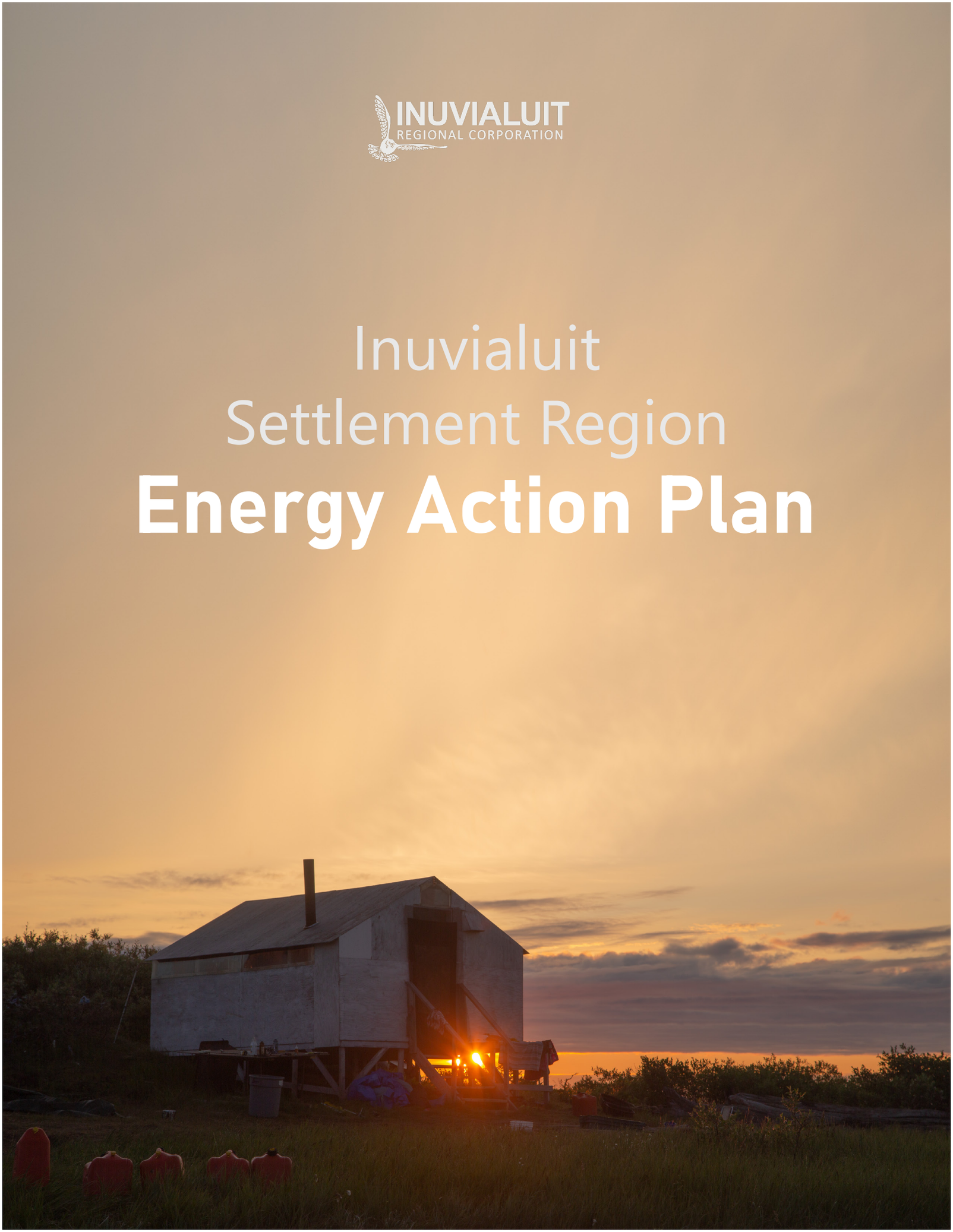
INUVIALUIT
REGIONAL CORPORATION

Inuvialuit Settlement Region
Energy Action Plan



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INUVIALUIT
REGIONAL CORPORATION

Message from Chair & CEO

Duane Ningaqsiq Smith
Chair & Chief Executive Officer
Inuvialuit Regional Corporation

Inuvialuit culture is strongly interconnected with energy: from the gas-powered motors propelling the beluga harvest to the diesel generators heating our homes while we enjoy crafting and making bannock. In our communities, the rhythmic beat of our drums, the joyful rip of our skidoos, and the familiar howl of our beloved dogs is punctuated by another shared reality – the expensive hum of our diesel generators. This reality is one that more and more Inuvialuit are expressing concerns about: the high (and increasing) cost of energy in our region and the environmental impacts of diesel greenhouse gas emissions.

The following ISR Energy Action Plan aims to provide a clear set of objectives and goals for Inuvialuit to pursue energy security and advocate for Inuvialuit rights to secure and equitable access to energy in municipal, territorial, federal, international, and circumpolar settings. One of IRC's strategic priorities is to ensure community members have access to safe, affordable and reliable energy that will be sustainable for generations to come.

This plan was developed using information and feedback received in community engagement sessions held in ISR communities in 2020 and 2021 to ensure the priorities and goals outlined in this plan are driving meaningful change, and that Inuvialuit culture, traditional knowledge, rights and benefits are being upheld and respected. Though we have much in common, each Inuvialuit Settlement Region community faces unique challenges that require unique solutions – it is my hope that each community's distinct vision is reflected in this unified plan.

Through the set of actions to guide IRC's pursuit of energy security outlined in this plan, ISR communities will begin to see local and individual benefits such as lower costs of energy, increased employment, and improved access to stable energy sources. Ultimately, our goal is for each ISR community to be energy independent so that we can once again move toward Inuvialuit self-sufficiency.

Quyanainni! Koana! Quyanaqpak!

Acknowledgements

The Inuvialuit Regional Corporation (IRC) would like to thank all Inuvialuit beneficiaries and organizations for contributing their time and knowledge to support the creation of this action plan. We appreciate everyone who participated in engagement activities linked to this project in 2020 & 2021 through attending community meetings and providing feedback through public surveys. Feedback was received from members of Community Corporations, Elders Committees, Hunters and Trappers Committees, and the Regional Youth Advisory Group, among others. We would also like to acknowledge the Inuvialuit Petroleum Corporation (IPC) for providing feedback to ensure that this plan is aligned with existing Inuvialuit energy goals, and that we are all working collaboratively to achieve energy security in the ISR. We would like to extend our gratitude to IRC's Communications Division for providing photos and editorial support. Finally, a special thank you to IRC's Innovation, Inuvialuit Science, and Climate Change Division for leading the development of this action plan and managing its publication.

Executive Summary

Energy Landscape in the ISR

Situated in the Western Canadian Arctic, the Inuvialuit Settlement Region (ISR) covers the northern portion of the Northwest Territories and the Yukon North Slope. This region is home to approximately 6,000 people spread throughout the six communities of Inuvik, Aklavik, Tuktoyaktuk, Ulukhaktok, Paulatuk, and Sachs Harbour. The Inuvialuit Final Agreement (IFA), established on June 5, 1984, became the first land claim agreement settled north of the 60th parallel. Under the IFA, The Inuvialuit Regional Corporation (IRC) was established. IRC is continually striving to improve the economic, social and cultural wellbeing of Inuvialuit through the implementation of the Inuvialuit Final Agreement and by all other means.

IRC has prioritized achieving energy security and independence in the ISR. By listening to community feedback and shaping a plan tailored to Inuvialuit energy goals, IRC is working to ensure that local economies continue to grow and thrive, and community members have access to safe, affordable and reliable energy that will be sustainable for generations to come. This plan has been tailored to the unique energy landscape across the ISR and reflects both the individuality of the six ISR communities and the shared attributes and goals.

The uniqueness of each ISR community's energy landscape will define the scope of its respective energy journey. Differences in energy needs, resource availability, community priorities, access, and local capacity result in variable challenges and opportunities that define the community energy landscape. The ISR Energy Action Plan is mindful of these differences. Understanding the unique energy setting will be vital to the successful implementation of the actions within this plan.

Inuvialuit Approach to Energy Action

Before implementing actions and pursuing change, we must first determine the baseline of energy use in each ISR community to assess weak points in the current energy system and determine which actions should be prioritized. Addressing inequalities in energy availability and access across the ISR will help determine the baseline of energy use and establish clear, measurable goals that communities can use to track change and see progress. The actions and goals listed within this plan are derived from community engagement. Feedback from Inuvialuit was received through community meetings, online surveys, and youth-focused events to build the goals and actions of the ISR Energy Action Plan.

From this engagement, Inuvialuit identified five thematic areas for actions:

1. Capacity & Engagement,
2. Technology,
3. Environmental Impact,
4. Energy Cost, and,
5. Education & Energy Literacy.

These themes are representative of primary areas of concern as expressed by Inuvialuit. Actions related to these themes have been identified and will be prioritized within energy planning to ensure optimal success and maximum community benefit. Improvements within these objective areas will increase energy security, energy independence, and socio-economic benefits for Inuvialuit.

The implementation of many of these action items will be similar in each community. However, there may also be changes with regards to scale, scope, and timeline of implementation as a result of community needs, setting, and priorities as laid out in the Community Energy Profiles.

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Part 1: Introduction

IRC's Commitment to Energy Security

The Inuvialuit Regional Corporation (IRC) is continually striving to improve the economic, social and cultural wellbeing of Inuvialuit through the implementation of the Inuvialuit Final Agreement and by all other means.

The development of the ISR Energy Action Plan will aid in the pursuit of these goals as it will allow the Inuvialuit to collaboratively pursue energy security through sustainable actions that are tailored to address the uniqueness of each community's values, priorities and energy landscape. IRC has prioritized achieving energy security and independence in the ISR to ensure that local economies continue to grow and thrive, and community members are able to access safe, affordable and reliable energy that will be sustainable for generations to come.

The development of the ISR Energy Action Plan will allow Inuvialuit to present a united and clear set of objectives and goals as we pursue energy security and advocate for Inuvialuit rights to secure equitable access to energy in municipal, territorial, federal, international, and circumpolar settings.

