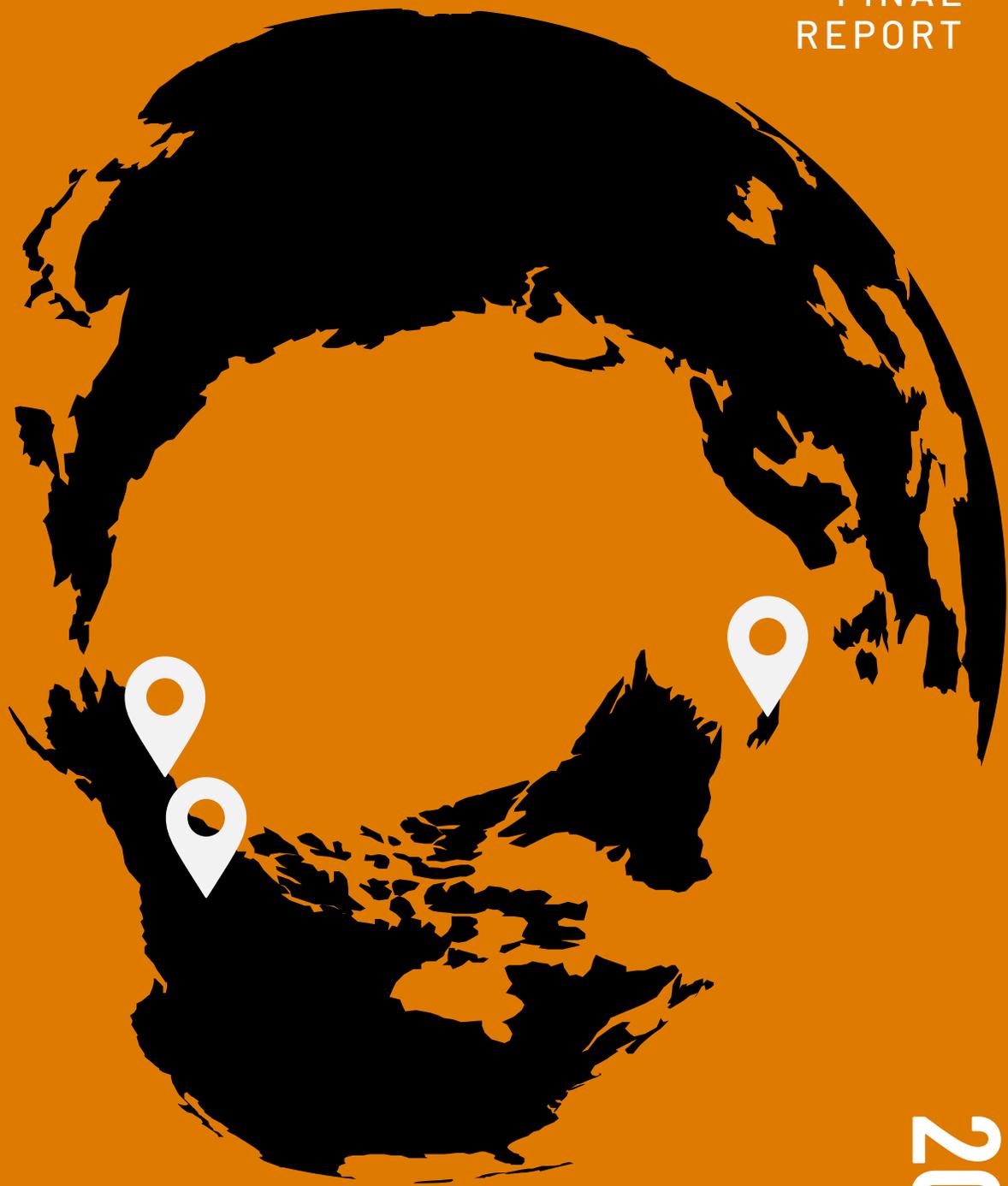


ARENA

FINAL
REPORT



Arctic Remote Energy
Networks Academy

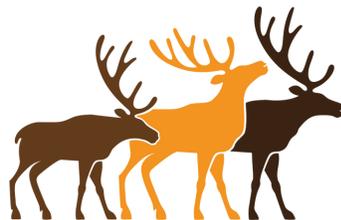
2022-2023

Arctic Remote Energy Networks Academy Final Report July 2023

Prepared by

Gwich'in Council

INTERNATIONAL



With support and contributions from ARENA Technical Leads:

- Alaska: Carolyn Loeffler, Alaska Center for Energy & Power, University of Alaska Fairbanks
- Canada: Robert Cooke, Polar Knowledge Canada (POLAR)
- Iceland: Lúðvík S. Georgsson, GRÓ Geothermal Training Programme, ÍSOR - Iceland GeoSurvey

Photos courtesy of Amanda Byrd, Alaska Center for Energy & Power, Rob Cooke, and Gwich'in Council International

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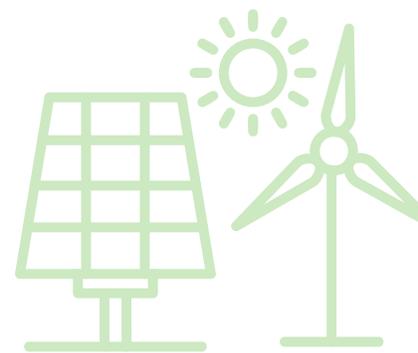
Introduction

In 2017, the first Arctic Remote Energy Networks Academy (ARENA) program was launched. It is a capacity building program aimed at taking energy champions from remote communities across the north and giving them the skills, knowledge, mentorship, and networks to make change in their own communities and regions.

Building on the concept proposed by Gwen Holdmann, who was then Director for the Alaska Center for Energy and Power at the University of Alaska Fairbanks, the program was brought to the Arctic Council's Sustainable Development Working Group (SDWG) and endorsed as a project to advance circumpolar cooperation on sustainable energy solutions. It addressed the need for affordable, reliable and clean energy solutions, based on renewable sources, for remote Arctic communities.

ARENA is designed specifically for individuals living and working in remote circumpolar Arctic communities. It combines visits to communities and participant knowledge exchanges with presentations, laboratory demonstrations, and specific site visits. Thus, it connects current and emerging energy professionals with hands-on learning experiences, mentors, and project development leaders from throughout the circumpolar north.

Eighteen individuals participated in the pilot project which combined in-class learning with visits to communities and sites operating with renewable energy resources in Canada, Alaska, and Iceland between March and November 2017. Each geographic location was required to focus on different elements of clean energy generation, and participants acquired knowledge, skills, tools, and a network of collaborators to help facilitate integrating clean energy technologies in their communities. The pilot was seen as a resounding success from participants, technical leads, and program partners and was viewed as a flagship project from the U.S. Chair of the Arctic Council.



ARENA-II aimed to build on the success of the pilot, bringing participants from the circumpolar Arctic together for learning, knowledge sharing, mentorship, and community site visits hosted in Canada, Alaska, and Iceland.

In September 2019, ARENA-II was endorsed by the SDWG, co-led by Canada, Gwich'in Council International, Iceland, and the United States. In early 2020, the Russian Federation joined the project as a co-lead.

Over the next three and a half years, ARENA-II was planned, postponed due to a global pandemic, planned again, paused at the Arctic Council following Russia's invasion of Ukraine in February 2022, and finally delivered outside of the Arctic Council. While the protracted timeline impacted the planning, and the on-sites were delivered by individual States, the project resulted in bringing the selected cohort together across three sites to build their knowledge, capacity, networks, and expertise in renewable energy. This contributes to the Arctic Council's goal of promoting clean energy solutions and technology, and enhanced energy efficiency in the Arctic to reduce the effects of climate change.

This report is prepared for project partners and other interested parties. It is intended to capture the experiences and learnings for three purposes:

- 1) To increase awareness and understanding of what was done
- 2) To assist in planning for future ARENA programs
- 3) To enable knowledge transfer across Arctic Council programs that share components, e.g. networking objectives, recruitment elements, Steering Committees

While this project was undertaken as an endorsed project of the Arctic Council's Sustainable Development Working Group in 2019, formal cooperation on the project was paused in March 2022. This report was prepared by Gwich'in Council International with contributions from the technical leads of Alaska, Iceland, and Canada. It is supplemented by stand-alone reports for delivery in Alaska, Iceland, and Canada, available on request from individual partners.



Context & Objectives

The Arctic Remote Energy Networks Academy program addresses the need for the development of community energy champions to ensure affordable, reliable, and renewable energy solutions.

Shifting towards renewable energy is of vital importance to Arctic communities, many which currently rely on diesel power generation. A switch to renewables will help communities increase energy security by providing reliable sources of energy generation, encourage economic benefits by diversifying the economy and creating jobs, and reduce reliance on fossil fuels, which have a negative impact on our Arctic environment and cultural practices.

