern jurisdictions in Canada are part of large and

interconnected electricity system, Yukon's electricity grid is isolated from its neighbours and unable to import/export power. That means, Yukon needs to produce its own electricity and is alone when it comes to responding to peaks in energy demand.

"Our Governments are fairly young, and so too our towns and cities – many of which lack adequate energy infrastructure. Simply put, our day-to-day relationship with energy varies significantly compared to the rest of the country"

- Honourable Sandy Silver, Premier of Yukon

- Backup generators, usually diesel, play a significant role in meeting peak demand and keeping the lights on. This will continue in the short-term. In Yukon, there are four "off grid" communities that rely exclusively on diesel generation as their only source of electricity, although the economic costs and environmental impacts are extremely high.
- Yukon is increasingly investing in renewable energy solutions in remote communities, but there are significant challenges to overcome, including local capacity, skills and capital to execute projects in those small and remote communities.

III. High Level Segment: Yukon Government's Energy Priorities

- **Investing and deploying renewable energy across Yukon:** The government has allocated $1.5 million through the Innovative Renewable Energy Initiative to support early stage planning of small-scale electricity and heat generation projects.
- **Implementing the micro-generation program to help integrate renewable energy sources:** As of December 2017, there were 145 residential properties with solar energy representing the highest residential solar capacity per capita in Canada.
- **Implementing the Biomass Energy Strategy to encourage the development of a local biomass energy industry:** The territorial government has made significant progress with several First Nation communities, including the Teslin Tlingit Council, which has installed 10 biomass boilers as a district heating system to supply 10 commercial buildings owned by the First Nation. This strategy has the secondary benefit of allowing for advanced research on wood biomass products.

- **Exploring the potential for geothermal:** The Yukon Geological Survey is currently exploring the geothermal potential by drilling two deep monitoring wells to measure ground temperature.
- **Investing in energy efficiency for residential, government, community and commercial buildings:** The territorial government is committed to making energy use more efficient and effective. It has already introduced a standard for constructing "super-insulated" homes and is currently working closely with the federal government to obtain funds through the Low Carbon Economy Fund and the Canada Infrastructure Fund, to support energy efficiency retrofits.
- **Integrating and inter-connecting Yukon's isolated grid with grids south of 60:** In the longer-term, Yukon will need to access large, dependable sources of renewable energy to grow its economy while minimizing the effects on the environment. The ability to buy and sell energy in the North American market could help stimulate further growth and reduce constraints associated with operating in an isolated grid. One option being considered is connecting to the British Columbia grid, a move which would spur development in underdeveloped parts of both the province and the territory.
- **Exploring partnerships with First Nations to expand clean energy and reduce emissions:** There are six different solar energy systems, installed in five First Nations communities, with a total capacity of 165 kilowatts.
- **Implementing the Independent Power Production (IPP) Framework:** The Yukon government is rolling out the IPP framework to support the development of larger-scale renewable energy generation.

IV. High-Level Segment: Northwest Territories' Energy Landscape

- The Northwest Territories has an abundance of energy resources, including 11,000 MW of untapped hydropower potential. However, current energy costs and issues related to climate change pose a significant challenge to its economic development, energy diversification, and standard of living.
- Diesel generation continues to be the only realistic energy option for 25 of the 33 communities in the Northwest Territories.
- With the changing climate, high cost of energy and aging infrastructure, the government is looking for transformative projects to promote economic development and transition to a low-carbon energy future.

V. High-Level Segment: Northwest Territories Government's Energy Priorities

- **Implementing the 2030 Energy Strategy and the associated three-year Energy Action Plan:** The Energy Strategy sets sectoral targets, including a twenty-five percent reduction in diesel use in remote communities.
- **Expanding the Taltson Hydro Project:** There is a recognition that transformational change in the Northwest Territories can only be achieved through projects like the Taltson Hydropower Expansion project. A Phase 1 expansion of the Taltson facility would grow the capacity of Taltson from 18 MW to 60 MW. A Phase 2 expansion of Taltson could see it grow to 115 MW by 2040 and up to 200 MW by 2050. This requires significant outside investment and partnerships.