Inuvialuit Settlement Region

The Inuvialuit Final Agreement (IFA), established on June 5, 1984, became the first land claim agreement settled north of the 60th parallel.[1] Pursuant to the IFA, The Inuvialuit Regional Corporation (IRC) was established to responsibly manage the compensation and benefits received by the Inuvialuit.[2] The Inuvialuit Settlement Region (ISR) covers the northern portion of the Northwest Territories and the Yukon North Slope.[3] The region is home to approximately 6,000 people spread throughout the six communities of Inuvik, Aklavik, Tuktoyaktuk, Ulukhaktok, Paulatuk, and Sachs Harbour.[4] The borders of the ISR and the rights of Inuvialuit beneficiaries are defined by the IFA as agreed upon by the Inuvialuit, territorial and federal governments.[5]

IRC advocates for the economic, social, and cultural wellbeing of the Inuvialuit at a regional, national, and international level through its work and its partnerships with Inuit Tapiriit Kanatami and the Inuit Circumpolar Council (Canada Chapter).[6] By developing an Energy Action Plan, IRC aims to confront challenges related to energy availability and cost by providing practical solutions to attain a more sustainable, inclusive, and healthy future to benefit the residents of the ISR.

Purpose

Action plans are useful tools for improving community wellbeing and strengthening capacity. This Energy Action Plan for the ISR will provide community members an opportunity to reflect on the current energy status of the ISR, collaborate on mutually beneficial solutions, and identify clear objectives and correlating actions.

By developing a Regional Energy Action Plan for the ISR, IRC will help to lay the groundwork to reduce the financial, psychological, and environmental strain on community members by leading the path towards safer, more affordable, and reliable energy.

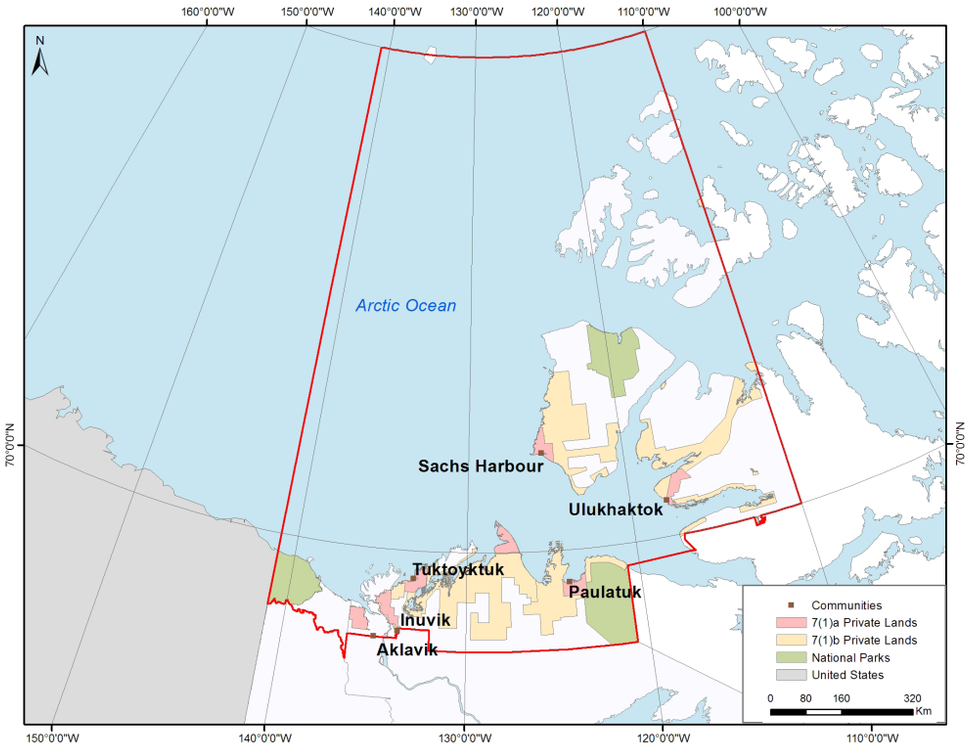


Figure 1. Map of the Inuvialuit Settlement Region. (Map by Inuvialuit Regional Corporation)

1. Inuvialuit Final Agreement. 1984, 1.
2. Inuvialuit Final Agreement. 1984, 6(1)(a).
3. Inuvialuit Final Agreement. 1984, 9(3-5).
4. NWT Bureau of Statistics, 2020.
5. Inuvialuit Final Agreement. 1984, 9(3-5).

Benefits Of Energy Action Planning

The implementation of the ISR Energy Action Plan will result in many benefits for individuals and communities across the ISR. Five main areas that will see improvements are Environmental Wellbeing, Infrastructure, Capacity, Energy Security, and Cost.

Many benefits may repeat or overlap within areas of improvement. This happens because energy is heavily interconnected within everything that we do. Small changes can result in major benefits for both individuals and communities. Our local grids are greatly dependent on collaboration and cooperation, so by working together Inuvialuit will see greater regional impacts and more sustainable change.

Individual Benefits		Community Benefits
• Lower Ecological Footprint • Less Waste Energy & Pollution • Cleaner Environment for Upcoming Generations	 Environmental Wellbeing	• Mitigating Environmental Risks • Improved Environmental Health • Prioritization of Traditional Knowledge • Environmentally Conscious Energy Development • Reduced Greenhouse Gas (GHG) Emissions
• Warmer, Safer Homes properly insulated for Arctic Winters • More Energy Efficient Homes • More Affordable Cost of Living	 Infrastructure	• Collaborative Community Planning • Improvements to Local Infrastructure • Sustainable Development • Locally Sourced Energy Supply • More Available Housing
• Increased Access to Local Training & Education • Good Quality Employment Opportunities • Inuvialuktun Language Revitalization	 Capacity	• Long-term Work Opportunities • Increased Opportunities for Inuvialuit and Northern Businesses • Stronger Local Economy • Accessible Training & Courses
• Less Frequent Power Outages • Reliable Energy Supply • Locally Sourced Energy Supply • Affordable Energy Bills	 Energy Security	• Reliable Energy Supply • Locally Sourced Energy Supply • Reduced Periods of Power Outages • Affordable Energy Bills • Energy Autonomy
• Affordable Monthly Bills • Improved Mental Health • Increased Financial Freedom	 Cost	• Affordable Energy Bills • Stronger Local Economy • Less Economic 'Leakage' • Lower Cost of Living • Inuvialuit-owned Energy

Part 2: Regional Energy Landscape

Baseline for Energy Planning

Northern and remote communities, including the six ISR communities, rely on heavy fossil fuels for heat, electricity, and transportation.[6] Reducing or eliminating the ISR's reliance on imported fuels is a top priority for IRC.

Each ISR community is unique; there are differences in resource availability, access, and local capacity. The variations in energy needs, community priorities, and local opportunities will define the scope of each community's energy journey. For successful results, energy plans need to be mindful of these differences and uniquely tailored to each community. The first step in energy planning is to determine the baseline of energy use in each ISR community. Determining a baseline will expose weak points in the current energy system and highlight where action should be taken.

The following community energy profiles explore the energy supply, use, cost, and emissions for each of the six ISR communities. These can be used as the baseline for the Action Plan as they illustrate where there may be gaps in infrastructure and areas of opportunity for energy development.

*Please note there may be inconsistencies between the numbers in the charts of this Action Plan. Numbers presented in the chart have been rounded up or down where appropriate and presented as either a whole number or decimal. As a result, the total of the individual numbers does not always add to 100%.

6. Government of Canada. 2016, 11.

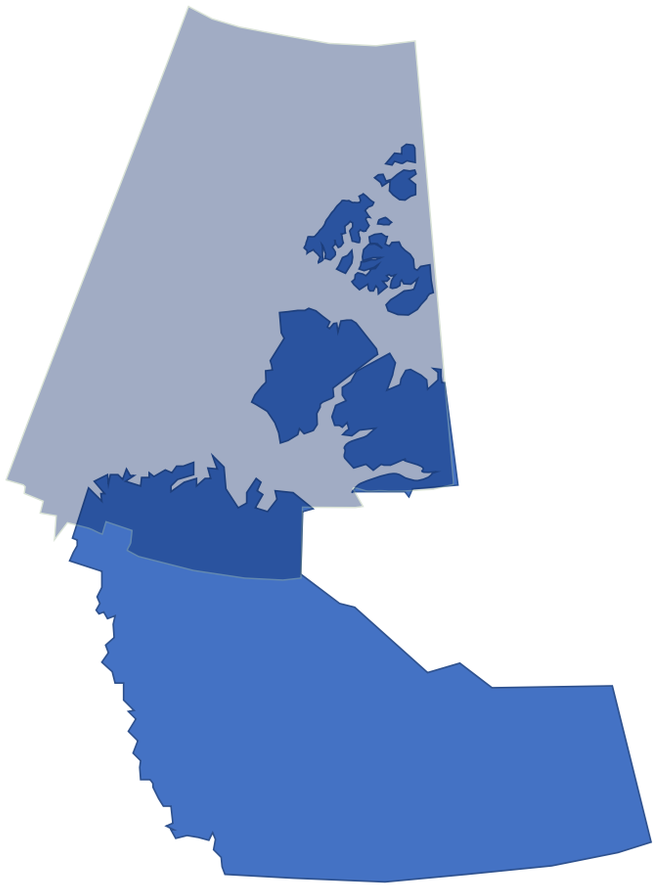
Regional Energy Profile

INUVIALUIT SETTLEMENT REGION

Energy Use (MJ)	Energy Cost ($)	Per Person Average Cost ($)	GHG Emissions (tonnes)
1,272,000,000	**65,290,000**	**11,000**	**85,000**

Energy Supply

All six ISR communities are classified as Thermal Zone Communities supplied by Northwest Territories Power Corporation (NTPC).[7] Thermal zone communities are dependent on thermal power (meaning diesel, natural gas or liquefied natural gas (LNG)) to power generators.[8] In the ISR, most community energy grids have begun to diversify beyond having complete dependence on diesel for electricity, heating, and transportation through the addition of natural gas, biomass, photovoltaic (PV) solar energy, and hybrid systems.



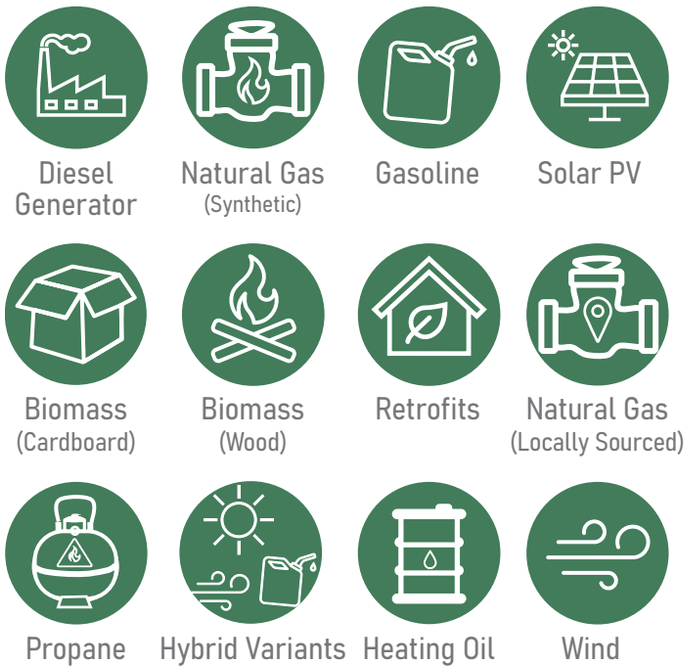


Figure 2. Energy sources across the ISR as stated in the Arctic Energy Alliance 2020 Community Energy Profiles.