Arctic communities are at the forefront of microgrid innovations. The high cost of imported fuel in the Arctic has created a setting where emerging energy technologies can more quickly become commercially viable. Experience across the region has resulted in a strong awareness of what works, what doesn't, and what improvements are needed, and sharing and applying this expertise is what ARENA is about.

Many participants from the 2017 program cohort continue to work in renewable energy and maintain connections with the network they built through the ARENA program. This was encouraged by centering the program in the Arctic, highlighting success stories, lessons learned and capacity development, and encouraging team building and networking.

For ARENA-II, it was important that the program would maintain the valuable elements of the pilot, including visits to remote energy projects, learning across the Arctic, and a complementary curriculum across the on-sites. It was also important to promote and support Indigenous participation, and attract a diversity of candidates. There were five program objectives.

1

Build a cooperative international cohort of energy champions.

2

Provide participants with the knowledge-base, skills and collaboration networks to develop clean energy projects in their own communities or regions.

3

Improve community energy resiliency.

4

Enable sustainability in Arctic energy development.

5

Achieve balance between economic viability, energy security, environmental and public health concerns in the circumpolar Arctic.





The program was expected to create benefits at multiple levels, and make impact across different scales.



Individual Benefit: Each participant is expected to gain the knowledge, skills and tools needed, and will develop a network with whom they can collaborate over the long haul.

Community Benefit: Participants will work on a specific, tangible aspect of a real-world project of their choice, incorporating what they have learned from their mentors, colleagues, training and site visits.



Circumpolar Benefit: Inter-regional sharing of energy system experiences, challenges and opportunities help us all move towards our shared goal of a sustainable future.

Global Benefit: The shift to low-carbon energy solutions is a global imperative. Integrating locally available renewable energy supplies with fossil fuel generating systems in microgrids can profoundly change the way we address our needs for electrical power, space conditioning and transportation.



ARENA-II was a project of the Arctic Council's Sustainable Development Working Group, which promotes cooperation and collaboration across States and Permanent Participant organizations. It aligned with the priorities of project co-leads including Iceland, who served as the Chair of the Arctic Council and Sustainable Development Working Group when the project was endorsed.



Governance

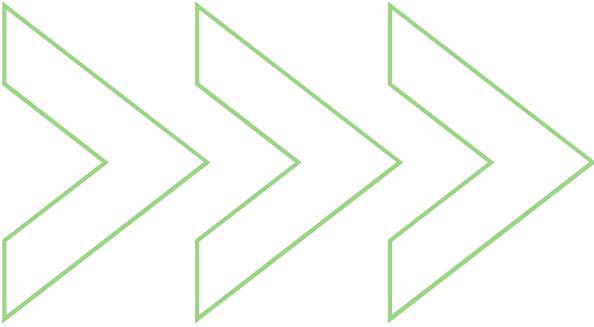
ARENA-II was endorsed in September 2019 by the Sustainable Development Working Group (SDWG), and a Steering Committee was established to oversee and guide the project.

Each of the project co-leads was invited to nominate their delegate(s) to the Steering Committee, with most co-leads represented by their Head of Delegation to the SDWG. Some States brought support staff and/or others to specific meetings if the agenda required. The Steering Committee requested that the Indigenous Peoples' Secretariat also join to provide guidance and support to the project. Canada, Iceland, and the United States identified Technical Leads, who worked together on the program and were responsible for the delivery in their respective countries.

The Steering Committee was responsible for: key project decisions and approvals; ensuring that the project was meeting its objectives; receiving updates from the Technical Leads; providing guidance in planning; leveraging networks in support of recruitment, funding, and participation; and coordinating strategy and messaging. It was chaired by Gwich'in Council International, who proposed the meeting agendas and called and hosted the meetings. The Steering Committee convened for eighteen meetings between November 2019 and February 2022 which generally lasted one hour or less. They issued two public releases on COVID-19 responses, issued and presented updates to the SDWG at all meetings between November 2019 and February 2022, approved the selection of individuals invited to join the ARENA-II cohort, promoted recruitment, and communicated with and lined up their Senior Arctic Officials to participate in ARENA activities.

The Technical Leads convened more frequently, and Gwich'in Council International was often invited to join the discussions both as Chair of the Steering Committee and to ensure that views from Permanent Participant organizations could be incorporated into all elements of the project. The Technical Leads were responsible for: developing program materials; supporting recruitment; reviewing and interviewing candidates for recommendation to the Steering Committee; developing the agenda, content, and speakers for their on-sites; and coordinating across the sites to ensure that the content was complementary and would build as people went through the program.





“The infrastructure futures of Arctic communities don’t just depend on engineering capacity, but the ability to understand and appreciate the values and culture of the community.”

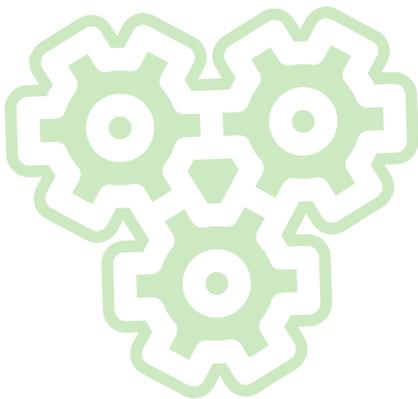
ARENA Cohort Member

Together, the Technical Leads were responsible to the Steering Committee and ensuring that their work followed the direction given. Additionally, each Technical Lead was responsible to their State’s Head of Delegation to ensure that the planning and delivery was informed and/or coordinated nationally, and that it aligned with the State’s commitment to the Arctic Council and vision for delivery.

The Steering Committee made the decision to postpone the program during COVID-19, but continued to meet as required through the pandemic to assess when it was safe and appropriate to re-start and what adaptations were required, make new decisions due to changes, and update guidance as appropriate. It was recognized that our greatest resource, and top priority, is the people who live in Arctic communities; their health, safety, and well-being are paramount. We therefore chose to mitigate any actions that would risk spreading COVID-19 to participants or community members welcoming the ARENA cohort.

In March 2022, seven Arctic States paused their involvement in the Arctic Council, and Arctic Council subsidiary groups and projects came to a halt, including ARENA-II and the Steering Committee. As planning was underway for delivery in 2022, Technical Leads reached out to their Heads of Delegation and each State made the decision on if and when to move forward with the on-sites. Reviewing the impacts of the pause on the ARENA cohort, States who had committed to on-sites decided to move forward in their delivery.

It was intended that the Steering Committee would actively support the Technical Leads through the delivery and convene for updates and decisions around communications, reporting, and recommendations moving forward. The Steering Committee would ensure that roles and responsibilities were articulated and collectively understood, and that the program would be promoted broadly. The Steering Committee did not reconvene, but remains a valuable component to future programs.



Timeline



- Sept 2019: ARENA-II endorsed by the SDWG
- Nov 2019: First Steering Committee meeting
- Dec 2019: Recruitment opened
- Feb 2020: Recruitment closed
- Mar 2020: Candidate interviews & selection; development of options if May on-site needed to be postponed
- Apr 2020: Decision to postpone May & July 2020 delivery due to COVID-19. Update & public statement issued.
- May 2020: First planned on-site, Nunavut Canada, postponed
- July 2020: Planned on-site, Alaska U.S., postponed
- August 2020: Decision to postpone on-sites to 2021, update & public statement issued
- Oct 2020: Planned on-site, Iceland, postponed
- Oct 2021: Decision to deliver in 2022, update & public statement issued. Original cohort members invited & recruitment re-opened to new applicants.



