2018/19 Annual Report

ARCTIC ENERGY ALLIANCE

Contents

Cover photo of solar panel installation in Tuktoyaktuk courtesy of Green Sun Rising.

Table of abbreviations

AEA	Arctic Energy Alliance
EPA	Environmental Protection Agency
EEIP	Energy Efficiency Incentive Program
ERS	EnerGuide Rating System
GNWT	Government of the Northwest Territories
GTC	Gwich'in Tribal Council
NRCan	Natural Resources Canada
NWT	Northwest Territories
REACHE	Responsible Energy Approach for Community Heat and Electricity

Foreword

For 22 years, the Arctic Energy Alliance—or AEA for short—has been leading the North in taking action on climate change. And it's always nice to be recognized for that work and entrusted to do more.

And we certainly have been entrusted with more. This was my first year at the AEA, and I came on board at an exciting time. It was a momentous year for us, with the announcement of approximately $9 million in additional funding over four years. This new funding comes from the governments of Canada and the Northwest Territories through the Low Carbon Economy Leadership Fund. It will allow us to provide more rebates, bigger rebates and new initiatives to help more people save energy, save money and reduce their carbon footprints.

Our expanded programs and new initiatives rolled out at the beginning of the 2019/20 fiscal year. We're excited to see the impact they will have. But we already know that Northerners made a substantial impact on their energy use and greenhouse gas emissions in 2018/19.

Mary Flunki, from Whati, received a stove under one of the AEA's community wood stove projects.

Collectively, the clients we worked with this year will save 1,500 MWh of electricity annually, which is enough to charge more than 200,000 smartphones every night for a year. They will also reduce their carbon footprint by more than 600 tonnes a year—equivalent to converting two thirds of the power generation for the community of Gameti to renewable electricity.

Of course, our work is about much more than simply providing rebates and tracking savings. It's also about building relationships whenever possible so that we can do our part to help people understand how to best take action on lowering their energy bills and fighting climate change. Like when we partnered with the Hamlet of Sachs Harbour to coordinate energy efficiency retrofits on all of the privately owned homes in the community. Or with five NWT communities to install new, efficient, code-compliant wood stoves for residents.

Over the past few years, we have completed half of a two-year community wood stove project each year. This year we completed the second half of one project and first half of another. We were able to do this, first and foremost, because of our additional funding. But the fact that we were able to complete two separate portions of our community wood stove projects speaks to the demand that exists in the territory. It means our work makes a difference.

With increased funding and high demand for our services, the next fiscal year will be a challenge for our staff. But it's one that we welcome and embrace. We look forward to doing even more to make the NWT a cleaner, more energy efficient place to live. I'm glad to be a part of the team.

Mark Heyck
Executive Director

2018/19 at a glance

This was an interesting year for the AEA. On one hand, we gave out fewer rebates than we did last year—187 fewer, to be exact. And on the other, we spent part of the year gearing up to provide greater incentives than we ever have before.

The decrease in rebates was due to a lower demand on our Energy Efficiency Incentive Program, which offers rebates to Northerners who purchase energy-efficient products such as wood stoves, LED light bulbs and ENERGY STAR® certified refrigerators. However, the average rebate under this program was larger than it was last year, indicating that people are making larger individual purchases of energy-efficient equipment.

And bear in mind that this program includes payments to the North West Company for bulk point-of-sale rebates on LED bulbs at most of its Northern and Northmart stores in the NWT. For example, one payment (which counts as one rebate in our system) could hypothetically cover 50 in-store rebates.

In contrast to the Energy Efficiency Incentive Program, our other incentive-based programs were busier than last year, giving out eight more rebates in total. These programs, which cover commercial and community-based clients, as well as residents who install renewable energy systems, cover much larger purchases and projects than the Energy Efficiency Incentive Program does. So each rebate indicates a fair amount of work for the client, their contractors and the AEA.