"If we are going to achieve the transformative change that the federal government has outlined in the Pan-Canadian Climate Change Framework, then we need support for transformational projects"

- Honorable Bob McLeod, Premier, Northwest Territories

- **Investing in renewable energy sources such as biomass, solar and wind:** There is a significant interest in expanding renewable energy in the Northwest Territories. For example, in Colville Lake, a community of 160 people, NWT worked with the community and the Government of Canada to install a high-penetration solar solution. This resulted in a 25 percent reduction in diesel-related GHG emissions.
- **Investing $180 million over the next three years to support energy initiatives and programs through partnership with stakeholders:** This includes partnering with the federal government, community and Indigenous governments on local renewable energy projects, enhancing the programs that the Arctic Energy Alliance delivers to encourage energy conservation and efficiency, and investing in larger energy projects like the Inuvik Wind Project. It is estimated that wind energy in Inuvik, NWT, would reduce the community's diesel use, could provide up to $3 million in fuel savings and would offset up to 4,000 tonnes of greenhouse gas emissions each year.

- **Integrating and inter-connecting NWT with grids South of 60:** In the longer-term, NWT will also need to access large, dependable sources of renewable energy to grow its economy while minimizing the effects on the environment. One option being considered is a 200-kilometre transmission line to Saskatchewan. New research into options like submarine cable and high voltage direct current transmission line has the potential to make the business case for investment even more attractive.

"Communities like Colville Lake in the Northwest Territories, Iqaluit in Nunavut, Atlin in northern British Columbia, and Old Crow and Burwash Landing in Yukon are showing how a range of renewable technologies can expand clean energy generation in Canada's North"

- Honourable Ranj Pillai, Deputy Premier & Minister of Energy, Mines, and Resources, Yukon

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VI. High-Level Segment: Indigenous Perspective

Following the speeches by Yukon and the Northwest Territories political leaders, the Grand Chief of the Council of Yukon First Nations, Peter Johnston, made brief remarks on the role of Indigenous peoples in energy partnerships. He spoke of the historical grievances, including the impact of the Indian Act and the residential school system. Yukon Indigenous communities, even after 25 years of negotiations on land claims are still impacted by the past and more needs to be done to promote education, health, environment and economic development. He said, partnerships were not always available to them. However, he noted the future looks bright, especially with the ongoing federal reconciliation efforts. The partnership opportunities for Indigenous communities are now there to generate wealth without being dependent on the federal and territorial governments. Collaboration, he said, benefits everybody and is imperative to building a sustainable future.

"Partnerships were not always an option for us"

- Grand Chief Peter Johnston, Council of Yukon First Nations

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4. PANEL DISCUSSION: UNIQUE CHALLENGES AND OPPORTUNITIES FOR ENERGY DEVELOPMENT IN THE NORTH

Facilitated by CEA's Chief Operating Officer, Francis Bradley, this session discussed the unique challenges and opportunities facing energy development in the North. Panelists included Andrew Hall, President & CEO, Yukon Energy; Wayne Stensby, Managing Director, Electricity, ATCO; Jay Grewal, President & CEO, Northwest Territories Power Corporation; Bruno Pereira, President & CEO, Quilliq Energy Corporation; and Dr. Michael Ross, NSERC Industrial Research Chair in Northern Energy Innovation, Yukon Research Centre, Yukon College. The section below provides a brief synopsis of the remarks made by the panelists and the key takeaways.

I. SESSION TAKEAWAYS

Unique Northern Challenges and Opportunities: 5 Strategic Takeaways

1. ***Federal government funding is key for addressing the infrastructure deficit.***
2. ***Many northern communities are isolated and depend on diesel generation for meeting demand.***
3. ***Isolated energy systems pose significant challenges, including system voltage and frequency regulation constraints, dependence on fossil-fuels, lack of economies of scale, and lack of access to cost-effective energy imports from an integrated North America grid.***
4. ***There are opportunities for partnerships with Indigenous communities, federal government, and other independent power producers.***
5. ***Integration of new technologies in the North is not as simple as "plug-n-play", thus, opportunities exist for further applied research and collaboration.***

II. KEY SESSION HIGHLIGHTS

Andrew Hall, President & CEO, Yukon Energy

- 97 percent of the power on the grid is considered renewable, primarily hydropower.
- The demand for power is growing, but Yukon still maintains one of the lowest power prices in the North and comparable to prices in southern parts of Canada.