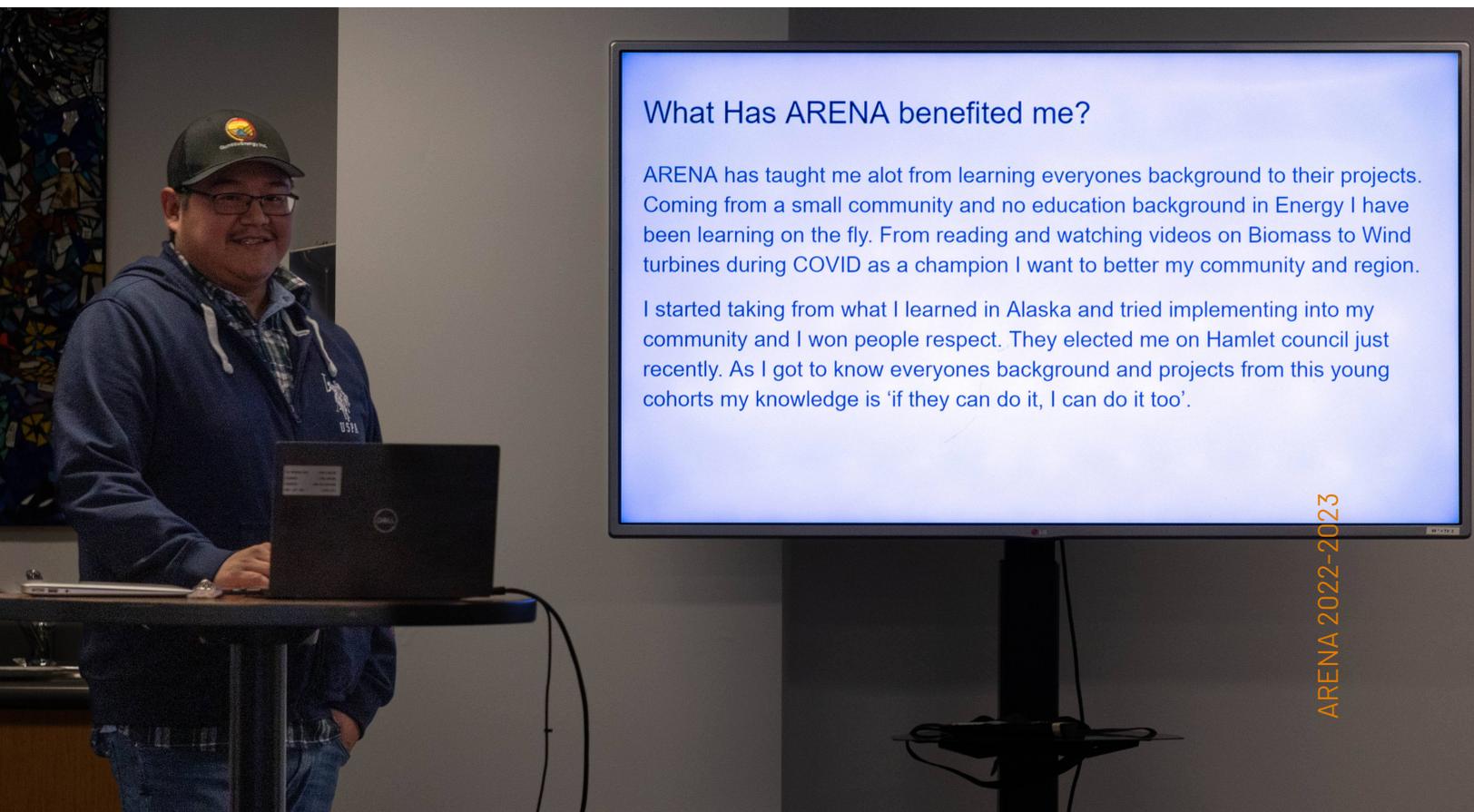
Timeline



- Jan-Feb 2022: Candidate interviews & selection
- March 2022: Arctic Council activities paused, Steering Committee suspended.
- May 2022: Planned on-site, Nunavut Canada, postponed
- July 2022: Decision to schedule Canada on-site for the Yukon
- July 2022: Alaska U.S. on-site delivered in reduced format due to a COVID-19 outbreak
- October 2022: Iceland on-site delivered
- January 2023: Yukon, Canada on-site delivered

“We all live or work in the Arctic and winter is the hardest time to produce energy, so it was good to see projects during winter.”

ARENA Cohort Member



What Has ARENA benefited me?

ARENA has taught me alot from learning everyones background to their projects. Coming from a small community and no education background in Energy I have been learning on the fly. From reading and watching videos on Biomass to Wind turbines during COVID as a champion I want to better my community and region.

I started taking from what I learned in Alaska and tried implementing into my community and I won people respect. They elected me on Hamlet council just recently. As I got to know everyones background and projects from this young cohorts my knowledge is 'if they can do it, I can do it too'.

Recruitment, Selection & Participation



ARENA-II recruitment was launched in December 2019, with the goals of diversity across the circumpolar north, supporting Indigenous candidates, and finding fifteen to twenty participants.

A recruitment package was developed which included information about the ARENA program, participant eligibility, funding, key dates, optional recruitment strategies, and the participant submission. This package was sent to all SDWG members, and also circulated directly to Permanent Participant organizations. A poster was created and shared on multiple platforms, and the ARENA website was updated with the 2020 program information.

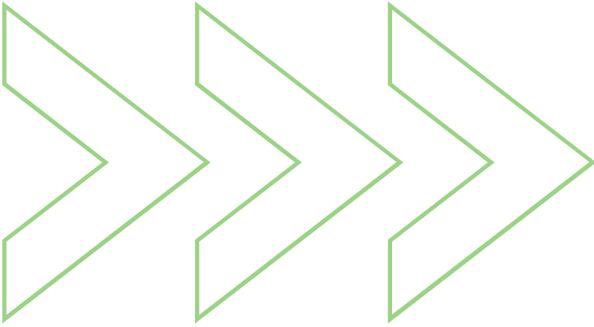
The original deadline for the 2020 program was February 15, 2020. All applications were reviewed by the Technical Leads and Gwich'in Council International, who ranked candidates to be interviewed. Carolyn Loeffler coordinated with all candidates and scheduled the interviews on Zoom. An interview guide was developed to ensure consistency across interviews. Interviews were conducted by Technical Leads, with Gwich'in Council International joining when available, and a group discussion following all of the interviews recommended the final candidates to the Steering Committee.

Eighteen individuals were selected for the final program: seven Americans, five Canadians, three Russians and three Greenlanders. Over half of the final cohort identified as Indigenous, and twelve identified as female.

One application accepted into the program was a Greenland-U.S. partnership that would send three different individuals to each of the three on-sites. This cohort was invited to the 2020 delivery, but when it was postponed first to 2021 and then to 2022, not all of the individuals could participate. The reasons varied, and included changed employment circumstances and ability to get time off; comfort with travelling internationally post-pandemic; inability to make new dates; and inability to get visas with changed circumstances. Additionally, the program mourned the passing of cohort member Lene Kielsen Holm of Greenland, who died of cancer in January 2021.

Two further rounds of recruitment were required, and different processes were followed. In October 2021, recruitment was re-opened and a package was circulated to all SDWG members and other partners. Qualified candidates were invited to interviews and then invited to join the program. Before the Alaska and Canadian site delivery, additional candidates were recruited through partner agencies and recommendations. The spots had been held for original cohort members, but as the delivery dates got close, it was determined to fill spots and provide opportunities to others.





“I've made some valuable friendships through this program and connections which will improve the quality of work performed on these community renewable energy projects.”

ARENA Cohort Member

The composition of the cohort in Alaska, Iceland, and Canada differed slightly. There were nine individuals who attended all three on-sites. There were an additional seven individuals who attended one or two on-sites, and there were twelve people accepted into the cohort who did not attend any session. There are some cohort members who attended no or one on-site who will be invited to apply to future cohorts, given their interest, commitment to renewable energy, and aptitude, and recognizing circumstances beyond their control which prevented them from joining the entire program.

It is important to begin recruitment early and have clear materials which set out the timelines and expectations. As there are many programs recruiting Arctic participants, personal recommendations and encouragement to apply, particularly from ARENA alumni and partners, will be most engaging.



Finances

Each State who hosted an on-site was responsible for the costs of the on-site, including participant and speaker meals, accommodations, and transportation while participating.

Participants were required to cover their travel and any associated costs (hotels, meals, ground transportation) of getting to each of the three on-sites and were not compensated for participating.

Depending on individual arrangements, some participants had time provided by employers, and/or travel costs covered through other funds.



Resources

A suite of materials was developed which can inform and be built on in future years.

- Videos
- Recruitment package and request letters
- Code of Conduct
- Participant Form
- Photo release form (participants)
- Travel letters
- Visa support letters
- Program certificates
- Media release form (photographers/videographers)
- Media Plan
- Articles on the Arctic Council website
- Presentations (delivered to the Northern Youth Sustainable Development Forum and UArctic)
- ARENA Update and Public COVID-19 Responses (4.01.20, 8.31.20, 10.25.21)
- Virtual engagement session outlines: Welcome from Senior Arctic Officials and Indigenous empowerment in Arctic governance
- Speaker request forms
- Surveys to participants and guests



People

ARENA would not have been possible without the many people and partnerships essential to the individual on-sites, from guest speakers to support staff, to funders and delivery partners. These are detailed in the individual on-site reports.

