

Final Report for the 2022 Kivalliq Energy Forum

Introduction

The Kivalliq Chamber of Commerce hosted the second Kivalliq Energy Forum November 28th to December 1st, 2022, at the Siniktarvik Hotel in Rankin Inlet, Nunavut. The 2022 organizing committee was comprised of:

- Patrick Tagoona (President, Kivalliq Chamber of Commerce)
- Eitan Dehtiar (Board Member, Kivalliq Chamber of Commerce)
- Keith Collier (Executive Director, Kivalliq Chamber of Commerce and event co-coordinator)
- Martha Lenio (Arctic Renewables Society)
- Robert Connelly (Department of Economic Development and Transportation)
- David Fredlund (Department of Economic Development and Transportation)
- Cameron DeLong (Climate Change Secretariat, Government of Nunavut)

Brenda Mercer (Mercer Business Support Services) provided pre-conference coordination, program development, logistics support, onsite & note-taking services, and final report writing.

The conference followed a similar schedule to the first Energy Forum in 2019. Following a kick-off meet and greet on the Monday evening, the two and a half day forum consisted of presentations, panel discussions, and Q&A/discussion sessions. In addition, the program included a Community Renewable Energy Tour on the Tuesday afternoon, and a Community Open House on the Thursday afternoon.

The Forum gathered businesses, non-profits, and experts in renewable energy to present and participate in panel discussions, with representatives from the Kivalliq hamlets and Hunters and Trappers Organizations (HTO). The Forum hosted 50 delegates in total, 15 of whom were sponsored participants from hamlets and Kivalliq HTOs. Since the 2019 Forum, there have been numerous renewable energy developments and projects, and these were highlighted by the companies/organizations.

2022 Kivalliq Energy Forum Sessions & Schedules

Sessions during the 2022 Kivalliq Energy Forum included Energy 101, Funding Programs for Renewable Energy Projects, Kivalliq Energy Projects, Educating the Consumer, Renewables and Wildlife – the Hunters and Trappers Organization perspective, and Building Energy Efficiency. The agenda and program is below.



Weather challenges in Iqaluit on the Monday canceled the plane for eastern delegates traveling from Iqaluit to Rankin Inlet. This included 6 of our speakers; while most arrived Wednesday afternoon, a few speakers opted to present virtually. This included both the Honourable Minister David Akeeagok and NCC CEO Clarence Synard. Due to the speakers' flight cancellations the Schedule of Events was changed to accommodate the now virtual and in-person speakers. In the end all presentations were provided, just not in the original order as intended, and the virtual option worked relatively well, considering it was not an option that was originally prepared.

Where available, presentations from the 2022 Kivalliq Energy Forum, along with photographs from the event, are available at www.kivalliqenergyforum.ca.

Detailed Program Overview & Q&A & Discussion Sessions

The following is a detailed account of the program and Q&A after each presentation and subsequent panel discussions.

Day One - Tuesday, November 29th, 2022

The Forum was opened with a Qulliq lighting by elder Monica Ugjuk. Elder Ugjuk provided a background of how the qulliq was used for heating and cooking and being able to survive in the arctic. Ugjuk reflected that when Inuit first got houses, they thought they were free, and they didn't realize all the ongoing costs for the houses and felt they were misinformed. Ugjuk thanked the audience for allowing her to share this with them.

Patrick Tagoona, President of the Kivalliq Chamber of Commerce, and host of the Kivalliq Energy Forum welcomed and acknowledged all those in the room. Each participant introduced themselves and stated the organization they represented.



Opening remarks and welcome by Elder Monica Udjuk (left) and by KCC President Patrick Tagoona (right).

The first presentation was the Opening Remarks from the Honourable David Akeeagok, Minister of Environment, Minister of Economic Development & Transportation and Minister Responsible for Energy.