With the announcement of additional funding from the governments of Canada and the Northwest Territories, we spent time in the second half of the year planning for the 2019/20 fiscal year. We knew—from even before the public announcement was made—that as of April 1, 2019, we would be expanding our existing programs and launching new ones to make it easier and more affordable than ever for Northerners to make energy-efficient choices or install renewable energy systems.

For a more in-depth understanding of our programs and services, be sure to read on.

The North West Company partnered with the AEA to offer instant rebates on LED light bulbs at many of its Northmart and Northern stores, like this one in Tuktoyaktuk.

Overall results[1]

Programs and Projects		
Number of core programs		**7**
Number of special projects		**5**
Rebates		
Total rebates	Including Energy Efficiency Incentive Program (EEIP)	689
	Excluding EEIP	69
Total value of rebates	Including EEIP	$630,000
	Excluding EEIP	$420,000
Average rebate	Including EEIP	$910
	Excluding EEIP	$6,000
Payback*		
Total capital cost		$3,000,000
Estimated annual savings		$530,000
Simple payback	Before rebates	5.7 years
	After rebates	4.5 years
Energy Savings		
Estimated annual electricity savings		1,500 MWh
Equivalent to charging 210,000 smartphones 4 hours a day for a year		
Estimated power demand avoided[2]		340 kW
Equivalent to 8 electric water heaters running at the same time—at 4,500 W each		
Annual fossil fuel consumption avoided (oil and propane)*		7,100 GJ
Equivalent to 185,000 L of heating oil—enough to fill more than 5 typical tanker trucks		
Greenhouse Gas Reduction		
Estimated annual greenhouse gases avoided		630 tonnes
Equivalent to converting two thirds of the power generation for the community of Gameti to renewable electricity		
Rebate cost per tonne of greenhouse gases avoided		$1,000

**Not counting fuel used for community-level electricity generation.*

[1] *Throughout this report, numbers greater than nine and those with decimals have been rounded to two significant digits, unless otherwise noted—except for the number of rebates provided and energy audits/evaluations completed, which are presented accurately. In some cases, numbers may not add up correctly due to rounding.*

[2] *Power demand refers to the maximum amount of electricity that is used at any given time.*

Highlights

The following are just a few of the highlights from our programs and projects over the past year.

Programs

Energy Efficiency Incentive Program

Provides rebates on energy-efficient appliances and other products.

- Provided 620 rebates.
- LED lighting continues to be the most popular eligible product, with 204 rebates this year.
- Combined, the energy-efficient products purchased will save the NWT 480 tonnes of greenhouse gases annually—more than any other AEA program this year.

Energy Rating Service Support Program

Provides home energy evaluations and advice.

- Completed 185 home energy evaluations (up 23 percent over last year)
- Performed evaluations on 103 new homes (up 58 percent over last year)
- Combined, all recommended upgrades could save homeowners $180,000 and 330 tonnes of greenhouse gas emissions a year.

Commercial Energy Conservation and Efficiency Program

Provides building energy audits and rebates to NWT businesses to make upgrades to conserve energy and improve their energy efficiency.

- Provided 31 rebates (up 48 percent over last year).
- Combined, annual electricity consumption avoided by all clients' projects is more than the annual electricity used in the community of Tsiigehtchic.
- The average client project will pay for itself through energy savings in less than three years.

Community Government Building Energy Retrofit Program

Provides building energy audits, rebates and project coordination to help community governments across the NWT better manage their energy use.

- Distributed approximately $87,000 in rebates in five communities
- Completed 19 "yardstick" building energy audits and 19 "targeted" building energy audits in three communities.
- Energy audits identified more than $280,000 in potential annual savings.

Alternative Energy Technologies Program

Provides incentives for NWT residents, businesses and community-based organizations to adopt renewable and alternative energy systems, such as solar, wind, wood and more.

- Provided 32 rebates (1 fewer than last year).
- The solar photovoltaic systems that our clients installed are expected to produce more than 120,000 kWh of electricity a year (enough to power a 150-W TV for 820 hours).

Biomass Energy Program

Provides northerners with accessible technical advice on existing or potential biomass projects.