ARENA-II Steering Committee

Canada: Sarah Cox, Doug Klassen

Iceland: Aðalheiður Inga Þorsteinsdóttir, Sólrún Svandal

Russian Federation: Yury Vasiliev

United States: Reid Creedon, Gail Mosey, Jay Lovell, Matthew Kastrinsky

Gwich'in Council International: Devlin Fernandes

Indigenous Peoples' Secretariat: Anna Degteva

Technical Leads

Alaska: Carolyn Loeffler, Alaska Center for Energy & Power

Canada: Robert Cooke, Polar Knowledge Canada (POLAR)

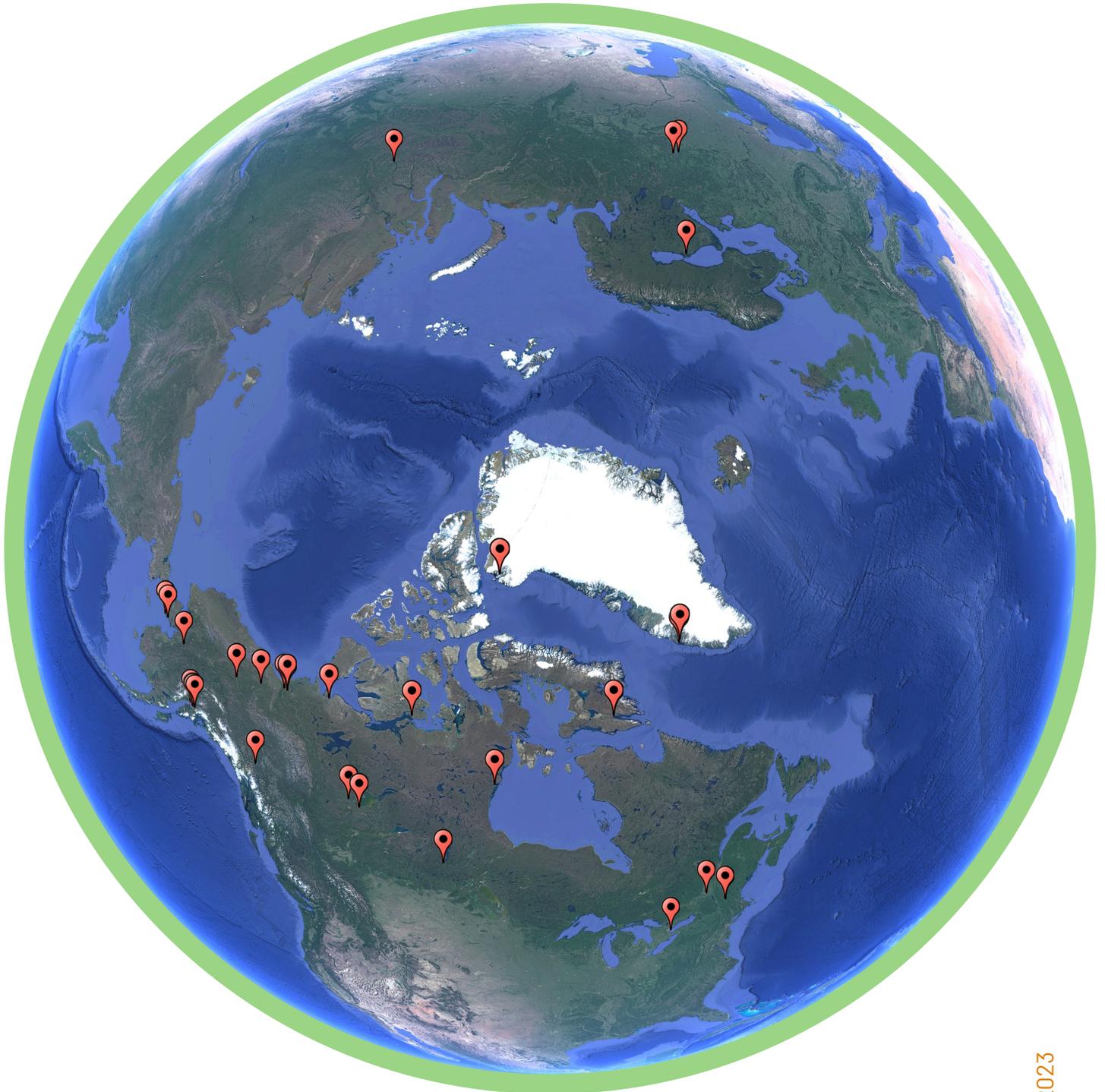
Iceland: Lúðvík S. Georgsson, GRÓ Geothermal Training Programme, ÍSOR - Iceland GeoSurvey

"We all have been introduced to a lot of different projects and a lot of different areas within the north, and you get to learn that anything is possible."

ARENA Cohort Member



ARENA-II Cohort



The icons represent all individuals accepted in to the ARENA-II cohort



ARENA-II Cohort



Cynthia Baldwin, Anchorage, Alaska, USA

Shivani Chotalia, Toronto, Ontario, Canada

*Howard Darling, Nulato, Alaska

David Frost, Whitehorse and Old Crow,
Yukon, Canada

*Patrick Gall, Inuvik, NWT, Canada

Niels Erik Hagelqvist, Nuuk, Greenland

Kristina Hamernik, Montreal, Quebec, Canada

*Lene Holm, Nuuk, Greenland

*George Hungerford, Gwich'in Development
Corporation, NWT, Canada

Tyler Jobb, Peter Ballantyne Cree Nation,
Southend, Saskatchewan, Canada

Deilah Johnson, Solomon, Alaska, USA

Jackson Savikataaq Karetak Lindell, Rankin
Inlet, Nunavut, Canada

Rachel Mandel, Cambridge Bay, Nunavut,
Canada

Brendan Matto, Deh Gah Gotie Dene First
Nation, Zhahti Koe (Fort Providence), NWT,
Canada

*Daria Mishina, Tolka, Yamal, Russia

(*) Accepted into the program, but not able to
participate in any on-sites

Grace Nakimayak, Paulatuk, NWT, Canada

*Nigit'stil Norbert, Tsiigehtchic and Inuvik,
NWT, Canada

*Toku Oshima, Qaanaaq, Greenland

Alyssa Pantaleo, New Hampshire, USA

*Margarita Pashkina, Moscow, Russia

Heather Shilton, Iqaluit, Nunavut, Canada

*Dan Smith, Anchorage, Alaska

Ekaterina Sofroneeva, Vaasa, Finland

*Nikita Somov, Anchorage, Alaska

Rena Squirrel, Teet'it Gwich'in, Hay River,
NWT, Canada

*Yunona Tkachuk, Moscow, Russia

*Amanda Toerdal, Nome, Alaska

Travis Wilson, Fort Yukon, Alaska



Delivery

Delivery was planned for Nunavut, Canada in May 2020 with the U.S. on-site scheduled for Alaska in July 2020 and Iceland in October 2020. In April 2020, the first two on-sites in Canada and Alaska were postponed, with the Iceland on-site still scheduled for October, Alaska on-site tentatively rescheduled for March 2021, and Canada for May 2021. Unfortunately delays due to COVID-19 in 2020 and 2021 saw the full program postponed to 2022.

The kickoff on-site was planned again for May 2022 to be based out of the Canadian High Arctic Research Station (CHARS) in Cambridge Bay, Nunavut. When Arctic Council activities were suspended as a result of events in Eastern Europe, the ARENA program was paused and the Steering Committee was suspended. The program was reorganized so that delivery would happen in the U.S. in July 2022, Iceland in October 2022 and Canada in January 2023. Due to concerns over reliability of air travel in Nunavut over the winter months it was decided to move the Canadian on-site to Whitehorse, Yukon.

In addition to the on-sites, virtual onboarding activities and a mentorship component was planned. Due to COVID-19 and the Arctic Council pause, which shifted timelines and peoples' participation, virtual sessions with Senior Arctic Officials and the Indigenous Peoples' Secretariat did not go ahead.

Meet and Greet with Senior Arctic Officials (not delivered)

Virtual conference call with the chair of the SDWG, Gwich'in Council International, and the Senior Arctic Officials from Canada, U.S., and Iceland. After a brief welcome from a representative of the ARENA Steering Committee, each Senior Arctic Official (or delegate) would speak for 4-5 minutes about respective national priorities in the Arctic with a special emphasis on renewable energy and/or why they are supporting ARENA.

Indigenous Empowerment in International Arctic Governance (not delivered)

Virtual conference call with representatives from the Indigenous Peoples Secretariat and the Permanent Participants of the Arctic Council about how Indigenous communities are empowered in the Arctic Council, Indigenous leadership in Arctic governance, Indigenous diversity across the Arctic, and the role of renewable energy in Indigenous Arctic communities.

"The benefit of multiple sessions is that the cohort becomes more connected and close-knit. For many individuals it becomes easier to speak more candidly and ask each other more questions about projects. On another note, having time in between sessions helps give time to reflect on the previous program and set goals for the following program."

ARENA Cohort Member



Mentor Program On-Boarding Session (completed)

A virtual training for all ARENA program participants and selected mentors to review the fundamentals of successful mentor-mentee relationships, guidelines and format of the ARENA mentor program, program expectations, and tips and tricks for staying connected. Two sessions were offered, with people required to attend one.

Mentoring Program

Strong mentoring relationships are a cornerstone of the ARENA program.

Experienced individuals are matched to an ARENA candidate based on shared interests, geographic proximity to the candidate, and expertise as they relate to a candidate's project goals. The specific goals of the mentor-mentee relationship will be determined by each pairing but should center around the mentee's project(s) and role as an energy leader within their community and profession.