Session #1: Energy 101

The first session, **Energy 101**, began with Martha Lenio providing a virtual presentation with an overview of renewable energies, Wind Energy, Solar Hydro, and Geothermal energies. The second talk by Daniel Hartley from Powertec Solar, spoke to the lower costs of renewable energy, reduction of diesel usage and the economic and education opportunities that

renewables provide. The third talk in this session was provided by Derrick Webster, COO for Eskimo Point Lumber Supply. Webster highlighted the benefits of renewables in the north citing reduction of diesel and diversity of power generation. Webster spoke to the challenges that the private sector faces and outlined the steps needed for industry/private sector to invest in renewable energies. That is, improved Government of Nunavut inspection process, reasonable grants, net metering or reasonable QEC rate and financing options. The fourth and final speaker in this session was Jackson Lindell. Lindell explained solar energy, how to set up a solar panel and batteries and provided an in depth explanation of his business of providing solar power options cabins.

Session #1: Energy 101 - Post Presentations Q&A

- 1. With respect to backup systems for renewable energies, these are usually diesel generators, so would we still have traditional power as the backup?
 - a. There will always be a need for backup energy. Solar and wind are good for reducing the load on generators.
- 2. Which renewable technology would we be looking at? That is the question we are struggling with, each technology has its own values, but it's hard to know and risky to pick the right sources. "We are hearing how to make power with wind, solar, and water. As Inuit we really want to understand, we need to be educated so we can make the right decisions so we can embrace these ideas. We should be allowed to feel free to ask for information so we can decide on how to proceed. I would like to hear about small reactors. When and where do we get rid of these windmills?"
 - a. It is important to have diesel, but it is important to start building other renewable energies so that diesel is not our only option.
 - b. Jackson Lindell noted he could direct people to websites to learn about reactors. Jackson explained that it is important to normalize renewable energies and this will make it easier to get permission for smaller projects.
 - c. Klaus Dohring expressed grave concern about modular reactors. He noted that people do "extreme things" and putting small reactors in small communities will put people in danger. The security considerations are considerable. Someone could conceivably fly to Baker Lake, load an SMR into a plane, and crash it into New York City. It's essentially a dirty bomb in that case. "This is an extremely stupid idea", we have other technologies to take the territory off diesel.
 - d. Sakku President Kakuktinniq agreed this topic of discussion was intriguing and relevant. Kakuktinniq stated that after their renewable project research, Sakku chose solar panels as its first renewable project over windmills. With windmills you need many, and if they break, or need maintenance then they would need

- southerners to fix them, so they decided solar could be managed better in the north. Furthermore, wind turbine power fluctuated too much.
- 3. What effect would renewable energies have on wildlife? "I am afraid for my animals and afraid of equipment and we live off county food, are any animals going to be hurt?"
 - a. With respect to solar panels, with solar energy there are 2 types. Silicone does have toxic materials, solar has thin skin and they have kalium. Suggested that the panel you see on people's homes and cabins are safe. With solar you need batteries and batteries have lead in them, so these need to be recycled at the end of their life. As we do more renewable energy we need to think about recycling. If lead gets in water and land, then it is not good for us.
- 4. If there were a blizzard for 2 or 3 days, would we be able to use solar panels?
 - a. Solar panels do work better when the sun is out, but even with it is cloudy sun rays still reach the solar panel. Solar panels have a battery, so that is the backup. Depending on size of backup battery, is backup power. Battery storage is a strong consideration in solar power.

Session #2: Funding Programs

The second session, **Funding Programs** included two presentations. Talk One: Barbara Gray, Environmental Policy Analyst & Mariah St-Pierre, Program Officer, Northern REACHE Program, Crown-Indigenous Relations, and Northern Affairs Canada, *Federal Support for Northern and Indigenous Clean Energy Initiatives* and Talk Two: Robert Connelly, Director, Kivalliq Operations, Government of Nunavut, Department of Economic Development & Transportation, *GN-EDT Funding Programs*.

It is noted, this session was to be held Thursday morning but with the weather and plane challenges, this was switched from Thursday morning to Tuesday afternoon.

Session #2: Funding Programs - Post Presentations Q&A

- 1. What range of money is available through NDC funding?
 - a. Their mandate is not economic development, but rather job creation. NDC can be a shareholder, its objective is to help with start ups on the front end and then pull out once business is doing well
- 2. With respect to the Old Crow video, do solar and wind put out the same power?
 - a. Yes, they generate the same power; it's just distributed to the user differently. The energy is stored. Wind is a resource in Rankin, but not necessarily in other communities. There is science out there to determine the best renewable for a community. Electricity has no memory and has no destination. It does not know where it is coming from or going to.