- There are significant challenges. Aging infrastructure, isolated grids and communities, access to capital, ratepayer interests vs. public policy objectives are all challenges facing the territory.
- Partnership opportunities are available for Indigenous communities, federal government (through funding programs), Independent power producers, and research, development, and deployment of new technologies.

Wayne Stensby, Managing Director, Electricity, ATCO

- ATCO serves small-sized communities over a vast service territory with limited large-scale industrial customers – thus, the cost of power is relatively high.
- ATCO has 35 partnerships with indigenous communities across Canada, with a long-history in Canada's North. Canada's desire for reconciliation with Indigenous groups gives rise to partnership opportunities and reconciliation in the electricity industry.

"Energy partners must harness their collective strengths and work together to grow the Canadian North"

- Wayne Stensby, Managing Director, Electricity, ATCO

- With an interest in natural gas, energy storage, and other renewable energy sources, the company believes that energy partners must harness their collective strengths and work together to grow the Canadian North. To do this, we need to build trust amongst one another and enhance the way we collaborate.
- ATCO has many renewable energy initiatives in the North, including the most recent Old Crow Solar Project in collaboration with the Vuntut Gwitchin First Nations Government in Yukon that aims to reduce their reliance on diesel-fueled electricity generation.
- In June 2018, the Vuntut Gwitchin Government and ATCO reached an agreement in principle for an Electricity Purchase Agreement (EPA). ATCO is pleased to play a key role in enabling this clean energy transition and continue to build on the long history of meaningful and mutually beneficial relationships. These opportunities provide many opportunities for environmental stewardship and for improving access to capital.

Jay Grewal, President & CEO, Northwest Territories Power Corporation

- The majority of NWT residents are on hydro-based micro grid systems, but most remote communities are not on the grid. Hydropower accounts for 76 percent of power generation, while diesel contributes 21 percent (26 independent diesel/LNG plants), and the rest comes from Liquified Natural Gas (LNG) and solar. However, much of the hydropower assets are aging and near the end of life.
- A key challenge for the region is the small and stagnant population base (44,000 residents). The customer base is not growing, and a few large commercial or industrial opportunities exists due to high cost of power.
- The electricity rates tend to be high, in the 34-75 cents per kilowatt-hour depending on the community. The small scale and non-integrated system means NWT has limited potential to realize economies of scale. High cost to deliver power given use of diesel in remote communities, and 100 percent reliance on diesel for back-up generation in communities served by hydro. The cost of power is heavily subsidized by the government of NWT.
- Federal funding is key for addressing the infrastructure deficit and economic sustainability of the region. Federal funding could support hydro refurbishments and greater integration of intermittent renewables, including the Taltson hydro expansion project. These projects are needed to close the gap between the electricity rates in the North and in the rest of the country.
- Another important aspect is interconnection of the existing Snare and Taltson transmission grids to create single NWT grid, to allow for better use of the existing (and underutilized) hydroelectric generation assets by reducing the need for diesel generation. The timing of such an expansion is dependent upon federal and territorial funding.
- Utilities need the support of all levels of governments to help ensure Canadians have access to reliable and affordable electricity.

"It is all about economic sustainability – for utilities, for government and for customers"

- Jay Grewal, President & CEO, Northwest Territories Power Corporation

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Bruno Pereira, President & CEO, Quilliq Energy Corporation

- The Nunavut based Quilliq Energy Corporation is the most northern utility in Canada. It serves 25 isolated communities (covering nearly 2 million square kilometres) with approximately 37, 500 people, no roads connecting communities, and no utility interconnections.
- Nunavut is solely depended on diesel for electricity generation (25 percent), heat (37 percent), and transportation (38 percent). Options considered for the future include solar, wind, hydro, deep geothermal and tidal. Again, federal funding support is key for integrating these fuel sources.
- It has the most expensive electricity rates in Canada.
- Key challenges include logistics, ensuring reliability of the system, finding trained personnel and funding.
- Partnership opportunities are available for Inuit communities, federal government (through funding programs), Independent power producers, and research organizations.