A Mentoring Package was created which laid out information about the program, commitment required, expectations on mentors and mentees, and program structure. A Confidentiality Agreement was required to build trust and establish boundaries on how shared information was to be treated; a template was provided which could be customized to ensure a safe environment for both parties. A Mentoring Agreement was also required to set out how, how often, and when the mentor and mentee will meet.

Due to the program delivery extending across COVID-19 and the Arctic Council pause, a changing cohort, and uncertainty in timelines, the mentoring component did not function as intended. Some cohort members were matched with mentors, but not all. For those who were matched, the experience was positive though underutilized because of the uncertain timeframes.

Despite the experience of ARENA-II, it is recommended to keep the mentoring component in future programs but revise the guidance and expectations around cohort projects and support.

Introductions (completed)

Each participant and co-lead made a three-minute intro about themselves, their community, and their project/goals for the program. Introductions were conducted as two separate video conferences with presentations from each candidate. Each meeting heard from half the cohort.



Alaska On-Site

July 16-24, 2022

ARENA-II first convened in Alaska. The Alaska on-site was led by Carolyn Kozak Loeffler, ARENA Program Manager for ACEP and delivered in partnership with the Alaska Center for Energy and Power. It was hosted in Fairbanks and Kotzebue July 16-24, 2022. Multiple uses of energy sources were emphasized to reduce diesel consumption, as well as energy efficiency and microgrids. There were eleven cohort members; six from Canada, four from Alaska, and one from Greenland, along with support staff, guest speakers, and the Technical Lead from Canada. Lectures were hosted at the University of Alaska Fairbanks.

The full program agenda is included in Appendix A. Highlights included:

- Presentations and lectures on microgrids; low-temperature geothermal; project management for northern energy projects; home heating in northern communities; hydrokinetic research in Alaska; electric cooperatives; and American Federalism, Tribal Governance, and the Alaska Native Claims Settlement Act.
- Field excursions and tours to Chena Hot Springs, the Energy Technology Facility, and the Cold Climate Research Centre.
- Excursion to Kotzebue with visits to community scale wind and solar installations.

As the program was planning to visit remote communities and there remained concerns and risks associated with COVID-19 in July 2022, COVID protocols and testing were put in place. However, COVID was identified in the group before visiting the villages. People who tested positive were supported to rest in place, others were supported in flying to Anchorage, and the program ended a day early. While the site visits were extremely valuable components, it was more important to keep the host communities and cohort safe. All program participants had positive reviews.



Alaska On-Site

July 16-24, 2022



"The week was filled with lots of material and activities but organized in a way that was easy to follow. I not only learned many things, but was able to gain new perspective on a variety of matters and broaden my way of thinking about Northern energy projects. There was a wonderful balance between theoretical/workshop content and practical visits as well as cohort integration activities."

ARENA Cohort Member

"The Kotzebue water treatment facility was a real hands on example of what kind of infrastructure challenges exist in remote communities and just how much power outages affect public infrastructure differently from in the south/ regional power grid connected communities."

ARENA Cohort Member

ARENA 2022-2023



Iceland On-Site

October 22-30, 2022

The Iceland on-site was led by Lúðvík S. Georgsson, Director Emeritus and delivered in partnership with the GRÓ GTP Geothermal Training Programme. It was hosted in Reykjavík October 22-30, 2022. Its focus was on geothermal energy but the use of micro hydropower plants was also presented and discussed. There were twelve participants; seven from Canada, three from Alaska, one from Greenland and one from Finland/Russia, as well as Technical Leads from Alaska and Canada and six support staff and guests. The lectures were held in the Energy House (Orkugardur) at Grensásvegur 9, with the permission of Orkustofnun – the National Energy Authority of Iceland.

The full agenda is included in Appendix B. Highlights included:

- Presentations and lectures on the development of geothermal utilization in Reykjavík; geothermal energy and geothermal exploration; utilization of geothermal energy with emphasis on low-temperature resources; production of electricity from low- and medium temperature geothermal resources; environmental and regulatory aspects of geothermal development; and developing hydropower in Iceland with emphasis on small/micro scale.
- Geothermal and cultural excursions in Reykjavík and to the Southern Lowlands (Hellisheidi Power Plant, Set Pipe factory, CO2 production from geothermal wells at Hæðarendi, commercial greenhouses at Reykholt and Flúdir, electrical production from low- temperature resources at Kópvatn, and Gullfoss waterfall, Geysir geothermal field and Thingvellir National Park).
- Field excursion to the Reykjanes geothermal field, Haustak geothermal fish drying plant, and HS Energy in Svartsengi – ending the day swimming in the Blue Lagoon.

All participants provided positive reviews after the program.



Iceland On-Site

October 22-30, 2022



"It was clear to me that the presenters we heard from were quite keen on sharing information related to their specific areas of expertise. That willingness to share and drive to ensure lessons learned in Iceland are made available to others, is something to admire and something for all of us in the cohort to take back to our communities to further the dissemination of knowledge...there was a good opportunity for us in the cohort to see the holistic view of natural resource development that is taken in Iceland."

ARENA Cohort Member

"Seeing the ways that art, education, and capacity building are built right into the foundations of the experimental wind site and various hydropower stations in Iceland is so incredibly valuable for others to see, because we often don't see that in large infrastructure projects in North America."

ARENA Cohort Member

ARENA 2022-2023



Canada On-Site

January 14-22, 2023

The Canada on-site was led by Robert Cooke, Manager Clean Energy and Infrastructure, POLAR and delivered in partnership with Polar Knowledge Canada, Gwich'in Council International, and the Vuntut Gwitchin First Nation. It was hosted in the Yukon January 14-22, 2023, with most sessions in Whitehorse and an overnight trip to Old Crow and day trip to Teslin. The focus was on community energy planning and community-led projects covering a variety of energy sources. There were twelve cohort members; ten from Canada, one from the U.S.A., and one from Greenland, and Technical Leads from Alaska and Iceland plus support staff and guests.

The program agenda is included in Appendix C. Highlights included:

- Presentations and lectures on community energy planning and engagement; industry partnerships; power and renewables in off-grid communities; partnerships and negotiations with utilities; Indigenous and community led wind projects; and integrating renewable energy onto a grid.
- Time in Old Crow, home to the Vuntut Gwitchin, learning about their solar project, history, and culture.
- Field excursion to Teslin and learning and discussions about biomass.

As this was the final ARENA-II on-site, feedback was sourced for the Canada delivery as well as the overall program. All participants reported positive experiences.



Canada On-Site

January 14-22, 2023



"The Vuntut Gwichin, Yukon Government and ATCO session about negotiating and developing the Old Crow solar project was very valuable to listen to and understand the position of each entity as well as the conversations, tools and collaboration that were needed and developed to make the project go forward."

ARENA Cohort Member

"A truly wonderful week that was so incredibly valuable. The balance of presentations and site visits/tours was excellent. The speakers were all very good and the content relevant. I also am so thankful to have been able to experience some of the Yukon culture and learn about several of Yukon's First Nations directly from members of the communities. What an amazing week to close the program and leave feeling motivated and ready to apply what was learned!"

ARENA Cohort Member

ARENA 2022-2023



Learnings & Recommendations

1

Ownership of the program should remain with the Arctic Council's Sustainable Development Working Group to ensure it is a circumpolar program and to broaden the geographic reach for the cohort.

2

Maintain a project Steering Committee.

3

Maintain bi-yearly programs with multiple on-sites.

4

Look to establish bi-yearly alumni gatherings in non-ARENA years to allow members from all cohorts to come together at a central location, or relevant conference to establish networks with previous cohorts, maintain network within their own cohorts, provide updates on projects and discuss options for refining the ARENA program.

5

Have a discussion on the role of cohort projects and the types of projects best suited to be supported by ARENA, including how projects are a part of recruitment, selection, mentoring, and discussions during and between on-sites. This will ensure shared understanding and assist in messaging to the cohort and mentors.

6

Develop and implement a Communications Plan, targeting international, national, and local media. When materials are developed, ensure follow up with media outlets.



Learnings & Recommendations

Maintain a balanced program: classroom, community visits, extracurricular, and free time.

7

We piloted inviting guest speakers to remain with the program for as long as they were available, and up to the full week depending on the on-site.

Feedback was that it was valuable to ask questions and have discussions with experts in their fields outside of their classroom presentations, in informal settings as well as during site visits. This would also serve to create relationships and networks. In practice, having guest speakers remain with the program for the full week did not allow the cohort to bond on their own, and future design should have a mix of both. There are also implications on the budget and coordination.

8

Engagement with First Nations and Inuit to add elements to the program were challenging and took multiple emails and phone messages. It is recommended to invest time to build relationships, make follow up in-person visits, and clearly articulate needs, timelines, compensation, and opportunities/benefits, but also be open to questions, feedback, and adjustments. It is recognized that the time of year was a compounding factor, and most Indigenous Peoples' organizations are under resourced and may have different priorities. It is also recognized that values, expectations, and protocols differ in Western cultures and Indigenous cultures, and where programs are going into Indigenous communities, they must do so in the most respectful ways possible.