- Supported community governments in Behchoko and Kakisa to plan to get existing biomass heating systems operating at full capacity, and provided ongoing advice for the district heating system in Whati.
- Provided guidance and advice on potential biomass systems in eight locations throughout the NWT.

Community engagement

Community engagement, through all six AEA offices, allows the AEA to keep a close connection to communities throughout the NWT.

- Each office is involved in every program and project the AEA undertakes, and AEA staff attend trade shows, events and other community engagement activities in every NWT community.

Special projects

Community energy profiles

Conducted tests on various domestic water heaters to determine the approximate cost of operation, recovery times and standby losses.

Community labour capacity building

Compiled a list of all known trade services that exist in each NWT community (such as plumbing, heating and general contracting). Used the list to reach out to companies about potential contracting and training opportunities.

Community wood stove projects

Completed one two-year project that began in 2017/18, and began a new project. Coordinated the installation of 55 stoves in five partner communities and arranged for 54 additional stoves to be delivered to four communities.

Home energy retrofit project in Sachs Harbour

Partnered with the Hamlet of Sachs Harbour to implement low-cost retrofits to participating residents' homes to reduce energy use, costs and greenhouse gas emissions.

Northern partnerships project

Partnered with four organizations to share knowledge about energy and climate change for the benefit of the NWT.

Ken Baigent, one of the AEA's Energy Management Specialists, conducts a home energy evaluation in Tuktoyaktuk.

Budget[3]

Source	Funding	Expenses	
		Operations	Incentives
Government of the Northwest Territories (GNWT) base & core program funding	**$ 2,740,000**	**$ 2,206,000**	**$ 534,000**
Base funding for Regional Office Program, administrative staff, offices, etc.	$ 1,600,000	$ 1,669,000	$ 0
Alternative Energy Technologies Program	$ 300,000	$ 86,000	$ 166,000
Biomass Energy Program	$ 100,000	$ 75,000	$ 0
Commercial Energy Conservation and Efficiency Program	$ 200,000	$ 84,000	$ 144,000
Community Government Building Energy Retrofit Program	$ 190,000	$ 81,000	$ 87,000
Energy Efficiency Incentive Program	$ 200,000	$ 68,000	$ 138,000
Energy Rating Services Support Program	$ 150,000	$ 142,000	$ 0
GNWT supplementary project funding	**$ 213,000**	**$ 59,000**	**$ 154,000**
Community Wood Stove Project (REACHE)	$ 150,000	$ 46,000	$ 104,000
Home Energy Efficiency Retrofit Project in Sachs Harbour	$ 63,000	$ 13,000	$ 50,000
GNWT Low Carbon Economy Leadership Fund core program top-up & new initiative funding	**$ 363,000**	**$ 135,000**	**$ 228,000**
Alternative Energy Technologies Program (top-up)	$ 7,000	$ 7,000	$ 0
Commercial Energy Conservation and Efficiency Program (top-up)	$ 26,000	$ 6,000	$ 20,000
Community Government Building Energy Retrofit Program (top-up)	$ 9,000	$ 9,000	$ 0
Energy Efficiency Incentive Program (top-up)	$ 106,000	$ 31,000	$ 75,000
Deep Home Energy Retrofit Program	$ 20,000	$ 20,000	$ 0
Low Income Homeowner Energy Efficiency Project	$ 48,000	$ 9,000	$ 39,000
Non-profit Energy Efficiency and Conservation Program	$ 8,000	$ 8,000	$ 0
South Slave Electric Heat Incentive Program	$ 5,000	$ 5,000	$ 0
Community wood stove project	$ 134,000	$ 40,000	$ 94,000
Natural Resources Canada project funding	**$ 123,000**	**$ 31,000**	**$ 92,000**
Home Energy Efficiency Retrofit Project in Sachs Harbour	$ 123,000	$ 31,000	$ 92,000
Membership dues	**$ 227,000**	**$ 227,000**	**$ 0**
Government of the Northwest Territories	$ 150,000	$ 150,000	$ 0
GNWT – Crown Corporations	$ 67,000	$ 67,000	$ 0
Other	$ 10,000	$ 10,000	$ 0
Other source income	**$ 112,000**	**$ 112,000**	**$ 0**
TOTAL	**$ 3,778,000**	**$ 2,770,000**	**$ 1,008,000**

[3] Numbers are rounded to the nearest thousand, and may not add up correctly due to rounding. Some programs were under or over budget, so in some cases funding was moved between programs for operations and incentives.