"Once you've seen one northern community, you've seen one northern community"

- Dr. Michael Ross, NSERC Industrial Research Chair in Northern Energy Innovation, Yukon Research Centre, Yukon College

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Dr. Michael Ross, NSERC Industrial Research Chair in Northern Energy Innovation, Yukon College

- All northern communities are unique and different.
- One of the biggest challenges is aging infrastructure. Integration of new technologies is not as simple as "plug-n-play".
- Isolated systems in the territories pose significant challenges, including system voltage and frequency regulation constraints, over-dependence on fossil fuels, lack of economies of scale, and lack of access to cost-effective energy imports.
- In collaboration with NSERC and northern utilities, Yukon College is spearheading several applied research initiatives to support the integration of renewable generation in a practical, stable and reliable manner.
- Research includes assessment and implementation of technologies such as energy storage systems, variable speed generators, diesel unit efficiencies, and demand side management.

- In the North, Indigenous and community partnerships and engagement is a vital part of community-based projects.

5. PANEL DISCUSSION: INDIGENOUS DEVELOPMENT AND OWNERSHIP OF RENEWABLE ENERGY: WHERE WE'VE COME AND WHAT WE NEED MOVING FORWARD

Facilitated by ATCO's Jay Massie, Manager of Northern Operations, this session discussed in broad terms Indigenous economic development and ownership of renewable energy. Panelists included Chief Bruce Charlie, Vuntut Gwitchin Government; Peter Kirby, CEO, Taku River Tlingit Corporation; Kate Ballegooyen, Kluane First Nation; and Nelson Lepine, CEO, Carcross/Tagish Management Corporation. The section below provides a brief synopsis of the remarks made by the panelists and the key takeaways.

I. SESSION TAKEAWAYS

Indigenous Development and Ownership of Renewable Energy: 5 Strategic Takeaways

1. ***Self-government and independence in decision-making is an important factor in economic development and ownership of renewable energy projects by Indigenous communities.***
2. ***Indigenous communities want meaningful local economic development opportunities through partnerships and collaboration with industry and government.***
3. ***There are many examples of successful partnership arrangements, including the Vuntut Gwitchin Government Electricity Purchase Agreement with ATCO.***
4. ***Indigenous communities can succeed independently in the renewable energy space, as in the community of Atlin, with the right support from government and industry partners.***
5. ***Climate change is an important consideration in the drive for renewable energy in the North.***

II. KEY SESSION HIGHLIGHTS

Chief Bruce Charlie, Vuntut Gwitchin First Nation Government

- The Vuntut Gwitchin First Nation is located in northern Yukon with its main population in Old Crow.

- The community of approximately 250 people successfully negotiated a self-government agreement in 1992, allowing it to work towards greater sustainability and protection of its natural resources given the changing climate and the landscape.
- The Vuntut Gwitchin community is working with utility partners to introduce renewable energy. In June 2018, the Vuntut Gwitchin Government and ATCO Electric Yukon reached an agreement in principle for an Electricity Purchase Agreement (EPA). The agreement outlines the relationship under which ATCO Electric Yukon will purchase electricity generated from a 940-kW solar photovoltaic array owned and managed by the Vuntut Gwitchin First Nation over a 25-year period.
- The Old Crow Solar Project is a vision of the Vuntut Gwitchin First Nation to develop clean energy alternatives for Old Crow and gain long-term energy security. This project will reduce the amount of fuel used by the community's generators by 190,000 L diesel/year and reduce greenhouse gas emissions by 680 tonne CO2e/year – the equivalent of taking 140 cars off the road.
- Financial support from the federal and Yukon government allowed the community to work on the EPA. The revenue from this arrangement will support community based economic development.

Kate Ballegooyen, Kluane First Nation

- The Kluane First Nation is located in the Southwest corner of Yukon, bordering Kluane Lake and the Kluane National Park. It has been self-governing since 2003, led by a Chief and a five-person Council elected for a three-year term.
- The community has a long-standing commitment to renewable energy. In 1998, the Kluane First Nation installed its first biomass district heating system, which has grown significantly over the past 20 years. The community has also expanded into wind and solar, with the latest Kluane N'tsi Wind Energy Project having a capacity of 300 KW.
- This N'tsi Wind Energy Project is expected to provide about 570,000 KWh annually to the local diesel electric-grid, displacing about 160,000 litres of diesel per year. Some of the work related to this project have included, development of bird and bat adaptive monitoring plans, prefeasibility work and business planning, grid impact study with Natural Resources Canada and ATCO; environmental permitting; and initial Power Purchase negotiations.