7. Northwest Territories Power Corporation. 2020(a)
8. Northwest Territories Power Corporation. 2020(a)

INUVIALUIT SETTLEMENT REGION

Subsidized Cost Of Energy	True Cost Of Energy	Monthly Usage Subsidy Cap
$0.31/kWh	**$0.68/kWh**	**1000 kWh**

Energy Costs

All Thermal Zone Communities, including the six ISR communities, have the same energy charges for home and business electricity as set by NTPC and the Public Utilities Board. Effective September 1, 2020, residential power is subsidized by the GNWT Territorial Power Support Program (TPSP).[9] The true cost of electricity in the ISR is 68.37 cents/kWh, but the TPSP subsidizes over half, allowing homeowners to pay at the rate of 30.60 cents/kWh until 1000 kWh is exceeded on their monthly energy bill.[10] At that point, the subsidy is removed and all energy over the 1000 kWh threshold is charged at 68.37 cents/kWh.[11] This program incentivizes residents to use less power and improve home efficiency.

9. Northwest Territories Power Corporation. 2020(b)
10. Northwest Territories Power Corporation. 2020(b)
11. Northwest Territories Power Corporation. 2020(b)

Regional Energy Profile

	Community Load (Average)	Allowed Intermittent Capacity (kW)	Available Capacity (kW)
Aklavik	363	73	0
Inuvik	3349	670	0
Paulatuk	166	33	0
Sachs Harbour	109	22	3
Tuktoyaktuk	481	96	30
Ulukhaktok	235	47	47

Table 1. Intermittent Renewable Capacity and Availability in ISR Communities as listed by the Northwest Territories Power Corporation, 2018.

Intermittent Renewable Capacity

NTPC has put a cap on intermittent renewables (i.e. solar PV and wind turbines) at 20% of the average community load to avoid overloading the microgrids in Thermal Zone Communities.[12] In most of the ISR, this cap has been met and there is currently no available capacity to expand intermittent renewables.

Regional Emissions

The ISR is responsible for 85,000 tonnes of emissions annually (approximately 15 tonnes/ person).[13] This is above the NWT average (11 tonnes/person) and lower than the Canadian average (20 tonnes/ person).[14] Emissions across the ISR are proportionately caused from Heat (39%) and Electricity (31%) and Transportation (30%).[15]

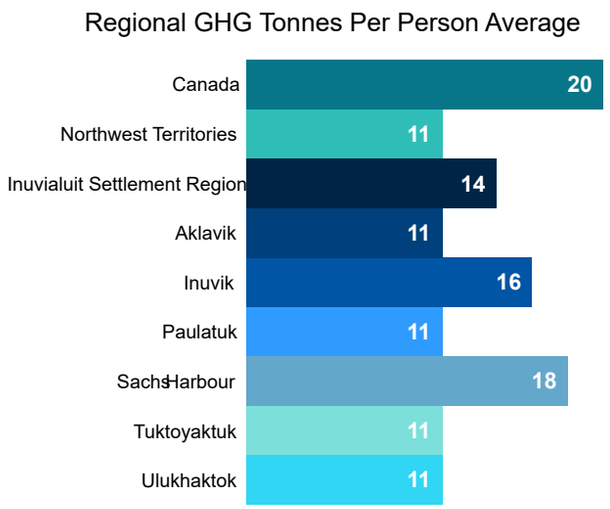


Figure 3. Regional GHG emissions per capita as stated in the Arctic Energy Alliance 2020 Community Energy Profiles.

12. Northwest Territories Power Corporation. 2018.
13. Adapted from Arctic Energy Alliance. 2020 (a,b,c,d,e,f)
14. Adapted from Arctic Energy Alliance. 2020 (a,b,c,d,e,f)
15. Adapted from Arctic Energy Alliance. 2020 (a,b,c,d,e,f)

AKLAVIK

Energy Use (MJ)	Energy Cost ($)	Per Person Average Cost ($)	GHG Emissions (tonnes)
99,500,000	**5,190,000**	**8,200**	**7,000**

Energy Supply

Aklavik's local energy grid has diversified beyond having complete dependence on fossil fuels for electricity, heating, and transportation through the addition of biomass and photovoltaic (PV) solar energy to the local grid. There are four 320 kW diesel generators in Aklavik, with a total power supply of 1.28MW.[16]

In 2018, a variable speed generator (VSG) pilot project was added in the diesel plant with 55kW of PV solar capacity.[17] This project has shown success, and further developments may be implemented in the future, allowing for additional intermittent renewable capacity.

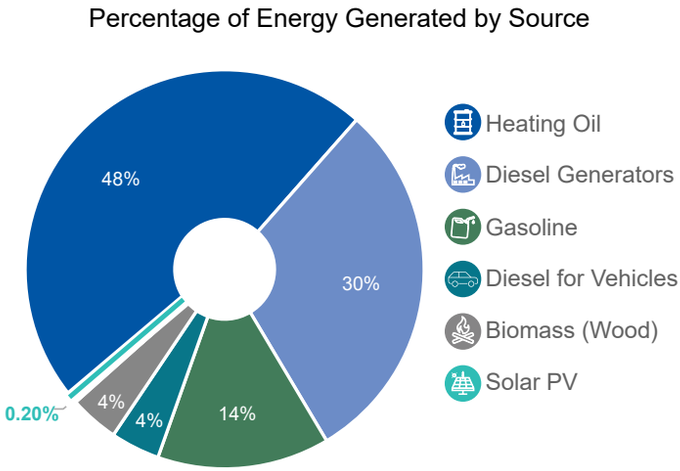


Figure 4. Energy use in Aklavik, as stated in the Arctic Energy Alliance - Aklavik 2018 Community Energy Profile.

Intermittent Renewables

NTPC has put a cap on intermittent renewables (wind and solar PV) of 20% of the average community load to avoid overloading the microgrids in Thermal Zone Communities.[18] Aklavik has an average community load of 363 kW, resulting in an intermittent renewable capacity of 73 kW.[18] This cap has been met, and there is currently no available capacity to expand intermittent renewables on the local grid.

16. Northwest Territories Power Corporation. 2020(c)
17. Government of the Northwest Territories. 2019, 7.
18. Northwest Territories Power Corporation. 2018.
19. Northwest Territories Power Corporation. 2018.

Regional Energy Profile

Annual Emissions

Aklavik is responsible for 7,000 tonnes of greenhouse gas (GHG) emissions annually (approximately 11 tonnes/person).[20] This is equal to the NWT community average and lower than the Canadian average. The majority of the emissions in Aklavik come from the local diesel generators (31%); however, the proportion of emissions from the diesel generators, homes, other buildings and transportation are almost equal.[21] Aklavik and Inuvik have a substantially higher portion of transport emissions than the other ISR communities.

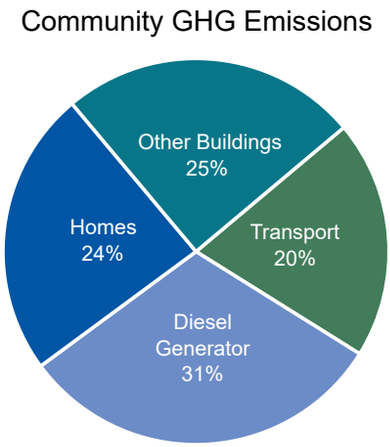


Figure 5. Aklavik GHG Emissions per sector, as stated in the Arctic Energy Alliance - Aklavik 2018 Community Energy Profile.

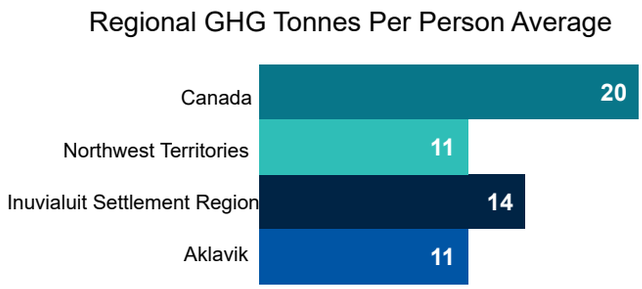


Figure 6. Comparison of Aklavik GHG Emissions per person to the ISR, NWT and Canadian per person averages, as stated in the Arctic Energy Alliance - Aklavik 2018 Community Energy Profile.

Areas for Improvement

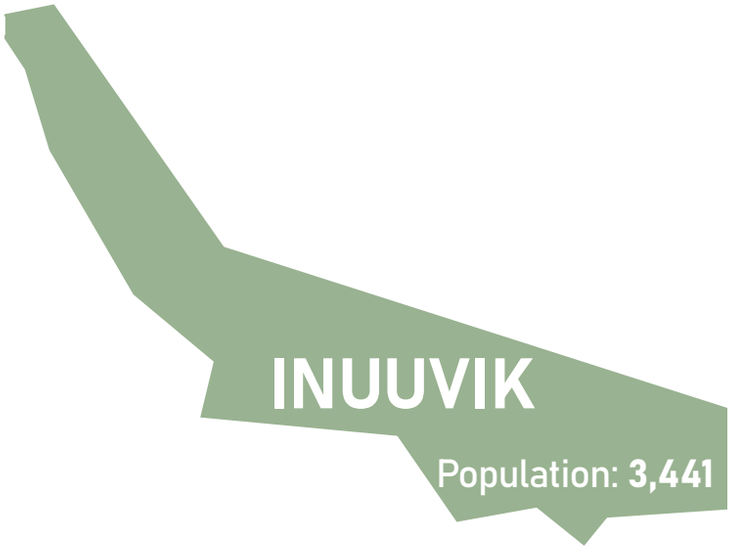
- Aklavik has reached the intermittent renewable capacity, and it is not permitted to add more intermittent renewable energy to the grid until NTPC caps are increased. Instead, residents should pursue retrofitting opportunities for homes and other buildings to reduce community emissions.
- The community would also benefit from technical training opportunities for residents relating to the installation and maintenance of energy systems and retrofitting equipment. These opportunities would reduce consumption and build local capacity.
- In the longer term, Aklavik would greatly benefit from the implementation of backup power systems & increased safety measures to improve energy security.