- 3. With solar panels, batteries and equipment used for solar cabin projects, is there talk of battery collection or planning for end of life so these do not end up in our waste sites?
 - a. Currently funding agreements are short-term. This is a long-term issue, and batteries would be the concern due to lead and acid in them.
 - b. In Europe, business is mandated by law to be responsible for recycling.
 - c. Aluminum is currently being recycled, next is wire and plastic. We can recycle wire, but not the plastic. There is currently work being done on how to recycle silicon. Once Canada gets to mandating end of life materials, a recycling industry will evolve in Canada.
- 4. There are many barriers to implement or build renewables into new buildings. Will we see the government move forward with supporting renewables in the next couple of years?
 - a. NEDA (Nunavut Economic Development Association) will be hosting a leadership forum with all levels of government. This Forum will address this type of question.
 - b. QEC will need to follow what the consumer demands

<u>Day Two</u> - Wednesday, November 30th, 2022

Session #3: Kivallig Energy Projects

The second morning of presentations proceeded as planned. This session, **Kivalliq Energy Projects**, included four talks. Malek Tawashy, President & CEO, Northern Energy Capital / Blaine Chislett, Sakku Investments Group provided an overview of Sakku Projects in the Kivalliq. Darcy Quinn, Director of Commercial Planning & Business Development, Nukik Corporation provided the background and update of the Hydro-Fibre Link Project. Klaus Dohring, from Green Sun Rising provided a talk about Rankin Inlet Arena Solar Project. Robert Sinclair, President, EnerStrat Canada Inc. provided a talk entitled Renewable Energy Capacity Building - Mobile Wind Measurement Project.

Session #3: Kivallig Energy Projects - Post Presentations Q&A

- 1. The Kivalliq had a lot of different power options with solar and wind power being put in place and now the hydro line from the south is coming. Can all these work together?
 - a. Renewable and hydro are compatible. These are compatible technologies and do not compete with each other, rather they can complement one another.
 - b. Because wind and solar are variable, they can come on and off quickly. So, sizing batteries is important to deal with fluctuations.
 - c. Take advantage of working together. The economics and benefits of larger scale projects will be better, and costs will be lower.

- 2. With respect to the Hydro Fibre Link, who is paying for this project? We need some form of sustainable economics to pay for this. In the Kivalliq we are fortunate to have 3 mines that are contributing to our communities. We need this resource development. Where is the money coming from?
 - a. For the Hydro Fibre Link, the financial model makes the assumption that they will sell electricity to Qulliq Energy and to one of the Agnico Eagle mines, and that consumers would not pay more than today's current rate. There is support from Canada Infrastructure Bank and from private equity investors. There is a gap of funds, and they are currently working with the federal government to find a way to fill that gap.
 - b. Solar will pay for itself over 10 years in savings, multiple times over. Inflation makes the cost of energy higher, with solar the operating costs are protected because the sun does not send an invoice.
- 3. How many solar panels are needed for a home?
 - a. The economics of building and operating solar panels decline as the project gets bigger. The smallest roof systems are the most expensive and most challenging to integrate. But if you put it all in one big system it should have lower costs. Much larger systems are required to replace large diesel systems.
- 4. When doing new builds and/or retrofits, what should we be putting in place so it is ready to accept solar panels?
 - a. With respect to new buildings, we should be designing so they are solar ready. That is prepare the structure for the extra roof load, a base for the transformer and equipment, wire runs from the roof to the electrical room, and space in the electrical room and panels.

Session #4: Renewables & Wildlife, & Session #5: Educating the Consumer

The Wednesday afternoon session was a bit mixed up due to planes and speaker availability. The afternoon began with a discussion about **Renewables and Wildlife** and then turned over to **Education the Consumer Session**. In the Renewables and Wildlife session participants were asked to think about Renewables and Caribou, E-waster (solar panels and batteries) and wind turbines (good or bad?). Following the dialogue, Education the Consumer speakers delivered their talks. This included Bill Nippard, QEC on Renewable Energy Programs, Aidan Nolan from Relay Education provided a presentation on their elementary, secondary and indigenous communities programs and Jordan Blake, Mitigation Manager from the Climate Change Secretariat provided a presentation on Renewable Energy Support Programs.