Introduction

About the Arctic Energy Alliance

The Arctic Energy Alliance (AEA) is a not-for-profit society, based in the Northwest Territories (NWT), that helps northerners find ways to conserve energy, become more energy efficient, and adopt alternative and renewable sources of energy. All of this leads toward reducing the North's carbon footprint, while saving our clients some money in the process.

The AEA was formed in 1997 to consolidate the activities of several organizations with an interest in energy. The intent was to eliminate duplication and overlap between the various departments and agencies, to provide a single point of contact for the public, and to allow for a more coordinated approach to public education and the delivery of energy conservation services.

Over the past 22 years, the scope of our work has grown substantially. Today, we help residents, businesses, non-profit organizations, community governments and Indigenous governments all across the NWT to lower energy costs, improve building efficiencies and comfort, reduce greenhouse gas emissions, and more. We have become the leading northern organization in bringing together communities, consumers, producers, regulators and policymakers to reduce the cost and environmental impacts of energy use in the NWT.

In fact, bringing people together is an important part of how we operate. Forming partnerships is at the core of our work, whether establishing official community partnerships on an individual project or building and strengthening relationships with vendors, contractors and clients across the territory every day.

With our head office in Yellowknife, five regional offices across the Northwest Territories and 21 staff members, we touch every community in the NWT.

Thanks to generous funding from the governments of the Northwest Territories and Canada, we offer a suite of core programs focused on energy efficiency and conservation, building evaluations, and alternative and renewable energy sources. We also conduct a suite of energy-related special projects, devised by AEA staff, which are typically more short-term in nature.

This report highlights our programs and projects from the 2018/19 fiscal year, including their results, so our readers can see the impact we have made.

Homes North is just one of the many builders that the AEA works closely with. They had the first home in the NWT to be evaluated under the newest version of Natural Resources Canada's EnerGuide Rating System for homes.

Charting our course

An overview of our strategic plan

The Arctic Energy Alliance's strategic plan shapes where we want to go and what we want to achieve as an organization. It defines everything we do. So understanding the core of our strategic plan—our vision, mission, goals, objectives and values—will provide context on the programs and projects we do and the results we achieve.

Our vision: *our ultimate goal*

NWT society will become a global leader in clean, efficient, sustainable energy practices.

Our mission: *why we exist*

To promote and facilitate the adoption of efficient and renewable energy practices by all members of NWT society.

Our goals: *what we will achieve*

1. Members of NWT society will know more about the costs and environmental impacts of their energy use.
2. Members of NWT society will want to reduce costs and environmental impacts of their energy use.
3. Members of NWT society will adopt efficient, renewable and carbon-neutral energy practices.
4. Members of NWT society will know the Arctic Energy Alliance as the best place to go when they want to adopt efficient, renewable and carbon-neutral energy practices.
5. Members of NWT society will achieve significant reductions in the costs and environmental impacts of their energy use.
6. Members of NWT society will be celebrated as leaders in efficient, renewable and carbon-neutral energy practices.