Image Credit: Megan Lukasewich - Aklavik area centre receiving solar panels from Arctic Energy Alliance solar project - June 2016

20. Arctic Energy Alliance. 2020(a)
21. Arctic Energy Alliance. 2020(a)

INUVIK

Energy Use (MJ)	Energy Cost ($)	Per Person Average Cost ($)	GHG Emissions (tonnes)
872,100,000	**44,300,000**	**12,900**	**57,000**



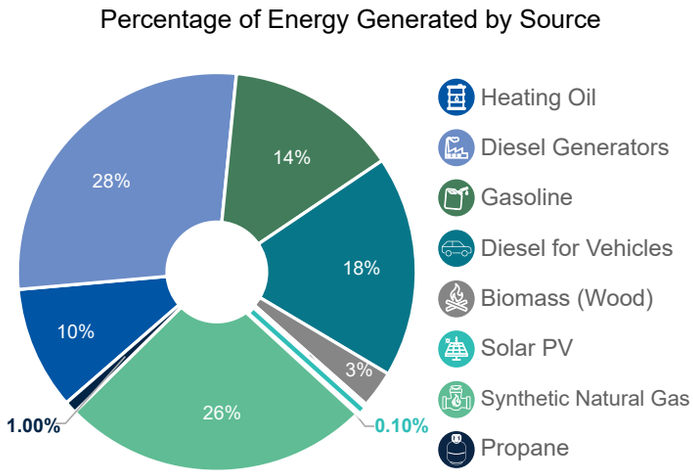


Figure 7. Energy use in Inuvik, as stated in the Arctic Energy Alliance - Inuvik 2018 Community Energy Profile.

Energy Supply

Inuvik has a unique energy grid compared to the rest of the ISR communities because there are two power plants in Inuvik: one powered by diesel (6.2MW capacity), and the other powered with natural gas.[22] The natural gas power plant houses three generators, which have the capacity of 2.8 MW, 2.8 MW, and 2.1MW. [23]

In Inuvik, the energy grid has begun to diversify beyond having complete dependence on diesel for electricity, heating, and transportation through the addition of natural gas, biomass and photovoltaic (PV) solar energy. Solar panels are present on many residential and public buildings in Inuvik, including the Aurora Research Institute, the ICEDO Community Freezer, and the Children's First Centre. Biomass is currently heating many GNWT Buildings and the Inuvik Regional Hospital.

Intermittent Renewables

NTPC has put a cap on intermittent renewables (wind and solar PV) of 20% of the average community load to avoid overloading the microgrids in Thermal Zone Communities.[24] Inuvik has an average community load of 3349 kW, resulting in an intermittent renewable capacity of 670 kW. [25] This cap has been met, and there is currently no available capacity to expand intermittent renewables.

22. Northwest Territories Power Corporation. 2020(c)
23. Northwest Territories Power Corporation. 2020(c)
24. Northwest Territories Power Corporation. 2018.
25. Northwest Territories Power Corporation. 2018.

Regional Energy Profile

Annual Emissions

Inuvik is responsible for 57,000 tonnes of emissions annually (approximately 16 tonnes/person). That is greater than the NWT average of 11 tonnes/person, and lower than the Canadian average of 20 tonnes/person.[26] Inuvik and Aklavik have a substantially higher portion of transport emissions than the other ISR communities. The majority of the emissions in Inuvik come from transportation (32%); however, the proportion of emissions from the diesel generators, homes, other buildings and transportation are almost equal.[27] Homes in Inuvik seem to be more efficient than those in other communities as they represent a lower percentage of emissions than homes in other ISR communities.

Areas for Improvement

- Inuvik has reached the intermittent renewable capacity, and it is not permitted to add more intermittent renewable energy to the grid until NTPC caps are increased. Instead, residents should pursue retrofitting opportunities for homes and other buildings to reduce community emissions.
- The community would also benefit from technical training opportunities for residents relating to the installation and maintenance of energy systems and retrofitting equipment. These opportunities would reduce consumption and build local capacity.
- Inuvik has the opportunity to reduce transportation emissions by using locally sourced energy solutions.

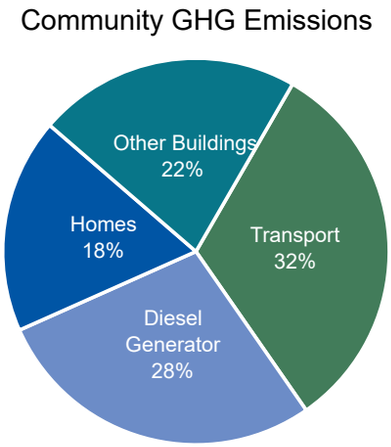


Figure 8. Inuvik GHG Emissions per sector, as stated in the Arctic Energy Alliance - Inuvik 2018 Community Energy Profile.

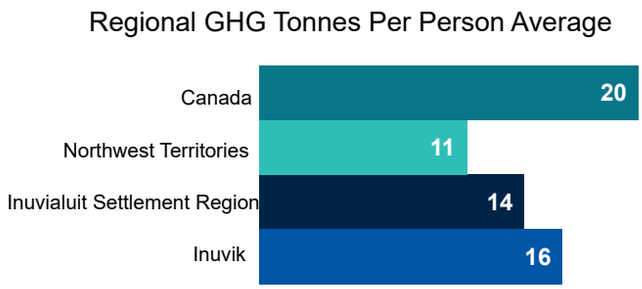


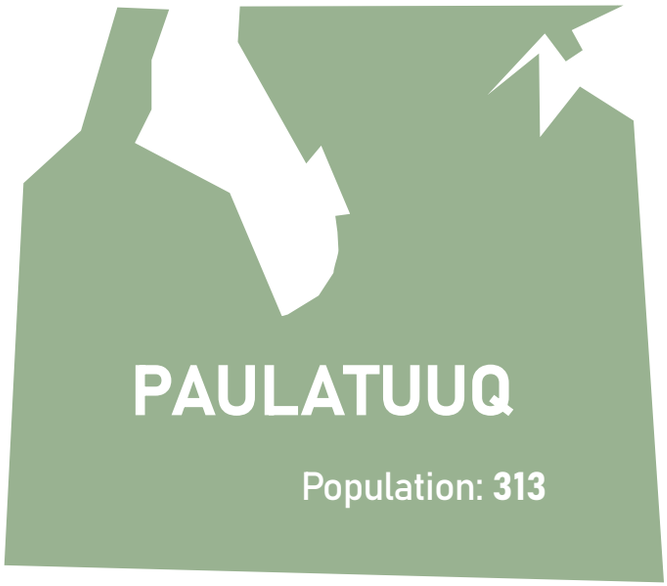
Figure 9. Comparison of Inuvik GHG Emissions per person to the ISR, NWT and Canadian per person averages, as stated in the Arctic Energy Alliance - Inuvik 2018 Community Energy Profile.

Image Credit: Green Sun Rising Inc. - Stanton Lot, Inuvik

26. Arctic Energy Alliance. 2020(b)
27. Arctic Energy Alliance. 2020(b)

PAULATUK

Energy Use (MJ)	Energy Cost ($)	Per Person Average Cost ($)	GHG Emissions (tonnes)
48,w,000	**150,000**	**9,500**	**3,000**



Energy Supply

In Paulatuk, the energy grid has begun to diversify beyond having complete dependence on fossil fuels for electricity, heating, and transportation through the addition of photovoltaic (PV) solar energy. Solar panels are present on the Visitors Centre, Angik School, the Youth Center, and the Hamlet Office. The diesel generators in Paulatuk have a total power supply of 840kW.[28]

Intermittent Renewables

NTPC has put a cap on intermittent renewables (wind and solar PV) of 20% of the average community load to avoid overloading the microgrids in Thermal Zone Communities.[29] Paulatuk has an average community load of 166 kW, resulting in an intermittent renewable capacity of 33 kW.[30] From the existing solar projects, this cap has been met and there is currently no available capacity to expand intermittent renewables.

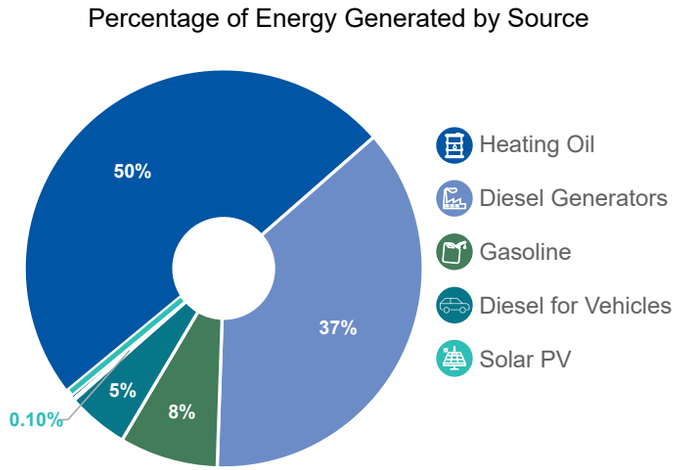


Figure 10. Energy use in Paulatuk, as stated in the Arctic Energy Alliance - Paulatuk 2018 Community Energy Profile.

28. Northwest Territories Power Corporation. 2020(c)
29. Northwest Territories Power Corporation. 2018.
30. Northwest Territories Power Corporation. 2018.

Regional Energy Profile

Annual Emissions

Paulatuk is responsible for 3,000 tonnes of greenhouse gas (GHG) emissions annually (approximately 11 tonnes/ person); this is equal to the NWT average of 11 tonnes/person, and lower than the Canadian average of 20 tonnes/ person.[31] The majority of the emissions in Paulatuk are derived from the Diesel Generators (37%).[32] Homes in Paulatuk have the highest proportion of emissions compared to the other ISR communities. This signals that improvements can be made on improving home efficiency.

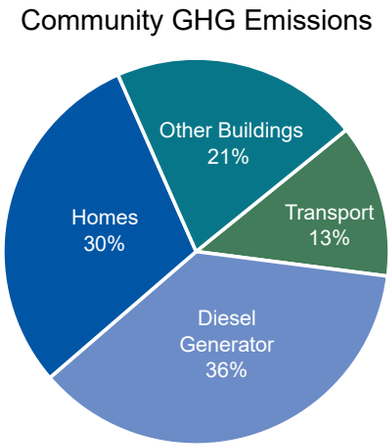


Figure 11. Paulatuk GHG Emissions per sector, as stated in the Arctic Energy Alliance - Paulatuk 2018 Community Energy Profile.