Sessions #4 and #5: - Post Presentations Q&A

1. With respect to solar panels, how high would these panels be? Children throw rocks at everything. How high will these be so that no one breaks them?

- a. With solar systems, there is often a fence around the perimeter so that people can't walk in those areas.
- 2. We use diesel and hydro every month and see our bill rising. If we use solar, would we pay less or would we be paying more?
 - a. Customers would not see a saving. Currently consumers are only paying a portion of the heating cost. The majority of savings would be to the subsidies that are in place.
- 3. Youth are the future and yet they are not in this room. We are talking about the future, and they are the ones who will eventually push the leaders. We need to educate the youth.
- 4. How valuable is IQ (*Inuit Qaujimajatuqangit, or Inuit Traditional Knowledge*) in these new renewables?
 - a. With respect to the Kivalliq Hydro Fibre Link, this concept was talked about for many years, we came to communities, and we held community information sessions and yes, with respect to IQ we value this and include it in our reports. We talked to community members, not just council members.
- 5. With solar panels and windmills, if they are far from town or a road, are we going to have to build roads? Would this be done as part of a project?
 - a. If a new road was needed, the cost would be captured in the project proposal. It is noted that infrastructure is the responsibility of the Government of Nunavut, Economic Development and Transportation department. The GN invests in networks to build capacity and would want to assist if infrastructure is needed.
 - b. There is a greater cost to doing nothing. It is important to remember the Hydro Fibre Link project will reduce carbon footprints that cause accelerated climate changes and their enormous costs in dealing with these climate changes.
- 6. What does metering mean?
 - a. A homeowner or business has to apply to QEC for their net metering system. Once you pass that step, then you get funding. You apply to Nunavut Housing Corporation and apply for the funding.
- 7. With respect to nuclear energy, what do you do with the extra energy?
 - a. The QEC response. The price of energy is still 067 cents, the first 700 kilowatt-hours are subsidized. With it comes to exporting power, if you use and have extra then it is credited and applied to your account.
- 8. The programs from GN-Climate Change Secretariat (Department of the Environment) have great programs that cover purchase and shipping, but the process is challenging. Does the Department of Environment intend to provide education on how to do proper installation and how to maintain and monitor the system?
 - a. Ideally there will be an education campaign that outlines how to install these systems.
- 9. What does it mean when they say, "when net metering is successful?"

a. They look at different parts of your house and then agree (or don't agree) to connect the solar to the grid and feed back to it. This letter from QEC gives you the approval to begin.

<u>Day Three - Thursday December 1st, 2022</u> <u>Session #6: Building Energy Efficiency</u>

The final session, **Building Energy Efficiency** was held Thursday morning. There were 4 speakers, Martha Lenio, Renewable Energy Consultant spoke about, Home Energy Audits, and the Arctic Renewables Society. Clarence Synard, President & CEO, NCC Investment Group Inc. delivered his presentation virtually, it was entitled Building Energy Efficiency. Alex Cook, Founder, Arch Tech Inc. provided his presentation on Net-Zero in Nunavut and Bill Williams, Executive Director, Nunavut Economic Development Association gave his presentation, Energy Planning in Asset Construction

Session #6: Building Energy Efficiency – Post Presentations Q&A

- 1. To the builders in the room, are you considering solar thermal?
 - a. We looked at it briefly, the capital cost was too high. Instead, we have different solutions, combinations, or air-pumps with diesel. Capturing waste heat from small scale residential.
 - b. We look at different technologies. The cost of construction in Nunavut is extremely high.
- 2. It would be beneficial for this meeting to come to all Kivalliq communities. There is so much information and it is hard to keep up with all that has been said.
- 3. In-floor heating sounds amazing but what do you do if it breaks?
 - a. There are zones, so if there is a problem then it will just be one zone that needs fixed.



Photos from the 2022 Kivalliq Energy Forum presentations and panel discussions.

Community Open House

Following the Forum, participants welcomed the community to come and learn about renewable energy from various organizations. In all there were seven tables set up with information available on renewable energy topics. These included:

- 1. Relay Education (renewable energy demonstrations, educational programming)
- 2. Jackson Lindell (renewable energy demonstrations, cabin technology)
- 3. The Arctic Renewable Society (Home Energy Audits)
- 4. Climate Change Secretariat, Government of Nunavut
- 5. Arch Tech (Alex Cook, Nunavut Net-Zero House Technology)
- 6. Green Sun Rising (Klaus Dohring, Arctic solar installations)
- 7. Kivallig Chamber of Commerce (Chamber information)

An estimated 40 people came through the room to learn about renewable energy.