Peter Kirby, CEO, Taku River Tlingit Corporation

- Atlin is located in northern British Columbia with a small population of 400. It is off the power grid, there is no municipal government and it lacks basic services and infrastructure. The region is socially and economically tied to Yukon.
- Its economic development goals include creating a source of income, employment, capacity building, use of local natural resources and bringing new money into the community through collaboration with governments and other stakeholders.
- Atlin has made significant economic progress over the last 20 years - from having one gas station, to seven profitable companies with over 100 employees during peak times in the summer.
- In 2009, it took the first step in developing a community energy plan which proposed a 2.1 MW hydro facility. These efforts have resulted in a major potential source of economic development, investment and training, and a 25-year energy purchase agreement with BC Hydro.
- The community is now considering a potential 5MW expansion of the Atlin hydro facility and a new 100 KM 69 KV transmission line from Atlin to Jakes Corner in Yukon.
- Over the last three years, the community has been doing pre-feasibility work, including hydrology studies, flow modelling, preliminary design, regulatory applications and options for the transmission line development. The project is now in the feasibility and environmental assessment phase. The next steps include negotiation of an Electricity Purchase Agreement (EPA), financing, and environmental approvals.

"Reckon-silly-ation equals status quo. Reconciliation should allow First Nations to determine their future and implement their own economic development projects"

- Peter Kirby, CEO, Taku River Tlingit Corporation

- Indigenous communities like Atlin want to decide their future, and experiences elsewhere show encouraging results for self-governance. In fact, the Harvard Project, which aims to understand and foster the conditions under which sustained, self-determined social and economic development is achieved among American Indian nations, shows that when Indigenous nations make their own decisions about what development to take, they consistently outperform external decision-makers –

on matters as diverse as governmental form, natural resources management, economic development, healthcare, and social provision.

Nelson Lepine, CEO, Carcross / Tagish Management Corporation

- Working with Canadian Industrial Power and Tesla, on June 20th, 2018, Carcross became the first community in Yukon outside of Whitehorse to provide Electric Charging Stations.
- Installation of the Chargers is part of the Carcross / Tagish First Nation's strategy to reduce the use of fossil fuels and develop a comprehensive renewable energy plan for the community.
- The community is also investing in solar, micro-hydro and wind projects.

The symposium was concluded with a dinner-time armchair discussion between CEA's President and CEO, Hon. Sergio Marchi and the Honourable Navdeep Bains, federal minister of Innovation, Science, and Economic Development (ISED). The minister spoke candidly on a wide variety of issues, including the federal strategy on climate change, funding for innovation, the role of artificial intelligence and Canada's trading partnerships, including with the United States.

6. CONCLUSION

CEA is supportive of the federal government's clean growth agenda and stands ready to play its role in advancing northern energy development. However, as articulated by so many speakers at the symposium, sustained support from the federal government is critical to making transformational clean energy investments possible in Canada's North. The region is clearly 'unique', and thus requires a dedicated, custom-made solution.

As well, access to clean, safe and reliable electricity is a precursor for clean water, better education, improved health care, increased economic development, robust employment and, ultimately, a better quality of life for Northern Canadians.

Moreover, any electrification strategy must meaningfully incorporate the North, especially since the North finds itself at a disadvantage when it comes to energy. Indeed, it is the electrification of the North

that holds the promise of helping to level the energy playing field, and ensuring that no Canadian or region is left behind in the transition to a cleaner, more prosperous future.

In this regard, and drawing from the presentations and discussions at the symposium as well as the Board of Directors' northern statement, CEA would make the following **5 recommendations** to the Federal Government:

1. **The Federal Government must support transformative renewable energy infrastructure projects in Canada's North in terms of financial capital, and research, development, and deployment.**

    - Territorial governments, industry and Indigenous communities are continuing to invest in community-based and large-scale renewable infrastructure projects, but there are significant challenges to overcome. Access to capital must be improved, and technical barriers and operational constraints must be alleviated. The federal government has a major long-term role to play in financially supporting these infrastructure projects to ensure the North is not left behind in the transition to a low-carbon economy.