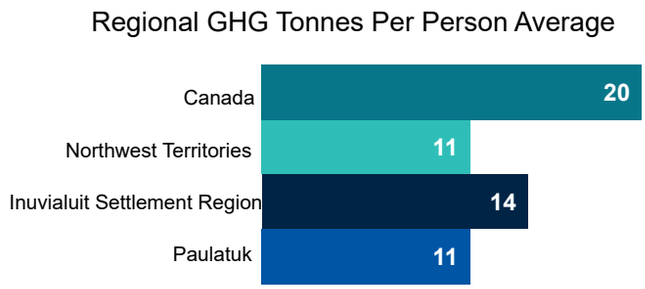


Figure 12. Comparison of Paulatuk GHG Emissions per person to the ISR, NWT and Canadian per person averages, as stated in the Arctic Energy Alliance - Paulatuk 2018 Community Energy Profile.

Areas for Improvement

- Paulatuk has reached the intermittent renewable capacity, and it is not permitted to add more intermittent renewable energy to the grid until NTPC caps are increased. Instead, residents should pursue retrofitting opportunities for homes and other buildings to reduce community emissions.
- The community would also benefit from technical training opportunities for residents relating to the installation and maintenance of energy systems and retrofitting equipment. These opportunities would reduce consumption and build local capacity.
- In the longer term, Paulatuk would greatly benefit from the implementation of backup power systems & increased safety measures to improve energy security.

Image Credit: Green Sun Rising Inc. -Paulatuk, Community Arena

31. Arctic Energy Alliance. 2020(c)
32. Arctic Energy Alliance. 2020(c)

SACHS HARBOUR

Energy Use (MJ)	Energy Cost ($)	Per Person Average Cost ($)	GHG Emissions (tonnes)
29,700,000	**1,950,000**	**16,600**	**2,000**

IKAAHUK

Population: **117**

Energy Supply

In Sachs Harbour, the energy grid has begun to diversify beyond having complete dependence on fossil fuels for electricity, heating, and transportation through the addition of photovoltaic (PV) solar energy. Solar panels are present on the Hamlet Office. There are three diesel generators in Sachs Harbour, with a total power supply of 795 kW.[33]

Intermittent Renewables

NTPC has put a cap on intermittent renewables (wind and solar PV) of 20% of the average community load to avoid overloading the microgrids in Thermal Zone Communities.[34] Sachs Harbour has an average community load of 109 kW, resulting in an intermittent renewable capacity of 22 kW.[35] This cap has almost been met, and there is currently only 3 kW of capacity available on the grid to expand intermittent renewables.[36]

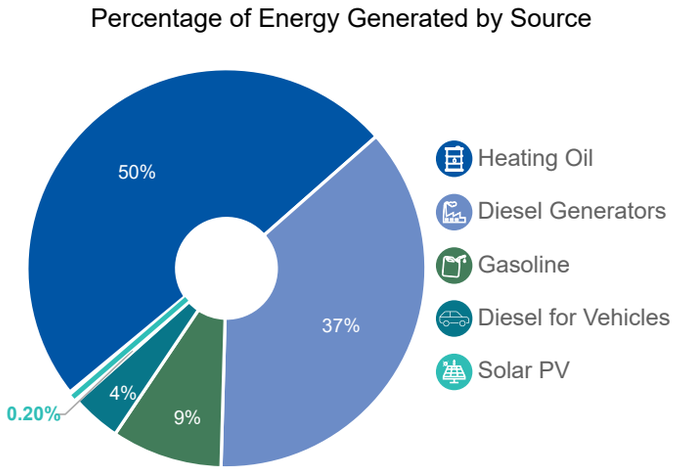


Figure 13. Energy use in Sachs Harbour, as stated in the Arctic Energy Alliance - Sachs Harbour 2018 Community Energy Profile.

33. Northwest Territories Power Corporation. 2020(c)
34. Northwest Territories Power Corporation. 2018.
35. Northwest Territories Power Corporation. 2018.
36. Northwest Territories Power Corporation. 2018.

Regional Energy Profile

Annual Emissions

Sachs Harbour is responsible for 2,000 tonnes of emissions annually (approximately 18 tonnes/person).[37] This is higher than the NWT average (11 tonnes) and lower than the Canadian average (20 tonnes).[38] The majority of the emissions in Sachs Harbour come from the Diesel Generator (37%). Emissions from transportation are low, and the proportion of emissions from Homes & Other Buildings is similar to values across the ISR. There is room for improvement within home and other building retrofits and winterization.

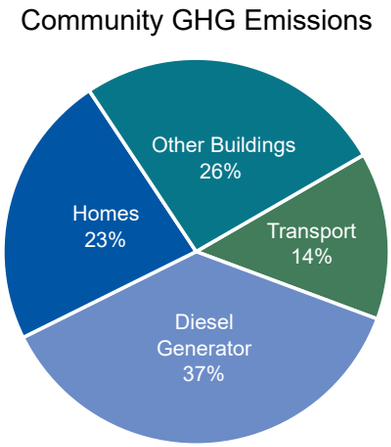


Figure 14. Sachs Harbour GHG Emissions per sector, as stated in the Arctic Energy Alliance - Sachs Harbour 2018 Community Energy Profile.

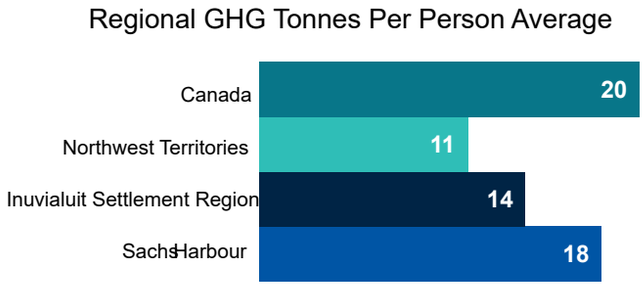


Figure 15. Comparison of Sachs Harbour GHG Emissions per person to the ISR, NWT and Canadian per person averages, as stated in the Arctic Energy Alliance - Sachs Harbour 2018 Community Energy Profile.

Areas for Improvement

- Sachs Harbour has nearly reached the intermittent renewable capacity, and it is not feasible to add more intermittent renewable energy to the grid until NTPC caps are increased. Instead, residents should pursue retrofitting opportunities for homes and other buildings to reduce community emissions.
- The community would also benefit from technical training opportunities for residents relating to the installation and maintenance of energy systems and retrofitting equipment. These opportunities would reduce consumption and build local capacity.
- In the longer term, Sachs Harbour would greatly benefit from the implementation of backup power systems & increased safety measures to improve energy security.

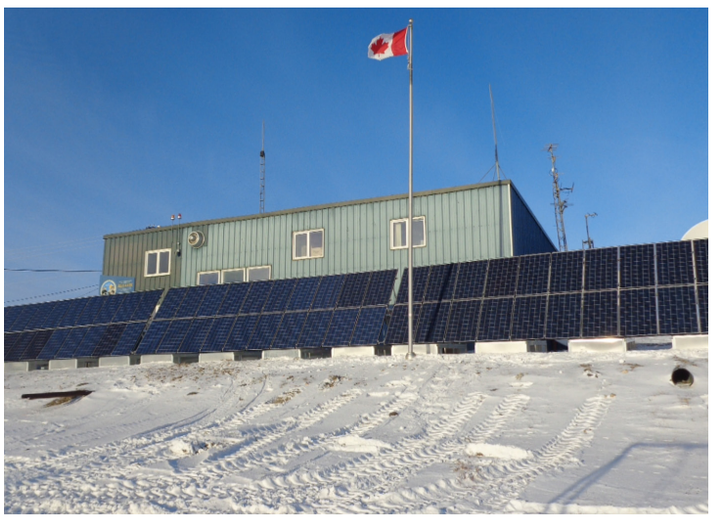


Image Credit: Green Sun Rising Inc. -Sachs Harbour, Hamlet Office

37. Arctic Energy Alliance. 2020(d)
38. Arctic Energy Alliance. 2020(d)

TUKTOYAKTUK

Energy Use (MJ)	Energy Cost ($)	Per Person Average Cost ($)	GHG Emissions (tonnes)
151,800,000	**7,250,000**	**7,300**	**11,000**

Intermittent Renewables

NTPC has put a cap on intermittent renewables (wind and solar PV) of 20% of the average community load to avoid overloading the microgrids in Thermal Zone Communities.[40] Tuktoyaktuk has an average community load of 481 kW, resulting in an intermittent renewable capacity of 96 kW.[41] There is still 30 kW of capacity available on the local grid until that cap is reached.

Energy Supply

In Tuktoyaktuk, the energy grid has begun to diversify beyond having complete dependence on fossil fuels for electricity, heating, and transportation through the addition of photovoltaic (PV) solar energy. Solar panels are installed at the Hamlet Office. There are three diesel generators in Tuktoyaktuk, with a total power supply of 1.16MW.[39]

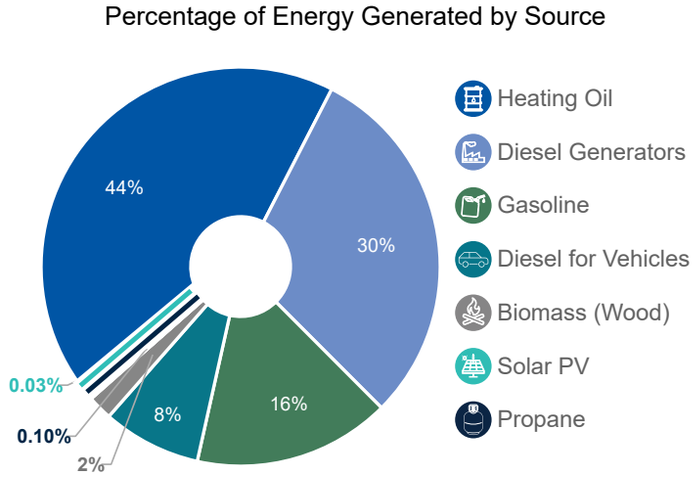


Figure 16. Energy use in Tuktoyaktuk, as stated in the Arctic Energy Alliance - Tuktoyaktuk 2018 Community Energy Profile.

39. Northwest Territories Power Corporation. 2020(c)
40. Northwest Territories Power Corporation. 2018.
41. Northwest Territories Power Corporation. 2018.

Regional Energy Profile

Annual Emissions

Tuktoyaktuk is responsible for 11,000 tonnes of emissions annually (approximately 11 tonnes/person).[42] This is equal to the NWT average and lower than the Canadian average. The majority of the emissions in Tuktoyaktuk come from the local diesel generators (30%), followed by local buildings (29%) and transportation (25%).[43] Homes in Tuktoyaktuk have already undergone many energy saving initiatives, and they produce the lowest percentage of emissions per community in the ISR at 16%.