Our objectives: *how we will achieve our goals*

1. **Provide services that cover all energy sectors of NWT society:** To expand programs to ensure all sectors of NWT energy use are covered; ensure complete coverage outside of Yellowknife and expand coverage of industry and transportation.
2. **Learn continuously:** To increase Arctic Energy Alliance's own capacity as the "go-to place" for efficient, renewable and carbon-neutral energy practices in the NWT.
3. **Inform:** To provide top-quality information and advice on efficient, renewable and carbon-neutral energy practices accessible to all members of NWT society.
4. **Motivate and support an increasing number of clients to act:**
   a. *Identify and remove barriers*: To identify and work with our partners to remove barriers to the adoption of efficient, renewable and carbon-neutral energy practices.
   b. *Analyze costs and benefits*: To enable the delivery of top-quality energy audits and pre-feasibility studies to those who are contemplating taking action in NWT society.
   c. *Provide incentives*: To research, design and provide effective incentives (financial and other) that motivate NWT society to adopt efficient, renewable and carbon-neutral energy practices.
   d. *Advise on policies and regulations*: To research and advise our partners on effective policies and regulations that would motivate NWT society to adopt efficient, renewable and carbon-neutral energy practices.

e. *Prompt and follow-up with clients*: To encourage NWT society to adopt efficient, renewable and carbon-neutral energy practices.

f. *Champion and recognize success*: To work with and monitor specific clients as "case studies" to efficient, renewable and carbon-neutral energy practices.

5. **Integrate:** To transfer established efficient, renewable and carbon-neutral energy practices into the institutions of NWT society.

Our values: *how we operate*

Mutual respect

We show genuine concern for each other, our clients and others, treating them with understanding and appreciation through fairness, equality and healthy dialogue. We listen carefully to what people say, remain open to all suggestions and questions, and respect others' points of view.

Service and partnership

We believe that the most important way to achieve our vision is through partnerships. We view all our clients as potential partners and are dedicated to ensuring they get top-quality service.

Learning

We are committed to continuous improvement. We build on good ideas, learn from our experiences and challenge ourselves and the status quo.

Results

We have a clear vision of where we're going and how to get there. We focus our resources to achieve our objectives.

Honesty and integrity

We say what we believe and we lead by example.

Positive work environment

We take pride in our professional work ethic, our "can-do" attitude and our informal and flexible work environment. We recognize a job well done.

High-quality work

We are dedicated to detail. We strive to provide top-quality and unbiased advice, based on solid, science-based research. We review each other's work to make sure we get things right.

The grand opening of the AEA's new Sahtu office. Along with our Dehcho office, it was one of two AEA locations that moved to more convenient locations in 2018/19.

Core programs

A significant amount of the work we do is tied to seven core programs that are directly funded by the Government of the Northwest Territories (GNWT) Department of Infrastructure. As of part-way through the 2018/19 fiscal year, additional funding is being provided by the Government of Canada, as well as the GNWT, through the Low Carbon Economy Leadership Fund.

These programs provide a range of services and support to residents, businesses, community governments, Indigenous governments and non-profit organizations throughout the territory.

The seven programs can be grouped into three categories: energy efficiency and conservation, renewable and alternative energy, and regional offices.

Energy efficiency and conservation programs

Reducing energy use and using that energy efficiently are the easiest and most cost-effective ways to reduce greenhouse gas emissions and lower energy bills. This is why the AEA has four programs geared toward energy efficiency and conservation across the Northwest Territories.

Energy Efficiency Incentive Program

The Energy Efficiency Incentive Program provides rebates on the purchase of new, energy-efficient appliances and other products, with the goal of reducing energy costs and greenhouse gas emissions by conserving or reducing energy use.

FOR

residents, businesses, non-profit organizations, Indigenous governments, community governments

AEA FUNDING

$200,000 (from GNWT Department of Infrastructure)

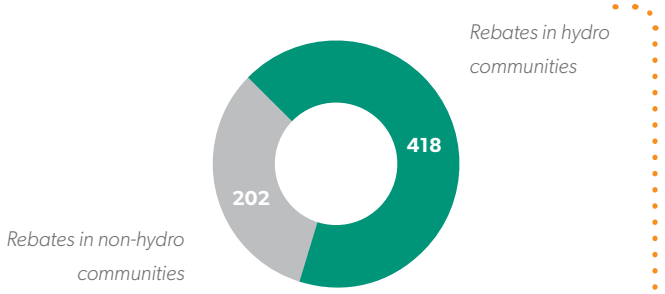
Results

620 total rebates[4]