9



Reflections



ARENA is unique in its curriculum, approach, and learning & networking opportunities. However, ARENA-II was impacted by COVID-19 & geopolitics.

While we received positive feedback from participants after each on-site, there were significant impacts of having to delay the program due to COVID-19 and Russia's invasion of Ukraine, and having to pause the Steering Committee and cooperation under the Arctic Council after February 2022.

A number of the original cohort members were unable to participate in 2022/2023, due to changed personal circumstances, closed borders, or changed time making the travel untenable, and their participation and when the decision was made to pull out impacted planning and the size of the final cohort. As the original recruitment and selection process had been carried out in Fall 2019/January 2020, there was additional work required to have multiple recruitment processes but still not achieve the full circumpolar representation desired, as well as work individually with cohort members on visa processes, travel funding, and planning. The Canadian on-site invited three people to join the January session who had not been part of the original cohort; they all spoke of benefits of their participation and others gained a lot from them, but they did not get the full program relationships or content from Alaska and Iceland.

The pause in Steering Committee operations and Arctic Council participation hindered communications, cooperation, and delivery.

There were virtual sessions planned with the cohort and Senior Arctic Officials as well as with the Indigenous Peoples' Secretariat and guests, and both of these were cancelled. Communications support from the Arctic Council Secretariat and the Sustainable Development Working Group after February 2022 was paused; they had previously written and posted articles and tweets and plans were underway for them to support the communications strategy and media outreach.

The Steering Committee, who had been discussing joint communications, support, and promotion, were not able to bring their expertise or networks to bear on the project in the same way. More work fell to the Technical Leads, who stepped up and complemented and supported each other, but due to disjointed communications and messaging, there was not clarity in some roles and responsibilities, and products and information were not coming from ARENA but from different partners and agencies.

Despite the challenges faced with COVID-19 and the Arctic Council pause, ARENA-II was a significant and valuable offering in countering fossil fuel dependence and as action against climate change.





Reflections

Over the course of the three on-sites, a member of the 2022-2023 cohort was introduced to nearly 100 individuals from 50 different circumpolar organizations and government entities.

“Connecting with people across the North who share a passion and drive to improve energy security and resiliency was inspiring. I'm returning from ARENA with many ideas for my own projects, and a real sense of community. A key aspect of ARENA was exposure to multiple successful (and unsuccessful) projects across Arctic communities. This was particularly useful as we gained insight into not only the unifying characteristics across the regions, but also the richness and diversity of Northern ingenuity.”

ARENA Cohort Member

“There are times when you can get a little disheartened with how slow some areas or some places are regarding the technology. But ARENA has really given me the strength to keep going and the willingness to keep going.”

ARENA Cohort Member

ARENA-II had a positive and lasting impact on all participants, professionally and personally, as well as on others invited to the program as guests and speakers. The majority of participants live and work in small and remote Arctic communities; the remainder are directly working on projects for and with small and remote Arctic communities. They are now equipped with increased skills, capacity, confidence, and a network, and they will play a leadership role in advancing clean energy solutions in remote and northern communities.

From the content to networks, from support to experiences, participants shared how valuable each of the on-sites were, and the program overall. They highlighted the support from Technical Leads, and how the connections made during ARENA were yielding dividends to accelerate learning, projects, and technology implementation. This will result in cleaner and more secure energy futures, reduced reliance on diesel, and energy sovereignty for the Arctic. It will strengthen cross-border collaboration on renewable energy, and advance solutions designed in and for the north. It also underscores that sharing energy solutions, capacity, and skills across the circumpolar Arctic is not only desirable but necessary.



Appendix A: Alaska On-Site

ARENA 2022: Fairbanks & Kotzebue July 17-23, 2022



Program Contact

Carolyn Loeffler
In Fairbanks: 847-772-9558
In Kotzebue: 907-888-2539

ACEP Support

Amanda Byrd
Annalise Klein
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ARENA Personnel

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Heike Merkel
Jeff Fisher - 617-966-4619

FAIRBANKS	
Agenda	
Time	Location
Sunday, July 17	
Pick up Deilah Johnson from airport @ 7:15 am	
Bring swimsuit and change of clothes for afternoon site visit	
8:00 - 9:00 AM COVID Test #1 & Breakfast, Complete CCHRC questionnaire	
9:00 - 9:10 AM Welcome to Alaska & Troth Yeddha' and overview of Indigenous programs from Dr. Charlene Stern, Vice Chancellor for Rural, Community and Native Education at UAF	
9:10 - 9:20 AM Welcome from Gwich'in Council International Board Members	
9:20 - 9:30 PM Welcome from ARENA Co-leads	
9:30 - 9:40 AM Welcome from George Roe of the US Arctic Energy Office	
9:40 - 9:50 AM ~coffee break~	BP Design theater located on the 4th floor of ELIF, UAF Campus
9:50 - 10:00 AM Dance performance by the Iñu-Yupiaq Dancers	
10:00 - 11:00 AM Presentation: American Federalism, Tribal Governance and the Alaska Native Claims Settlement Act Presenters: Dr. Amy Lovecraft (UAF Faculty) and Evon Peter	
11:00 - 11:30 AM Discussion	
11:30 - 12:30 PM ~catered lunch~	
12:30 - 1:30 PM Presentation: Low-temperature Geothermal at Chena Hot Springs Resort Presenter: Gwen Holdmann,	
1:40 PM Load vans to Chena Hot Springs Resort	
3:00 - 3:45 PM Chena Hot Springs Tour: Ice Museum	
4:00 - 4:45 PM Chena Hot Springs Tour: Geothermal Power Systems & Greenhouses	Chena Hotsprings Resort
5:00 - 6:00 PM Swim in Hotsprings *A van back to Fairbanks will be available at 5pm for those who wish to return early	
6:00 - 7:00 PM Dinner at Chena Hot Springs Resort	
7:15 PM Van departs to return to Fairbanks	
Overnight in UAF dormitories	Campus
Monday, July 18	
8:00 - 9:00 AM Breakfast	
9:00 - 10:30 AM Presentation: Microgrids 101 Presenters: Gwen Holdmann (ACEP) and Michael Ross (Yukon University)	BP Design theater located on the 4th floor of ELIF
10:30 - 11:30 AM Presentation: Electric Cooperatives in Alaska Presenter: Meera Kohler, (AVEC, retired)	
11:30 - 1:00 PM ~lunch on own~	
1:00 PM Meet at Cutler Apartments for van shuttle to ETF	



Appendix A: Alaska On-Site

1:15 - 3:15 PM	Tour: Energy Technology Facility Guide: Dave Light (ACEP)	Energy Technology Facility, UAF Campus
3:15 - 4:30 PM	Presentation: Hydrokinetic Research in Alaska Presenters: Ben Loeffler (ACEP) & Jeremy Kasper (ACEP)	
	~dinner on own~	
6:00 PM	Optional: Hike up Ester Dome or Moose Mountain followed by BBQ	
Overnight at UAF dormitories		
Tuesday, July 19		Location
7:45 AM	Breakfast	BP Design theater located on the 4th floor of ELIF
8:15 - 12:15 PM	Interactive Training: Project Management for Energy Projects in the North & HOMER demo Instructors: Ingemar Mathiasson (NAB), Heike Merkel (ACEP), and Bax Bond (ACEP)	
12:30 - 2:30 PM	Luncheon with Elders at Denakkanaaga	Denakkanaaga at the Morris Thompson Center - Transit provided
2:45 - 4:30 PM	Tour: Cold Climate Housing Research Center Guides: Bruno Gruno (CCHRC) & Jack Hebert (CCHRC)	Cold Climate Housing Research Center
5:15 PM	Vans depart Cutler dorms, dinner hosted at Gwen Holdmann's house	
8:00 PM	Return to campus	
Overnight at UAF dormitories		
KOTZEBUE		
Wednesday, July 20		Location
6:15 AM	COVID Test #2 , light to-go breakfast	
6:30 AM	Vans depart from dormitories for airport	Travel to Kotzebue
8:15 AM	Depart Fairbanks (FAI) - Alaska Airlines flt# 138	
9:15 AM	Arrive in Anchorage (ANC)	
10:50 AM	Depart Anchorage - Alaska Airlines flt# 55	
12:22 PM	Arrive in Kotzebue (OTZ)	
12:30 - 2:30 PM	~lunch~ & check in to Kotzebue Technical Center Dormitories	
2:30 - 4:00 PM	Roundtable: Home Heating in Northern Communities Presenters: Dominique Pride (ACEP) & Ingemar Mathiasson (NAB)	Alaska Technical Center (ATC) Conference Room
5:00 - 6:00 PM	Optional: Sea wall walk with Tom Atkinson (City of Kotzebue)	
	~dinner on own~	
Overnight in ATC Dormitories		
Thursday July 21		Location
8:00 AM	Breakfast in ATC Lounge	
9:00 AM	Tour: Kotzebue Electric Association Guides: Matt Bergan (KEA) & Martin Shroyer (KEA)	Meet at Kotzebue Electric Association
1:00 - 3:00 PM	~lunch on own~	
3:00 - 3:30 PM	Tour: Chukchi Campus Crop Box Guide: Stacey Glaser, Campus Director	Chukchi Campus Science lab
3:30 - 5:00 PM	Presentation: Naknek: Community energy challenges, lessons learned, and problems solved. Presenters: Dianne King (Naknek Electric Association) & Doug Vaught (V3 Energy)	
	~dinner on own~	