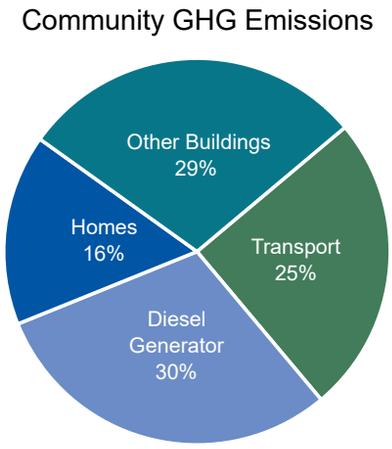


Figure 17. Tuktoyaktuk GHG Emissions per sector, as stated in the Arctic Energy Alliance - Tuktoyaktuk 2018 Community Energy Profile.

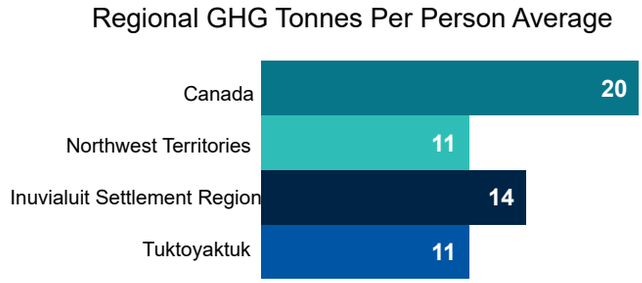


Figure 18. Comparison of Tuktoyaktuk GHG Emissions per person to the ISR, NWT and Canadian per person averages, as stated in the Arctic Energy Alliance - Tuktoyaktuk 2018 Community Energy Profile.

Areas for Improvement

- Tuktoyaktuk has the opportunity to add up to 30 kW of solar energy onto the local grid. Implementation of solar power systems could reduce some community emissions and provide a seasonal backup energy supply for community buildings.
- The community would also benefit from technical training opportunities for residents relating to the installation and maintenance of energy systems and retrofitting equipment. These opportunities would reduce consumption and build local capacity.
- Tuktoyaktuk also has the opportunity to reduce transportation emissions by using locally sourced energy solutions.

Image Credit: Green Sun Rising Inc. -Tuktoyaktuk, Hamlet Office

42. Arctic Energy Alliance. 2020(e)
43. Arctic Energy Alliance. 2020(e)

ULUKHAKTOK

Energy Use (MJ)	Energy Cost ($)	Per Person Average Cost ($)	GHG Emissions (tonnes)
70,800,000	**3,630,000**	**7,900**	**5,000**

Intermittent Renewables

Ulukhaktok has an average community load of 235 kW, resulting in an intermittent renewable capacity of 47 kW.[46] Since there is not currently any intermittent renewable infrastructure attached to the grid in Ulukhaktok, this entire capacity is available.

Energy Sources

Northwest Territories Power Corporation (NTPC) Thermal communities, like Ulukhaktok, have independent microgrids that rely on thermal energy (meaning diesel, natural gas, or liquified natural gas (LNG)) to power generators.[44]

In Ulukhaktok, the energy grid is completely dependent on fossil fuels for electricity, heating, and transportation. Ulukhaktok's microgrid is supplied by three diesel generators that have a total power supply of 1.16MW.[45]

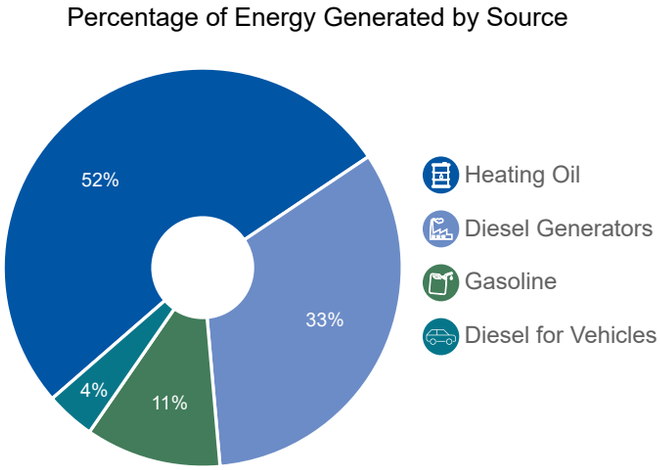


Figure 19. Energy use in Ulukhaktok, as stated in the Arctic Energy Alliance - Ulukhaktok 2018 Community Energy Profile.

44. Northwest Territories Power Corporation. 2020(a)
45. Northwest Territories Power Corporation. 2020(c)
46. Northwest Territories Power Corporation. 2018.

Regional Energy Profile

Annual Emissions

Ulukhaktok is responsible for 5,000 tonnes of emissions annually (approximately 11 tonnes/person).[47] This is equal to the NWT average and lower than the Canadian average. The majority of the emissions in Ulukhaktok go to the diesel generator (33%).[48] Homes and other buildings are also responsible for a large portion of emissions (29% & 23%, respectively). Transportation emissions represent the lowest portion of community emissions (15%).[49] This follows the same pattern as the other coastal ISR communities.

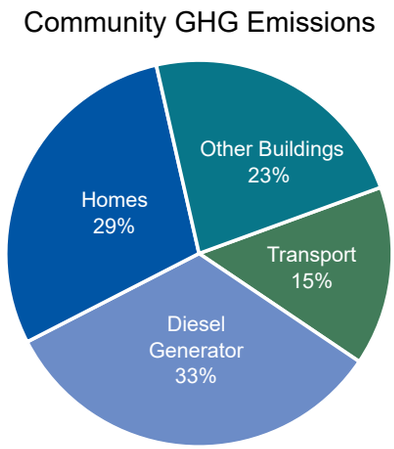


Figure 20. Ulukhaktok GHG Emissions per sector, as stated in the Arctic Energy Alliance - Ulukhaktok 2018 Community Energy Profile.

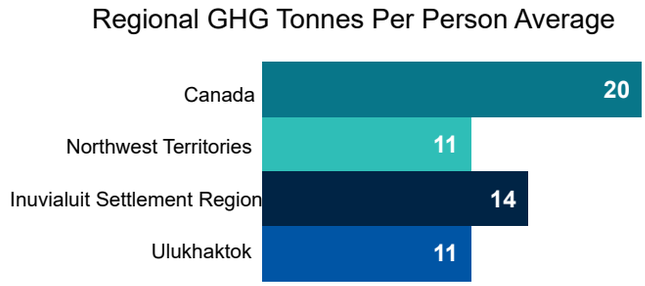


Figure 21. Comparison of Ulukhaktok GHG Emissions per person to the ISR, NWT and Canadian per person averages, as stated in the Arctic Energy Alliance - Ulukhaktok 2018 Community Energy Profile.

Areas for Improvement

- Ulukhaktok has the opportunity to add up to 47 kW of solar energy onto the local grid. Implementation of solar energy could reduce some community emissions and provide a seasonal backup energy supply for community buildings.
- The community would also benefit from technical training opportunities for residents relating to the installation and maintenance of energy systems and retrofitting equipment. These opportunities would reduce consumption and build local capacity.
- In the longer term, Ulukhaktok would greatly benefit from the implementation of backup power systems & increased safety measures to improve energy security.

Image Credit: Green Sun Rising Inc. -Ulukhaktok, Off Grid Container

47. Arctic Energy Alliance. 2020(f)
48. Arctic Energy Alliance. 2020(f)
49. Arctic Energy Alliance. 2020(f)

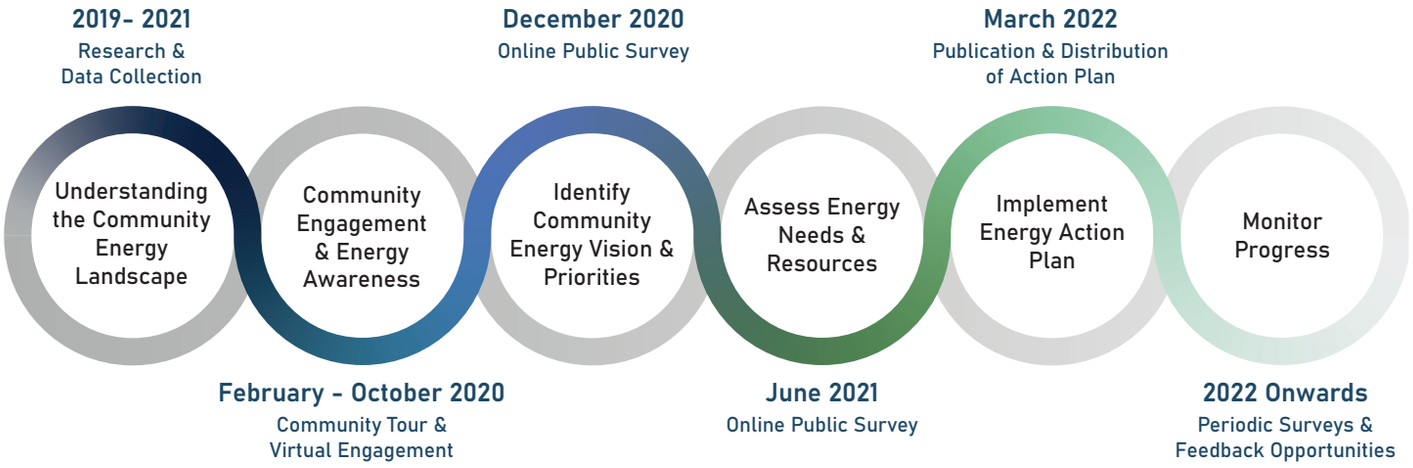
Part 3: Community Engagement

Steps for Successful Energy Action Planning

To achieve success, action plans must reflect the distinct energy setting of the communities that they advocate for. For this plan specifically, each of the six ISR communities must be engaged and understood to identify the unique attributes of each community. There are vast differences in landscapes, resources, and needs in each of the six communities, and so it is important to develop a regional planning approach that is tailored to each ISR community.

Ongoing community engagement opportunities have been implemented to develop and drive this plan's community-based actions to reflect the unique values and priorities of Inuvialuit across the Inuvialuit Settlement Region. Engagement has been completed in several stages, and more engagement opportunities will be initiated over time to ensure that the priorities, goals and actions in this action plan remain consistent with those of Inuvialuit.

Engagement Timeline & Strategy



Research & Data Collection

The initial stage of developing this Energy Action Plan began with the completion of data collection and research. Many feasibility studies and energy audits have been conducted over the past two decades throughout the ISR. These studies and references helped to establish the basis of understanding for community energy potential. Also, this data collection began to highlight the variations in community energy needs and resource availability.