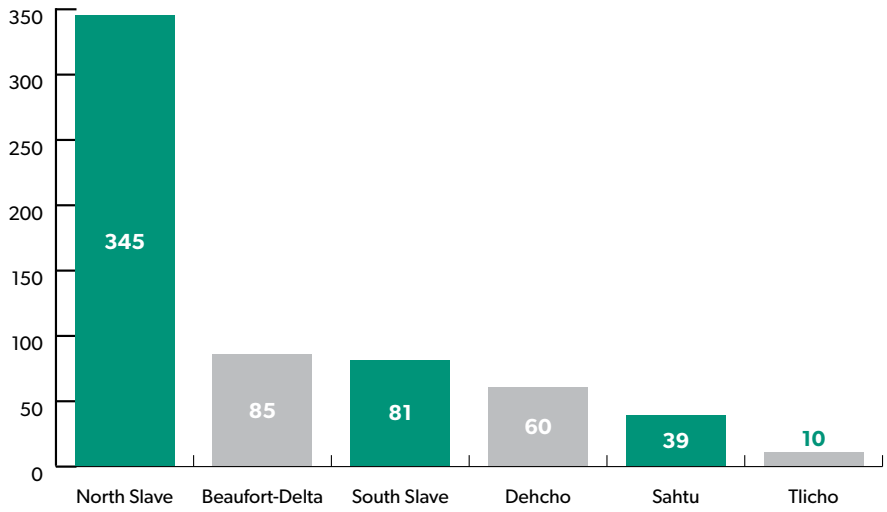
total value of rebates **$210,000**

$350 average rebate

Rebates by region[5]



[4] For LED point-of-sale rebates at Northern and Northmart stores, the number of rebate cheques issued by the AEA to the North West Company may not accurately reflect the number of rebates issued by North West Company stores at the checkout. The 154 point-of-sale rebates issued by the AEA represent approximately 900 LED bulbs.



Rebates by type

204	LED lighting
124	Washers
80	Wood and pellet stoves
51	Refrigerators
45	Propane furnaces
42	On-demand water heaters
25	Programmable thermostats
19	Propane boilers
14	ECM pumps
10	Insulation
3	Drain water heat recovery
2	Air sealing
1	Oil furnaces

[5] Hydro communities are those communities that receive most of their electricity from hydroelectric generators. This includes Behchoko, Dettah, Enterprise, Fort Smith, Hay River, Katlodeeche, Ndilo and Yellowknife. All other communities in the NWT are "non-hydro," which receive most of their electricity from generators that burn fossil fuels.

Payback

Capital cost (all products, before rebates):

$1,500,000

Estimated annual savings (all products):

$220,000

Simple payback (all products, after rebates):

6.1 years

Greenhouse gases

Annual greenhouse gases avoided: **460** tonnes

(equivalent to the greenhouse gases produced by 200,000L of gasoline[6])

Rebate cost per tonne reduced: **$460**

Energy savings

Annual electricity consumption avoided:

560,000 kWh

(equivalent to the power consumed by 270 coffee makers, at 1,000 W each, running for 8 hours a day, 261 working days a year)

Rebate cost per kWh avoided: **$0.38**

Annual fossil fuel consumption avoided: **4,200** GJ

(equivalent to 160,000 L of propane—enough to fill roughly 8,900 propane cylinders for home barbecues)

Greenhouse gas and energy savings in hydro communities

Several communities in the NWT use hydroelectricity, including Behchoko, Dettah, Enterprise, Fort Smith, Hay River, Katlodeeche, Ndilo and Yellowknife. All other communities in the territory burn fossil fuels to create electricity.

In both hydro and non-hydro communities, saving electricity can help you lower your power bill. In a non-hydro community, it also means reducing greenhouse gas emissions because less fossil fuel has to be burned to create that power. Hydroelectricity, on the other hand, does not create greenhouse gas emissions. So saving electricity in a hydro community does not have associated greenhouse gas reductions.