2. **The Federal Government must work to accelerate research underway to find innovative efficiencies in diesel generation, while concurrently promoting non-diesel alternatives.**

    - While investments are made in renewable energy sources, diesel will continue to play a significant role in the foreseeable future to meet energy demand in the North. Many northern communities have no option but to rely on diesel generation, including as a backup to renewables. Understanding these economic and technical constraints, the federal government should work to find efficiencies in diesel-fueled generation and promote greater energy efficiency programming, among other clean energy solutions, in addition to encouraging non-diesel alternatives.

3. **The Federal Government should work to facilitate transmission interconnections between the North and the South in an effort to end its energy isolation.**

    - The three northern territories have isolated electricity grids, and in many cases, the communities within these territories are further isolated from the main power grid. Transmission interconnections with neighbours south of 60 are crucial for further advancing local economic development and providing flexibility to meet demand for power. The territorial governments are investigating options to connect with southern neighbours and the federal government should help facilitate these potentially transformative projects.

4. **The Federal Government must find and implement "flexible" funding mechanisms for the territorial governments to achieve their climate objectives and targets.**

    - The territories are committed to reducing greenhouse gas emissions and moving to a clean energy future. However, these governments need a "flexible" federal funding approach to

make transformative changes to the energy systems and chart their own long-term path to energy sustainability in the region.

5. **The Federal Government must continue to build new and dynamic partnerships with Indigenous communities, if those communities are to be economically prosperous and sustainable.**

   - Indigenous communities are looking for partnerships that would lead to local economic development and a sustainable future for their people. Reconciliation efforts, including self-government, should allow Indigenous peoples to implement their own economic development projects and sustain their communities.

CEA looks forward to the government's response to these proposals, and we are keen to engage with them, in an effort to advance energy solutions for the North.

Finally, CEA would like to sincerely thank all the speakers and participants of the symposium, including our Board Members. It was an uplifting, and forward-looking discussion.

ANNEX I

CEA BOARD OF DIRECTORS' STATEMENT ON THE ENERGY NEEDS FOR CANADA'S NORTH

Whitehorse, Yukon (June 21, 2018) – The Canadian Electricity Association's Board of Directors met today in Whitehorse, Yukon, and issued the following statement on the importance of investing in electricity infrastructure in Canada's North:

"In honour of National Indigenous Peoples Day, the CEA Board of Directors acknowledges the important role that Indigenous groups must play in the development of clean energy alternatives in the North, as active community members, project partners and developers.

Electricity is the foundation of our modern society. It powers homes, schools, hospitals, and businesses, and is the backbone of a vibrant economy. Access to affordable, reliable electricity enables economic growth. Sparse Northern populations and a high cost of living require unique and innovative approaches. Ultimately, we must ensure a level playing field across Canada when it comes to energy accessibility and affordability.

Canada was built on the principle of equal opportunity. For this great promise to hold true today, all citizens must have reasonable access to the electricity infrastructure that powers their lives.

Diesel generators are the backbone of electricity systems in many Northern communities, providing reliable power to people living in the most demanding environments in Canada. Many of these generators are at full capacity and the cost of electricity in some regions is as much as ten times the Canadian average. This limits local economic opportunities and stifles growth.

This must change. Now is the time for utilities, communities, Indigenous governments and other levels of Government to work together collaboratively to optimize our collective strengths and provide affordable, reliable and safe renewable energy sources to meet the needs of Northerners.

This need includes adequate electricity supply to support industrial development (e.g. providing energy to new mine sites and electrifying existing sites). Economic growth and electrification in turn create the demand needed to justify investments in the transmission grid, which may lead to interconnections with provincial electricity grids and better system reliability and affordability for all.

Developments in integrated clean energy solutions provide an opportunity to address energy access and environmental sustainability, and to provide an opportunity for economic participation by communities and Indigenous governments. Led by policy mandates and customer preferences, Canada is undertaking an energy transition, moving to a lower-carbon model. Clean electricity is critical to achieving this vision. Improvements to existing technology must also be included in the discussion.

New technology and use of fuels that result in reduced greenhouse gas emissions from diesel generators should be acknowledged as part of the solution. Currently, over 65% of communities in the North rely solely on diesel fuel to meet their basic energy needs. This is an environmental as well as an economic challenge. With targeted investments, governments can help communities join the transition without sacrificing reliability or affordability.