Community Engagement

Community outreach has been ongoing throughout all six ISR communities from February 2020-December 2021. Previous engagement opportunities include: Climate Change and Energy Terminology (CCET) Tour, the Powered By Youth Virtual Discussion Group, Regional Energy Action Plan Online Surveys, and communication with the Community Corporations.

Details about these engagement opportunities are listed in the following pages.

Monitoring Progress

IRC will continue to monitor the progress and success of the Energy Action Plan as the implementation of action items are completed following March 2022. Public surveys and feedback opportunities will continue to be available for community members to respond to the implementation of action items and prioritization of thematic areas.

Community Meetings & Engagement

Climate Change & Energy Terminology (CCET) Tour | February 20 - March 10, 2020

The goal of the Climate Change and Energy Terminology (CCET) Tour was to engage and inform community members and youth about energy and environment related issues within the Inuvialuit Settlement Region, and introduce the Regional Climate Change Strategy and Regional Energy Action Plan. This was the first introduction of the ISR Energy Action Plan to the ISR communities, and the input that was received by community members helped to develop the tone, goals and actions within the plan. Feedback and input from this engagement started the discussion about communities' energy visions, concerns, suggestions and ideas (i.e. what would the community want to see in this Energy Action Plan). The school tour portion of this engagement emphasized the important role that Youth can play in becoming environmental stewards.

Participants included community members, Community Corporation Directors, Hunters and Trappers Committee Board members, Elders Committee Board members, and Regional Youth Advisory Group representatives.

Please note: the community tour was cancelled in Sachs Harbour, and the school tour was cancelled in Inuvik, due to the Covid-19 pandemic.

	Public Meeting Date	School Visit Date
Aklavik	February 21, 2020	February 20, 2020
Inuvik	March 5, 2020	Cancelled
Paulatuk	February 25, 2020	February 25, 2020
Sachs Harbour	Cancelled	Cancelled
Tuktoyaktuk	March 4, 2020	March 4, 2020
Ulukhaktok	March 9, 2020	March 10, 2020

Powered By Youth Virtual Discussion Group | September 10 - October 1, 2020

The Powered By Youth discussion group was created in response to the feedback from the CCET Tour; each of the visited communities requested youth engagement opportunities during its public engagement session.

The engagement was completed via Facebook, weekly virtual discussion meetings, and weekly online surveys. Created in September 2020, the Powered By Youth ISR Facebook Group completed discussions over four consecutive Thursdays (September 10-October 1), with the goal of understanding the perspective of Inuvialuit Youth on Energy and Climate Change. Each weekly discussion covered a new topic: Current Energy in the ISR, Clean Energy Solutions, Climate Change, and Careers in Energy. Youth participated in weekly surveys to express their opinions and values regarding energy planning and development.

	Number of Survey Participants
Aklavik	9
Inuvik	52
Paulatuk	4
Sachs Harbour	7
Tuktoyaktuk	3
Ulukhaktok	0

Online Community Survey - Goals & Energy Profiles | December 2-23, 2020

An online survey was publicly available from December 2nd to December 23rd, 2020. The goal of this survey was to confirm that the goals and priorities that had been established from previous community feedback aligned with the community goals and priorities listed in the ISR Energy Action Plan. This survey received twenty-nine responses.

The only ISR community that did not provide feedback in the survey was Sachs Harbour.

	Number of Survey Participants
Aklavik	1
Inuvik	22
Paulatuk	2
Sachs Harbour	0
Tuktoyaktuk	5
Ulukhaktok	1

Online Community Survey - Themes & Action Items | June 24 - July 15, 2021

An online survey was publicly available from June 24 to July 15, 2021. The goal of this survey was to confirm that the thematic areas and action items listed in the Energy Action Plan match the goals of community members and to see if there are additional action items that should be implemented into the plan. This survey received twenty-nine responses and very positive feedback in support of the thematic areas and action items.

The only ISR community that did not provide feedback in the survey was Ulukhaktok.

	Number of Survey Participants
Aklavik	1
Inuvik	18
Paulatuk	1
Sachs Harbour	2
Tuktoyaktuk	3
Ulukhaktok	0
Outside ISR	4

Online Community Survey - Final Public Review | October 12 - 29, 2021

This online survey was publicly available from October 12-29, 2021. This was the final public survey linked to the ISR Energy Action Plan. The goal of this survey was to receive public feedback and support for each of the key areas in the action plan. This survey received thirty one responses and very positive feedback in support of the thematic areas and action items.

This survey did not receive any feedback from Ulukhaktok and Sachs Harbour; however, four of the responses did not state their residing location.

	Number of Survey Participants
Aklavik	2
Inuvik	23
Paulatuk	1
Sachs Harbour	0
Tuktoyaktuk	1
Ulukhaktok	0
Outside ISR or No Response	4

Part 4: Goals & Actions

Thematic Areas for Actions

Five thematic areas for actions have been identified, representative of key areas of concern as expressed by Inuvialuit in past community engagement. These areas will be prioritized within energy planning to ensure optimal success and maximum community benefit. Improvements within these objective areas will increase energy security, energy independence, and socio-economic benefits for Inuvialuit.

1. **Capacity & Engagement**
2. **Technology**
3. **Environmental Impact**
4. **Energy Cost**
5. **Education & Energy Literacy**

Thematic Area	Goal	Actions	
Capacity & Engagement	Building educational & training opportunities for Inuvialuit; and, providing regular opportunities for Inuvialuit to express their energy priorities and goals.	• Annual Community Meetings & Classroom Visits • Powered By Youth Group • Public Surveys	• Technical Training & Career Building Programs • Youth and 'Training on the Job' Employment Opportunities
Technology	Pursuing and implementing clean infrastructure and efficiency-focused programs for homeowners and businesses.	• Cleaner Energy Feasibility Studies • Inuvialuit-Led Energy Security Projects	• Energy Storage & Battery Development • Solar Installation & Maintenance Programming
Environmental Impact	Reducing and mitigating the impacts of greenhouse gas emissions, pollution, and other inherent environmental risks to ensure that Inuit Nunangat remains productive, healthy, and safe for generations to come.	• Traditional Knowledge & Cultural Impact Assessment • Energy Reduction Programs	• Net-Zero Housing Development Program
Energy Cost	Target actions that will reduce energy costs for residents of the ISR.	• Home & Business Retrofit Programs	• Home Winterization Program
Education & Energy Literacy	Increase the availability of educational materials related to clean energy and promote Inuvialuktun as the working language across the ISR.	• Inuvialuit Energy & Climate Children's Book Series • Energy & Climate Change Terminology Glossary	• Energy-Driven STEM Programs for Youth & Community • Development of Energy Units in K-12 Curriculum

Capacity & Engagement

Goal: *To build employment and training opportunities for Inuvialuit and increase community awareness regarding energy planning and development.*

Developing educational and training opportunities for Inuvialuit will increase capacity and create sustainable local jobs across the ISR. Increasing skillsets of local workers and inspiring Inuvialuit to be engaged with energy projects across the ISR will ensure that Inuvialuit are leading the development towards a cleaner energy future. Pursuing developments on this thematic area will also reduce the need for communities to import transient workers and will help to retain more capital within the local economy, benefitting communities in the short- and long-term.

Action 1: Annual Community Meetings & Classroom Visits
Action 2: Powered By Youth Group
Action 3: Public Surveys
Action 4: Technical Training & Career Building Programs
Action 5: Youth and 'Training on the Job' Employment Opportunities

Image Credit: Inuvialuit Regional Corporation

Action Items

Annual Community Meetings & Classroom Visits

Annual (Ongoing)

IRC will continue to complete yearly community meetings to engage community members and receive feedback about ongoing and upcoming work. This engagement will help to ensure that Inuvialuit are aware of upcoming and ongoing initiatives throughout the ISR and have the opportunity to provide in-person feedback.

Powered By Youth Group

Active (Ongoing)

IRC will continue to build and facilitate youth engagement through the Powered By Youth clean energy discussion group. Youth members will be notified of youth-oriented training and employment opportunities, be invited to virtual events (with prizes), and be able to express their opinions about their priorities for energy development across the ISR.

Public Surveys

Periodic (As Needed)

As action items are complete, surveys will periodically be published online for community members to review progress and provide feedback. These surveys will encourage Inuvialuit to participate in energy planning across the ISR.

Technical Training & Career Building Programs

Near-Term (Up-Coming)

To liaise and provide support to any Inuvialuit who is interested in pursuing careers in energy by partnering with external partners to facilitate technical training and career-building opportunities. These workshops and programs will promote skill-building and hands-on learning for Inuvialuit of all ages and skillsets.

Youth and 'Training on the Job' Employment Opportunities

Near-Term (Up-Coming)

IRC will advocate for and facilitate the development of youth and 'on the job' employment opportunities across the ISR.

Technology

Goal: *To increase local energy infrastructure and programs to establish cleaner, cheaper, and more reliable energy for homeowners and businesses.*

By pursuing clean infrastructure projects and implementing retrofitting programs for homes and businesses, energy will become more reliable, affordable, and sustainable. The ISR will be less dependent on importing fuel from the south, leading to greater energy independence, improved energy security, and reduced environmental risks.

Action 1: Cleaner Energy Feasibility Studies
Action 2: Inuvialuit-led Energy Security Projects
Action 3: Energy Storage & Battery Development
Action 4: Solar Installation & Maintenance Programming

Image Credit: Green Sun Rising Inc. - Inuvik Stanton Cold Storage Container

Action Items

Cleaner Energy Feasibility Studies

Periodic (Ongoing)

IRC will continue to support and liaise with communities and external partners as they embark on cleaner energy feasibility studies to determine which technologies are suitable for each ISR community. These studies will also be valuable for determining the cleaner energy potential for each community and will continue to be completed as new innovations and technologies are developed.

Inuvialuit-Led Energy Security Projects

Active (Ongoing)

To establish Inuvialuit-led cleaner energy projects that reduce dependence on expensive imported fossil fuels in the ISR and create sustainable, secure work opportunities for local community members and businesses.

Energy Storage & Batter Development

Long-Term

Implementing a battery storage system in each ISR community will allow communities to safely add an increased proportion of intermittent renewables (i.e. solar & wind) to their energy grid. This stage of development will likely occur as a future action item, as many battery systems are expensive and not yet feasible for arctic climates.

Solar Installation & Maintenance Programming

Mid-Term

IRC aims to host training workshops for solar panel installation and maintenance to encourage residents and businesses to harness solar energy and independently manage the maintenance of their systems. This program will encourage homeowners & businesses to utilize NTPC's Net Metering Program, which allows individuals to sell excess solar energy back to the grid or use it towards energy bills in the winter.