Across the NWT, most households and organizations burn fossil fuels for space heating. Switching to a more efficient heating system, or to a less carbon-intensive fuel source such as wood, can help you directly reduce your greenhouse gas emissions—even in a hydro community.

For these reasons, you will see throughout this report that, in some cases, greenhouse gas savings are low in hydro communities, even though electricity savings are high. In other cases, greenhouse gas savings are relatively high because of improvements or efficiencies related to space heating.

[6] *https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator*

Greenhouse gas and energy savings by community

Community	No. of rebates	Annual GHGs avoided/ increased (tonnes)	Rebate cost/tonne of GHGs reduced	Annual electricity consumption avoided (kWh)	Rebate cost/kWh avoided	Annual fossil fuel consumption avoided/ increased (GJ)
Aklavik	13	↓ 4.1	$ 150	6,800	$ 0.09	↑ 17
Behchoko*	5	↓ 2.5	$ 1,200	1,700	$ 1.90	↓ 36
Deline	8	↓ 0.9	$ 460	1,200	$ 0.34	-
Enterprise*	5	↓ 4.3	$ 480	12,000	$ 0.17	↓ 9
Fort Good Hope	8	↓ 1.8	$ 270	2,800	$ 0.17	↑ 5
Fort Liard	11	↓ 0.7	$ 630	1,400	$ 0.25	↑ 4
Fort McPherson	14	↓ 3.5	$ 380	5,300	$ 0.32	↑ 6
Fort Providence	9	↓ 2.2	$ 160	1,100	$ 0.31	↓ 20
Fort Resolution*	1	↑ 0.1	-	1,600	$ 0.13	↑ 2
Fort Simpson	49	↓ 53	$ 320	14,000	$ 1.20	↓ 400
Fort Smith*	9	↓ 0.6	$ 5,000	14,000	$ 0.21	↓ 4
Hay River*	57	↓ 100	$ 330	58,000	$ 0.57	↓ 1,100
Inuvik	24	↓ 18	$ 290	20,000	$ 0.26	↓ 89
Norman Wells	13	↓ 2.1	$ 270	5,200	$ 0.11	↑ 12
Paulatuk	8	↓ 0.8	$ 270	1,500	$ 0.04	↑ 4
Tsiigehtchic	11	↓ 0.5	$ 62	800	$ 0.04	↑ 2
Tuktoyaktuk	11	↓ 6.8	$ 120	12,000	$ 0.07	↑ 31
Tulita	10	↓ 0.6	$ 73	1,100	$ 0.04	↑ 3
Ulukhaktok	4	↓ 0.5	$ 72	930	$ 0.04	↑ 3
Wekweeti	3	↓ 0.8	$ 1,000	950	$ 0.84	↓ 1
Whati	2	↓ 1.3	$ 620	1,600	$ 0.51	↓ 2
Yellowknife*	341	↓ 250	$ 560	390,000	$ 0.36	↓ 2,500
Remote	4	↓ 13	$ 260	5,400	$ 0.65	↓ 94

**Hydro community*

Greenhouse gas and energy savings by region

Region	No. of rebates	Annual GHGs avoided (tonnes)	Rebate cost/tonne of GHGs reduced	Annual electricity consumption avoided (kWh)	Rebate cost/kWh avoided	Annual fossil fuel consumption avoided/ increased (GJ)
Beaufort–Delta	85	34	$ 240	48,000	$ 0.17	↓ 26
Dehcho	60	53	$ 330	16,000	$ 1.10	↓ 390
North Slave	345	260	$ 550	390,000	$ 0.37	↓ 2,600
Sahtu	39	5.4	$ 280	10,000	$ 0.14	↑ 21
South Slave	81	110	$ 360	87,000	$ 0.45	↓ 1,200
Tlicho	10	4.6	$ 1,000	4,200	$ 1.10	↓ 38

Greenhouse gas and energy savings by hydro vs. non-hydro communities

Community type	No. of rebates	Annual GHGs avoided (tonnes)	Rebate cost/tonne of GHGs reduced	Annual electricity consumption avoided (kWh)	Rebate cost/kWh avoided	Annual fossil fuel consumption avoided/ increased (GJ)
Hydro	418	350	$ 510	470,000	$ 0.38	3,700
Non-hydro	202	110	$ 290	83,000	$ 0.39	510

Energy Rating Services Support Program

The Energy Rating Services Support Program provides homeowners across the NWT with access to affordable home energy evaluations.