The national energy transition cannot be for just some. It must include all Canadians, in all regions of our country, including the participation of Northern local communities and Indigenous governments. The development of local renewable energy sources provides tangible opportunities for utility service providers, communities and Indigenous governments to work together – in partnership – to enable participation in the energy sector, create jobs and help the environment.

The CEA Board of Directors therefore stands together in support of increased electricity infrastructure investments in the North. Electricity infrastructure lifts communities towards a brighter future while providing training and good jobs.

We propose the following six priorities for immediate Federal, Provincial and Territorial action:

1. All levels of Government should recognize that communities and Indigenous governments must have input into the electricity infrastructure decisions that affect them. A strategy for their inclusion in partnerships, developed in consultation with existing utility service providers in the North, must be prioritized and actioned.

2. The Government of Canada, led by Indigenous Services Canada Minister Philpott, should expand the Northern REACHE Program to provide seed funding to support the development of energy projects in Northern communities. The Minister should also expand support for capacity building in Indigenous communities, allowing Indigenous groups to more fully participate in future energy development opportunities.

3. The Government of Canada, led by Infrastructure Minister Sohi, should prioritize Northern electricity projects in the Green Infrastructure, Rural and Northern Communities, and Arctic Energy Fund components of the *Investing in Canada Plan*; and in all future infrastructure funding programs. Canada needs to better serve these communities by facilitating creative and collaborative funding solutions from all levels of government.

4. The Government of Canada, led by Natural Resources Minister Carr, should include interconnections between Territories and Provinces as a priority focus area when studying the feasibility of inter-jurisdictional transmission lines. Such transmission interconnections would create the opportunity for clean energy exports from the North to the South, and to support the energy transitions underway in Alberta and Saskatchewan.

5. The Government of Canada, led by Innovation, Science and Economic Development Minister Bains, should prioritize funding for the research and development of innovative clean and alternative electricity pilot projects in northern and remote communities.

6. All levels of Government should commit to leaving no Canadian behind in the transition to cleaner forms of energy. Diesel generation is currently the lowest-cost option for meeting capacity needs in many communities and is also very reliable. We must strive to find electricity solutions that match the cost and performance attributes of diesel in order to transition communities to cleaner sources of energy. Where fuel switching is not technically or economically feasible in the near term, adequate energy availability and reliability should be prioritized. Until reliability can be ensured and clean technology put in place, projects that reduce reduced greenhouse gas emissions through lower diesel consumption should be eligible for funding support.

In the North, as is the same across Canada, the quality of life for residents and the realization of economic development projects depend on improved electricity infrastructure.

The Canadian electricity sector stands ready to work with northern communities and all levels of government to reduce diesel reliance nationwide and move towards a more sustainable, affordable, reliable, clean energy future for all Canadians."

Ray Robinson
President & CEO, Saint John Energy
Chair of the CEA Board of Directors

– 30 –

Additional quotes:

Andrew Hall, President and CEO, Yukon Energy

"On behalf of Yukon Energy Corporation, I would like to welcome the Canadian Electricity Association to the North for this historic meeting. It is fitting that the CEA is meeting to talk about energy issues on National Aboriginal Day; YEC recognizes that partnerships with self-governing First Nations are essential to forging a sustainable energy future in Yukon."

Jay Grewal, President and CEO, Northwest Territories Power Corporation

"We are at a pivotal moment in history with transformational projects underway or planned in the electricity sector. Utilities in the North are strong and resilient power providers, developing energy solutions that allow us to serve customers in some of the most challenging conditions in the world. Collectively we see exciting opportunities emerging from the Federal government's willingness to invest in our aging infrastructure, in expanding our hydro resources and in renewable technology. The North is eager to participate in the transition to a clean energy future while still maintaining the affordability and reliability that our customers require."

Wayne Stensby, Managing Director, Global Electricity Business, ATCO

"We believe the North has enormous resource potential and an important role to play in Canada's future. From local wind, solar and biomass projects to displace diesel to large-scale hydro opportunities that would significantly reduce greenhouse gas emissions in Southern Canada, the development of renewable energy must include collaborative partnerships with all parties including local Indigenous communities. The time to work together is now."

Hon. Sergio Marchi, President and CEO, Canadian Electricity Association (CEA)

"For the first time in its 127-year history, CEA's Board of Directors has met in Canada's North. This historic meeting underscores the national imperative to increase energy infrastructure investments in the North to drive economic growth and to ensure that no Canadian is left behind in our transition to a clean energy future."