Appendix A: Alaska On-Site

Overnight in ATC dormitories		
Friday, July 22		Notes
8:00 AM	Breakfast in ATC Lounge, COVID Test #3	
	Free Morning	
10:30 AM	Meet at Bering Air	
11:30 AM	Depart for Buckland Tour: Water plant & powerhouse with affiliated solar installation	Confirmed tour with Crystal, city administrator (907) 494-2121
	Depart for Deering Tour: Water plant & powerhouse tour with Daisy Weinhard	Daisy Weinhard, Ipnatchaiq Electric: (907) 363-2157
	Depart for Shungnak Tour: Power plant & water treatment facility	Ernie Ticket (water plant operator): 907-310-4689 John Davis (AVEC power plant operator supervisor) 907-565-5383
5:15 - 5:30 PM	Charter pick ups, return to Kotzebue	
	~dinner on own~	
Saturday, July 23		Location
8:00 AM	Breakfast in ATC Lounge	
9:00 - 10:30 AM	Coffee hour with Sonny Adams, Liz Cravalho, and Albie Dallemolle from NANA	Nullagvik Hotel Conference Room
10:30 - 11:45 AM	Presentation: Water, Sanitation & Energy Presentors: Cheryl Rosa (USARC)	
11:45 - 1:00 PM	~lunch on own~	
1:00 - 3:00 PM	Tour: Kotzebue sewage lagoon & water treatment facilities Guides: Tom Atkinson, Dennis Jennings, and Matt Lazarus from the city of Kotzebue	Kotzebue Water Treatment Plant
3:00 - 5:00 PM	Program debrief, feedback & wrap-up	Nullagvik Hotel Conference Room
6:00 PM - ?	Closing banquet	
	Community walk & basketball shoot out with Kotzebue IRA	
Overnight in ATC dormitories		
Sunday, July 24		
Participants depart Kotzebue and return home		



Appendix B: Iceland On-Site



ARENA Programme in Iceland 2022 GRÓ GTP, Reykjavík, October 22-29, 2022

Lectures to be given at Energy House (Orkugardur – OS), at Grensásvegur 9, Reykjavík with following lecturers:

- LSG: *Lúdvik S. Georgsson*, Director Emeritus, GRÓ GTP
EG: *Dr. Einar Gunnlaugsson*, former Chief Geologist, Reykjavík Energy
PV: *Dr. Páll Valdimarsson*, Mech. Eng., Pvald ehf.
ThJ: *Thorleikur Jóhannesson*, Mech Eng., VERKÍS Eng.
MÓ: *Málfríður Ómarsdóttir*, Project Manager, GRÓ GTP
IGH: *Ingimar Haraldsson*, Deputy Director, GRÓ GTP
BP: *Dr. Bjarni Pálsson*, Engineer, Landsvirkjun - National Power Co.

Saturday Oct. 22.

Arrival of participants, pickup and checking in at rented apartments, ÓM-apartments, Tunguv. 19, R. Welcome dinner at Askur Restaurant, Sudurlandsbraut.

Sunday Oct. 23. – *Reykjavik: Geothermal Capital of the World* (EG and LSG)

- 10:00-12:00 Introductory lectures on the development of geothermal utilization in Reykjavík. How important is geothermal for Reykjavík?
12:00-13:00 Packed lunch at Orkugardur.
13:00-17:00 Geothermal and cultural excursion in Reykjavík – including the site of the old Laugardalur hot springs, Laugardalur geothermal wells and pumping station, Perlan storage tanks and exhibition. Ending with geothermal swimming in Laugardalur.

Monday Oct. 24. – *Exploring and developing geothermal energy* (LSG and PV)

- 09:00-09:30 Formal opening of the Icelandic ARENA-week.
09:30-12:00 Introduction to geothermal energy & geothermal exploration (LSG).
12:00-13:00 Lunch at Orkugardur.
13:00-15:30 Utilization of geothermal energy – development of energy projects (PV).
15:30-16:00 Discussion (PV and LSG).
16:00-17:00 Introduction to geothermal development on the Reykjanes Peninsula (LSG).

Tuesday Oct. 25. – *Geothermal excursion to the Reykjanes Peninsula* (LSG and MÓ)

- 09:00-18:00 Field excursion, visiting the Reykjanes geothermal field and the tip of the Peninsula, Haustak geothermal fish drying factory. Lunch in Grindavík at Sst.Vör. Bacalao production in Grindavík. Visit to HS Energy with a lecture on the Reykjanes Resource Park, and finally swimming in the Blue Lagoon.

Wednesday Oct. 26. – *Assessing low-temp. geothermal resources & possible utilization* (PV & ThJ)

- 09:00-12:00 Direct geothermal use – the thermal calculations.
12:00-13:00 Lunch at Orkugardur.
13:00-15:30 Production of electricity from low- and medium-temperature geothermal heat.
15:30-16:30 Discussion (PV, ThJ & LSG).
16:30-17:00 Short introduction of the S-Lowlands of Iceland and Thursday's field trip (LSG).
18:30 Reception hosted by the Canadian Embassy in Iceland.

Thursday Oct. 27. – *Geothermal and cultural excursion to the Southern Lowlands* (LSG and MÓ)

- 08:30-20:00 Hellisheidi Power Plant, Set Pipe factory, CO₂ production from geothermal wells at Hædarendi. Packed lunch. Visits to commercial geothermal greenhouses at Reykholt (Espiflöt flower farm) and Flúdir (Melar tomato and cucumber farm) and. LT-electrical production (BaseloadEnergy - Climeon) at Kópavatn/Flúdir. The grand Gullfoss waterfall, Geysir HT field and its erupting geysers, the Thingvellir National Park.



Appendix B: Iceland On-Site

GRÓ Geothermal Training Programme

2

24. February, 2023 / LSG

Friday Oct. 28. – *Environmental and regulatory aspects of geothermal development – Hydropower development in Iceland*

09:00-12:00 Lectures on the environmental side and regulatory aspects of geothermal development (MÓ and IGH).

12:00-13:00 Lunch at Orkugardur.

13:00-15:30 Developing hydropower in Iceland with emphasis on small/micro scale (BP).

15:30-16:30 Discussion (BP & LSG).

Saturday Oct. 29. – *Developing your resources – Closing of the Iceland session (CL,RC,GH,LSG,PV)*

09:00-12:00 Presentation of status of projects being carried out under the ARENA umbrella.

12:00-12:30 Light (packed) lunch at Orkugardur.

12:00-14:30 An interactive session on the week in Iceland and generally on the ARENA programme. Introduction of the Canada week in January.

14:30-18:00 Free time.

18:00 Closing Buffet Dinner hosted by the Ministry for Foreign Affairs – location Restaurant Haust, in Borgartún.

Sunday Oct. 30 – *Departure day*

Foreign participation in lectures: **12 students and 5-8 organizers**

Foreign participation in field trips: **12 students and 7-8 organizers**

ARENA Iceland Programme Foreign Participation

Foreign organizers attending:

Carolyn Loeffler, UFA, Fairbanks, Alaska, USA

Amanda Byrd, UFA, Fairbanks, Alaska, USA

Ingemar Mathiasson, Fairbanks, Alaska, USA

Robert Cooke, PKC, Whitehorse, Yukon, Canada

Michael Ross, Yukon University, Whitehorse, Yukon, Canada

Gwen Holdmann, UFA, Fairbanks, Alaska, USA

Annalise Klein, UFA, Fairbanks, Alaska, USA

Jason Meyer, UFA, Fairbanks Alaska, USA

Programme participants attending:

Cynthia Baldwin, Anchorage, AK, USA

Shivani Chotalia, Toronto, Ontario, Canada.