Environmental Impact

Goal: *To protect and conserve our natural heritage for present and future generations.*

To ensure that Inuit Nunangat remains productive, healthy, and safe for generations to come, energy planning must consider the environmental impacts of energy usage and technology. These impacts include greenhouse gas emissions, pollution, and other inherent environmental risks. Energy planning must also apply and respect traditional knowledge to ensure that wildlife and the environmental are not negatively impacted by energy development.

Action 1: Traditional Knowledge & Cultural Impact Assessments
Action 2: Energy Reduction Programs
Action 3: Net-Zero Housing Development Program

Image Credit: Parks Canada/Kayla Arey - Tuktut Nogait

Action Items

Traditional Knowledge & Cultural Impact Assessments

Periodic (As Needed)

Prioritizing the utilization of traditional knowledge and assessing potential impacts on Inuvialuit culture as energy policy and infrastructure is developed across the ISR. This will ensure that energy development does not negatively impact traditional hunting, fishing, and trapping, or other aspects of Inuvialuit culture.

Energy Reduction Programs

Short-Term (In Development)

IRC will facilitate the development of residential and commercial Energy Reduction Programs to reduce the overall amount of energy being consumed and the volume of GHG emissions across the ISR. These programs may vary based on community feedback and priorities.

Net-Zero Housing Development Program

Long-Term

To improve access to safe housing and reduce home energy costs, IRC would like to assess the feasibility of developing a program focused on the development of Net-Zero houses across the ISR. These homes would apply advanced building practices, renewable energy technology, and energy efficiency measures to have annual net-zero energy consumption and no emissions.

Energy Cost

Goal: *To develop mechanisms to reduce the cost of energy for residents and businesses across the ISR.*

By developing actions that lead to a reduction in energy costs, community members and businesses will be able to reap the socio-economic benefits. Cost reduction will reduce stress associated with high seasonal energy bills and allow community members to spend their time and money on things other than heating, transportation, and electricity. Businesses will be able to thrive and expand due to the removal of barriers associated with the cost of energy, and the whole ISR will, in turn, see the benefits.

Action 1: Home & Business Retrofit Program
Action 2: Home Winterization Program

Image Credit: Green Sun Rising Inc. - Tuktoyaktuk, Fire Hall

Action Items

Home & Business Retrofit Program

Short Term (In Development)

To reduce energy costs, IRC will develop programs and promote incentives geared towards energy efficiency retrofits for homeowners and businesses. By implementing retrofits, Inuvialuit will consume less energy, leading to financial savings.

Home Winterization Program

Short-Term (In Development)

To reduce energy costs, IRC will develop programs and promote incentives geared towards home winterization retrofits for homeowners. By winterizing homes, less heat will escape, reducing energy consumption and leading to financial savings.

Education & Energy Literacy

Goal: *Advance accessibility to educational materials about clean energy and promote Inuvialuktun as the working language across the ISR.*

Fostering energy education in schools and throughout the six ISR communities will help to inspire, engage, and inform Inuvialuit about consumption habits, cleaner solutions, and forward-thinking innovations that are rapidly changing the way we think about energy. Along with developing educational resources in English, it is important that we increase the availability of Inuvialuktun educational materials related to clean energy and climate change to revitalize Inuvialuktun as the working language across the ISR.

Action 1: Inuvialuit Energy & Climate Children's Book Series
Action 2: Energy & Climate Change Terminology Glossary
Action 3: Energy-driven STEM Programs for Youth & Community
Action 4: Development of Energy Units in K-12 Curriculum

Image Credit: Inuvialuit Regional Corporation

Action Items

Inuvialuit Energy & Climate Children's Book Series

In Progress

A series of children's books relating to energy and climate change terminology is currently in development. Once complete, these resources will be available to schools, libraries, and Inuvialuit organizations as free teaching tools to promote learning the Inuvialuktun language and Inuvialuit culture.

Energy & Climate Change Terminology Glossary

Short-Term (In Progress)

Clean energy & climate change terminology will continue to be translated into the three Inuvialuktun dialects and added to the existing Terminology Glossary. By expanding this glossary and standardizing clean energy & climate change terminology, IRC aims to bridge communication gaps between researchers and community members and promote the use of Inuvialuktun as the working language across the ISR.

Energy-driven STEM Programs for Youth & Community

Short-Term (In Development)

IRC will work with Inuvialuit organizations, the school board, and external partners to develop, implement and facilitate energy-driven STEM programming for youth and the communities to inspire and educate Inuvialuit about clean energy technology.

Development of Energy Units in K-12 Curriculum

Mid-Term

In partnership with the Beaufort Delta Education Council, IRC will guide, influence, and develop the clean energy science units in the K-12 curriculum. This action will ensure that students have the necessary tools and resources to understand the fundamentals of clean energy, innovative technology, and how energy plays a role in their lives at personal, community, national, and global levels.

Part 5: Measuring Success

Benchmarks & Outcomes

Upon implementation of this plan, several benchmarks and measurable items will be able to be tracked to show progress and success. These measurable items include aspects related to both the individual and the region.

Cost

Home energy bills can be observed to show changes in home energy costs and usage of electricity. Federal Reports and Statistics will track overall economic impact and employment statistics.

Environment

Reductions in greenhouse gas emissions will be tracked by the utility companies.

Community & Capacity

Community engagement and feedback will be recorded to determine the overall success and impact of the implementation of the action items. Successful engagement and energy education will be reflected in greater community participation at events.

Employment & Economic Statistics

- Increase in local economy, businesses & local jobs
- Access to energy education & training opportunities

Monthly Energy Bills

- Demonstrate changes to cost of living & energy usage

Feedback at Community Events & Workshops

- Increased availability to find work for all skill & education levels
- Access to training & educational opportunities

Self-Directed Wellness Check-Ins

- Track mental & physical health changes
- Decreased stress about bills & budgeting
- More time on the land from increased discretionary income

Participation in Community Engagement Opportunities

- More educated population able to advocate for themselves and ask more informed questions as energy projects and research are proposed
- United and cohesive communities as actions are developed
- Benefits on the regional, municipal, and individual scale

Federal Reports on Subsidies

- Energy independence and the reduction in reliance on government subsidies, imported fuel and transient workers

Greenhouse Gas Emission Statistics

- Reductions in regional GHG emissions, leading to environmental benefits

List of Acronyms

AEA – Arctic Energy Alliance

ARI – Aurora Research Institute

GHG – Greenhouse Gases

GNWT – Government of the Northwest Territories

IFA – Inuvialuit Final Agreement

IRC – Inuvialuit Regional Corporation

IISCC – Innovation, Inuvialuit Science and Climate Change (a division of IRC)

ISR – Inuvialuit Settlement Region

ITK – Inuit Tapiriit Kanatami

NTPC – Northwest Territories Power Corporation

LNG – Liquefied Natural Gas

TPSP – Territorial Power Support Program

Glossary Of Terms

Biomass

Organic non-fossil materials (ex. wood or willows) that can be used as sources of renewable energy.[50]

Carbon Dioxide Equivalent (CO2-eq)

The amount of carbon dioxide by weight emitted into the atmosphere that would produce the same estimated impact as a given weight of another greenhouse gas. Carbon dioxide equivalents are computed by multiplying the weight of the gas being measured (for example, methane) by its estimated global warming potential (which is 21 for methane).[50]

Emissions

Anthropogenic (human-derived) releases of gases to the atmosphere. In the context of global climate change, they consist of greenhouse gases.[50]

Energy Efficiency

Unlike energy conservation, which involves some reduction of service, energy efficiency provides energy reductions without sacrifice of service. Energy efficiency can be achieved by switching from energy heavy appliances (ex.60W incandescent lightbulbs) to alternatives that use less electricity (ex.10W LED lightbulbs) and complete the same outcomes.[50]

Energy Retrofit

Modifications to existing infrastructure or technology that improve energy efficiency, reduce operational costs, and/or reduce energy consumption.[51]

Energy Security

Having access to an uninterrupted supply of energy at an affordable price.[50]

Generator Capacity

The maximum output, commonly expressed in megawatts (MW), that generating equipment can supply to system load, adjusted for ambient conditions.[50]

Greenhouse Gases

Gases, such as water vapour, carbon dioxide, nitrous oxide, methane, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride, that prevent radiant energy from leaving Earth's atmosphere, resulting in a trapping of absorbed radiation and a tendency to warm the planet's surface.[50]

Grid

The layout of an electrical distribution system.[50]

Grid Capacity

The amount of energy available for purchase from the grid system.[50]

Heating Oil

Fuel, made from petroleum distillates, that is primarily used in boilers, furnaces (for space heating) and in water heaters.[52]

Intermittent Renewable Energy

Intermittent renewable energy is energy that comes directly from naturally occurring energy sources like solar, wind and run-of-the-river hydroelectricity. Natural changes in consistency lead to energy fluxes, meaning that these power sources can be unpredictable and inconsistent.[50]

Joule (J)
The SI (International System of Units) unit for energy. In practical terms, 1 joule of energy is equivalent to the amount of energy it takes to lift an apple up by one meter. This is often confused with Watts, which are the SI unit for power.[50]

Load
The amount of energy that a customer receives from the electricity grid.[50]

Liquefied Natural Gas (LNG)
Natural gas that has been liquefied by reducing its temperature to -260 degrees Fahrenheit at atmospheric pressure.[50]

Micro-Grid
A self-sufficient grid system that produces its own local power independent form a larger, more widespread grid.[53]

Photovoltaic Solar Energy (Solar PV)
Sunlight that is captured by photovoltaic cells and converted into electricity.[50]

Renewable Energy
Energy from sources that are naturally replenishing; renewable resources have an virtually infinite supply but may be limited by the amount of energy that is available per unit of time.[54]

Sustainability
Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.[55]

Synthetic Natural Gas
A manufactured product, chemically similar in most respects to natural gas, resulting from the conversion or reforming of hydrocarbons that may easily be substituted for or interchanged with pipeline-quality natural gas.[50]

Thermal Zone Community
Community whose primary power supply is produced by self contained power plants that depend on diesel or gas.[56]

Watt (W)
The SI unit for power, equivalent to one Joule per second. Kilowatt (kW), meaning 1000 Watts, is the commonly used unit to express the amount of power in commercial and residential settings.[50]

Watthour (Wh)
The electrical energy unit of measure equal to one watt of power supplied to, or taken from, an electric circuit steadily for one hour.[50]

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51. U.S. Department of Energy. n.d.
52. Energy Information Administration. 2021(b)
53. Wood. 2020.
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