About the Canadian Electricity Association

Canadian Electricity Association (CEA) members generate, transmit and distribute electrical energy to industrial, commercial, residential and institutional customers across Canada every day. From vertically integrated electric utilities, independent power producers, transmission and distribution companies, to power marketers, to the manufacturers and suppliers of materials, technology and services that keep the industry running smoothly -- all are represented by this national industry association.

For additional information:

Mouktar Abdillahi
Manager, Media and Events
T 613 688 5924
abdillahi@electricity.ca

ANNEX II

SYMPOSIUM AGENDA

POWERING THE FUTURE: PARTNERING IN ENERGY DEVELOPMENT

Global consensus insists that we must combat climate change by speeding up our transition to a more sustainable, clean growth economy. Partnerships will be key to this success. Now, more than ever, countless opportunities exist for industry, Indigenous peoples and communities, and all levels of government to work together to invest in renewable energy sources, improve grid security, spur local economic growth, create jobs and power tomorrow's low-carbon economy.

Indigenous, Territorial and Federal government leaders, electric utility executives, and industry partners are invited to attend this one-day Symposium, hosted by the Canadian Electricity Association, Yukon Energy and ATCO, to discuss the unique challenges and opportunities that exist in Canada's North and how we can all work together to build a cleaner, more prosperous future for all.

WEDNESDAY, JUNE 20, 2018 | CARCROSS TAGISH LEARNING CENTRE, CARCROSS, YUKON

11:30 AM	**REGISTRATION AND LUNCH BUFFET**	
12:15 PM	**Welcome** **Opening Prayer**	Chief Andy Carvill, Carcross/Tagish First Nation Elder, Carcross/Tagish First Nation - TBD
12:25 PM	**Welcome, housekeeping and setting the theme of "Partnering in Energy Development"**	Andrew Hall, President, Yukon Energy
12:35 PM	**Keynote: Today's Electricity and Energy Priorities in the Yukon**	Hon. Sandy Silver, Premier, Yukon

1:05 PM	**Keynote: Today's Electricity and Energy Priorities in the Northwest Territories**	Hon. Bob McLeod, Premier, Northwest Territories
1:35 PM	**Partnering with Indigenous Peoples**	Grand Chief Peter Johnston, Council of Yukon First Nations
2:00	**Networking Break**	All
2:30 PM	**Keynote: Charting The Future: The North's Electricity Industry in 5 and 20 years**	Hon. Ranj Pillai Minister of Energy, Mines, and Resources, Yukon
3:00 PM	**Unique Challenges of and Opportunities for Energy Development in the North**	Panel Discussion – 10 minutes each presentation, 25 minutes for questions Facilitated by Francis Bradley, CEA • Dr. Michael Ross, NSERC Industrial Research Chair, Yukon Research Centre • Andrew Hall, President, Yukon Energy • Wayne Stensby, Managing Director, Electricity, ATCO • Jay Grewal, President & CEO, Northwest Territories Power Corporation • Bruno Pereira, President & CEO, Qulliq Energy Corporation
4:15 PM	**Indigenous Development and Ownership of Renewable Energy: Where We've Come and What We Need Moving Forward**	Panel Discussion – 10 minutes each presentation, 15 minutes for questions Facilitated by Jay Massie, ATCO • Chief Bruce Charlie, Vuntut Gwitchin Government • Peter Kirby, CEO, Taku River Tlingit Corporations • Kate Ballegooyen, Kluane First Nation • Nelson Lepine, CEO, Carcross/Tagish Management Corporation

5:10 PM	**Closing**	Wayne Stensby, Managing Director, Electricity, ATCO
5:15 PM - 6:15 PM	**BUS SHUTTLE TO/WALKING TOUR OF CARCROSS AND COCKTAIL RECEPTION**	
6:15 PM	**Dinner**	Welcome by Ray Robinson, Chair, Canadian Electricity Association
7:00 PM	**Keynote Speaker**	The Honourable Navdeep Singh Bains, Minister of Innovation, Science and Economic Development
7:45	Entertainment: The Frantic Follies	
9:00 PM	**DINNER CONCLUDES**	