Niels Hagelqvist, Nuuk, Greenland

Kristina, Hamernik, Montreal, Quebec, Canada

Tyler Jobb, First Nation, Canada

Deilah Johnson, OR, USA

Jackson Lindell, Rankin Inlet, Nunavut, Canada

Rachel Mandel, Cambridge Bay, Nunavut, Canada

Brendan Matto, Canada

Alyssa Pantaleo, NH, USA

Heather Shilton, Canada

Ekaterina Sofroneeva, Vasa, Finland



Appendix C: Canada On-Site

ARENA Yukon 2023 Agenda

Saturday January 14th 2023 (Day 0) : Whitehorse

Accommodations at the Sternwheeler hotel, ARENA staff to conduct airport collections

1900 Evening meet and greet at the Sternwheeler restaurant (Tony's), dinner provided by ARENA

Sunday January 15th 2023 (Day 1) : Whitehorse

0750	Transport from Sternwheeler hotel to Kwanlin Dün Cultural Centre	
	Breakfast will be provided by ARENA at the KDCC	
0840	Informal Welcome, Administration, and Week Ahead	Rob Cooke
0900	Opening prayer	Ruth Massie (Ta'an Kwäch'än Council)
0905	Circumpolar Affairs	Wayne Walsh
0910	Gwich'in Council International	Devlin Fernandes
0915	Council for Yukon First Nations	Daryn Leas
0945	Yukon First Nation 101	Tosh Southwick (IRP)
1045	Break	
1100	Government of Yukon	John Streicker (Minister of Energy, Mines, and Resources)
1120	Previous Cohort and Indigenous Engagement	Jordan Peterson (Affinity North)
1200	Lunch (provided by ARENA)	
1300	Engaging with Communities	Martha Lenio (Arctic Renewables Society)
1400	Developing a Community Energy Plan	Tom Rutherfordale (Aurora Energy Solutions)
1500	Development and Installation of the Old Crow Solar Project ; Industry Partnerships with Communities	Danny Guhl Brock Kelsch (Solvest)
1600	Transport from Kwanlin Dün Cultural Centre to Sternwheeler hotel	
	Free Evening	



Appendix C: Canada On-Site

Monday January 16 th 2023 (Day 2) : Old Crow		
0615	Transport from Sternwheeler hotel to Airport	
	Breakfast will be provided by ARENA on flight	
	<i>**Please pack a small bag (including a sleeping bag) for Old Crow. Spare personal gear which is not required for Old Crow will be collected by ARENA staff and brought to a storage room</i>	
1030	Meet with Chief and Council at Darius Elias Community Hall	Pauline Frost (Chief of Old Crow)
1100	Energy Profile of the Canadian Territories and Community Energy Capacity Building	Michael Ross (Yukon University)
1130	What Renewable Energy Means to the Vuntut Gwitchin	David Frost (VGG)
1200	Lunch (provided by ARENA)	
1300	History of the Vuntut Gwitchin	Brandon Kyikavichik (VGG)
1400	Split Tours Group A: Cultural; Solar Group B: Solar; Cultural	
1600	Free Time	
1700	Community Feast Traditional Games	
	<i>Accommodation will be in the school gymnasium so ARENA cohort and staff will need sleeping bags etc. and be prepared to sleep on the floor</i>	

Tuesday January 17 th 2023 (Day 3) : Old Crow		
0900	Breakfast at Darius Elias Community Hall (provided by ARENA)	
	<i>**Please bring cold weather clothing and boots for the afternoon snowmobile trip</i>	
0945	Power and Renewables in Off-grid Communities (Via Zoom)	Bill Cullen Norm Curzon (ATCO)
1100	VGG and ATCO Roundtable on Partnering and IPP/PPA Negotiations (Via Zoom)	Erika Tizya Tramm (VGG) Bill Cullen Norm Curzon (ATCO)
1200	Lunch (provided by ARENA)	
1300	Snowmobile trip to T'loo Klut Cultural Site <i>**Cold weather clothing and boots required</i>	
1600	Pack up	
1700	Chartered Flight to Whitehorse	
	Dinner will be provided by ARENA on flight	
	Free evening	



Appendix C: Canada On-Site

Wednesday January 18 th 2023 (Day 4) : Whitehorse		
0800	Breakfast at Raven Hotel (provided by ARENA) Walk to Kwanlin Dün Cultural Centre	
0900	Developing wind projects in remote communities	Dennis Meiners (IES Connect)
0945	Canadian High Arctic Research Station Wind Project — Planning and Pitfalls of a Small Wind Project in Remote Northern Communities	Carsen Banister (National Research Council)
1030	Kluane Wind Project — Pitfalls and Successes of a Community Led Renewable Energy Project Including Working with Industry and the Utilities	Kristy Kennedy (Kluane First Nation)
1115	Kwanlin Dun First Nation Haeckel Hill Wind Project — Integrating a community wind project onto the Yukon grid	Malek Twarshy (Northern Energy Capital)
1200	Lunch (provided by ARENA)	
1300	Dog Sledding ARENA providing transport to Sky High Wilderness Adventures at Fish Lake	
1830	Optional Evening at the McBride Museum: Rob Cooke presents on dog sledding	
This presentation is open to the public		

Thursday January 19 th 2023 (Day 5) : Whitehorse		
0800	Breakfast at Raven Hotel (provided by ARENA) Walk to Kwanlin Dün Cultural Centre	
0900	The structure of Yukon Energy and What Renewables Means to the Utility	Andrew Hall (Yukon Energy)
0930	Current, future, and possible renewable energy projects	Paul Murchison (Yukon Energy)
1000	Integrating Renewable Energy onto a Grid	Michael Ross (Yukon University)
1045	Utilities Round Table: YG Policy and Incentivization's, Round Table with Territorial Utility CEOs to Include IPP/PPA requirements	Andrew Hall (Yukon Energy) Cory Strang (NTPC) Walter Parsons <i>via Zoom</i> (NLHydro)
1200	Lunch (provided by ARENA)	
1300	Yukon Energy Tour, Diesel, LNG Generators	
1700	Glass blowing at Lumel Studios (located opposite Raven Hotel)	
1800	Free Evening	



Appendix C: Canada On-Site

Friday January 20 th 2023 (Day 6) : Teslin	
0700	Breakfast at Raven Hotel (provided by ARENA)
0800	Bus departs Raven Hotel
1030	Welcome at the Teslin Tlingit Heritage Centre What renewable energy means to the TTC Teslin Community Energy map/mural and the community forestry plan Light lunch with community members (provided by ARENA) Tour of biomass facilities: woodshop, some of the biomass boilers etc. Origins and development of the biomass project in Teslin Volter CHP system and surrounding issues
1600	Bus to Whitehorse
1830	Free Evening

Saturday January 21 st 2023 (Day 7) : Whitehorse	
0800	Breakfast at Raven Hotel (provided by ARENA) Walk to Kwanlin Dün Cultural Centre
0845	Cohort Presentations
1145	Group discussion
1215	Lunch (provided by ARENA)
1300	Possible visit to Takhini Hot Springs and Wildlife Preserve **Group photo entry to https://hairfreezingcontest.com/ - start thinking of ideas!
1900	Closing dinner banquet at Antionette's Speakers: Chief Leas, Erin Linklater, Chief Tizya-Tramm

Sunday January 22 nd 2023 (Day 8) : Departures	
0800	Breakfast at Raven Hotel (provided by ARENA) ARENA staff to transport cohort and speakers to airport as required. Please add your departure time to the spreadsheet linked below to ensure transportation. https://docs.google.com/spreadsheets/d/1Y_bCXaPzMvnuqJMBLwc6DjgeJVz_S4_LdBkpEMTXeNuk/edit?usp=sharing Safe travels! 😊

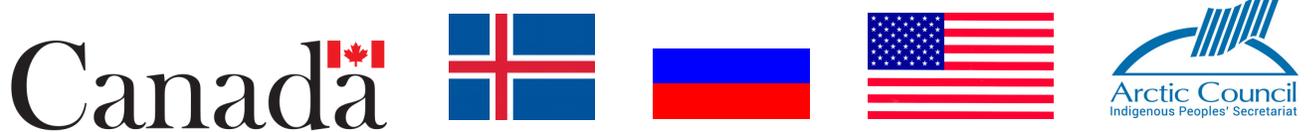
Mandatory and regular programming
Breaks and optional activities
Transportation and information



Acknowledgements

We are grateful to everyone who was a part of the ARENA program. From cohort members and speakers to technical leads and support staff, First Nations and community partners to delivery partners, funders, and contractors, Steering Committee members and Arctic Council and Sustainable Development Working Group partners – you shared content, time, expertise, networks, relationships, logistics, services, and support. Thank you.

We acknowledge and thank the Government of Canada for funding our participation and delivery of this program.



Datthak hąj'ęę (thank you all)

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Gwich'in Council
INTERNATIONAL



ARENA 2022-2023



ARENA

ARCTIC REMOTE ENERGY NETWORKS ACADEMY



"Energy is connected to economies, housing, food security, health, self-sufficiency and sovereignty. We need ways to address high energy costs, lack of infrastructure and dependence on diesel. Arctic communities are at the forefront of climate change but also at the forefront of innovation, and ARENA aims to share and apply this expertise."

Devlin Fernandes, Gwich'in Council International

2022-2023