Images from the 2022 Kivalliq Energy Forum Community Open House.

Participants

Name	Company/Organization	Business Title
Martha Lenio	High Latitude Energy Consulting	Renewable Energy Consultant
Jordan Blake	Government of Nunavut	Climate Change Mitigation Manager
Alexander Cook	Arch Tech	President
Daniel Hartley	Powertec Solar Nunavut	President
Barb Gray	Crown-Indigenous Relations and Northern Affairs Canada	Environmental Policy Analyst
Mariah St Pierre	Crown-Indigenous Relations and Northern Affairs Canada	Program Officer
Rob Sinclair	Nunasi Corporation	Strategic Advisor
Aidan Dahlin Nolan	TREC Charitable Foundation (o/a Relay Education)	Development Manager
Jackson Lindell	JL Repair	Owner/Operator
Patrick Tagoona	Kivalliq Chamber of Commerce	President
Honourable David Akeeagok	Government of Nunavut	Minister of Environment, Minister of EDT, Minister Responsible for Energy
Derrick Webster	Eskimo Point Lumber Supply	Chief Operating Officer
Clarence Synard	NCC Investments Group Inc.	President & CEO
Bill Williams	Nunavut Economic Development Association	Executive Director
Guillaume Guida	Sakku Investments Group	Vice President
Blaine Chislett	Sakku Investments Group	Property Management
Klaus Dohring	Green Sun Rising	President
Bill Nippard	Qulliq Energy Corp.	Director of Operations
Robert Connelly	Government of Nunavut - Economic Dev & Transportation	Director - Kivalliq Operations
David Fredlund	Government of Nunavut - Economic Dev & Transportation	Manager of Community Economic Development
Simon Enuapik	Issatik Hunters & Trappers	Whale Cove HTO Member
Peter Alareak	Hamlet of Arviat	Councilor
Annie Angotialuk	Naujaat Hunters & Trappers Organization	HTO Member
Sara Kidlapik	Naujaat Hunters & Trappers Organization	HTO Member
Kevin Iksiktaaryuk	Hamlet of Baker Lake	Councilor
Sheldon Dorey	Hamlet of Baker Lake	Senior Administrative Officer
Peter Tapatai	Peter's Expediting	President
Sarah Curley	Hamlet of Arviat	Training & Employment Officer
William Nakoolak	Hamlet of Coral Harbour	Coral Harbour
Bobby Saviakjuk	Hunters & Trappers Organization	Coral Harbour
Josiah Nakoolak	Hunters & Trappers Organization	Coral Harbour
Percy Kabloona	Hamlet of Whale Cove	Deputy Mayor

Manu Nattar	Issatik HTO	Whale Cove
Harriet Tatty	Kangiqliniq HTO	Rankin Inlet
Brenda Mercer	Mercer Business Support Services	Coordinator
Keith Collier	Kivalliq Chamber of Commerce	Executive Director
Bernard Bourque	Government of Nunavut, Petroleum Product Division	Director
Darcy Quinn	Nukik Corporation	Director of Commercial Planning and Business Development
Nathaniel	Government of Nunavut, Petroleum	Manager Contracts
Hutchinson	Division	
Veronica Connelly	Kivalliq Chamber of Commerce	Logistics Coordinator
Eitan dehtiar	Kivalliq Chamber of Commerce	Board Member
Don Moors	Nunavut Housing Corporation	Manager Homeownership Programs
Frank Tootoo	Peter's Expediting Ltd.	General Manager
Megan Pizzo Lyall	Hamlet of Rankin Inlet	Councilor
Aidan Dahlin	TREC Charitable Foundation (o/a	Development Manager
Nolan	Relay Education)	
Malek Tawashy	Northern Energy Capital	President & CEO
Kevin Bussey	Nuqsana Inc	VP, Operations and Aboriginal Relations
David Kakuktinniq		Photographer
Andrea Duffy		Interpreter



Group photo of 2022 Kivalliq Energy Forum Participants