The AEA's registered energy advisors evaluate new and existing homes under licence with Natural Resources Canada (NRCan). Using NRCan's EnerGuide Rating System for homes, the AEA can provide a measure of a home's performance according to a national standard. An evaluation also provides a homeowner with a detailed list of potential upgrades to use less energy.

In addition to conducting home evaluations, the AEA provides free, unbiased home energy efficiency advice to NWT homeowners. We also develop working partnerships with contractors and builders to increase their knowledge of residential energy efficiency, and how to create a healthy balance between envelope air tightness and adequate ventilation.

Results

82 evaluations of existing homes

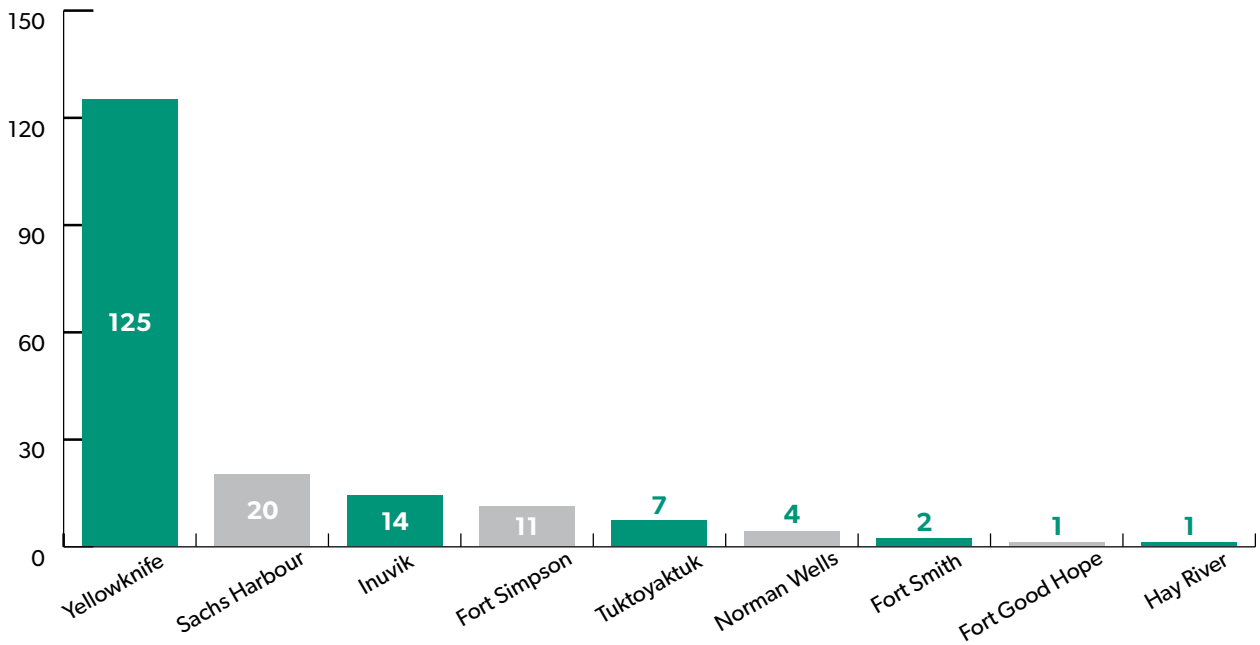
103 evaluations of new homes

185
total evaluations

FOR
residents

AEA FUNDING
$150,000 (from GNWT Department of Infrastructure) + fee for service

Total evaluations by community



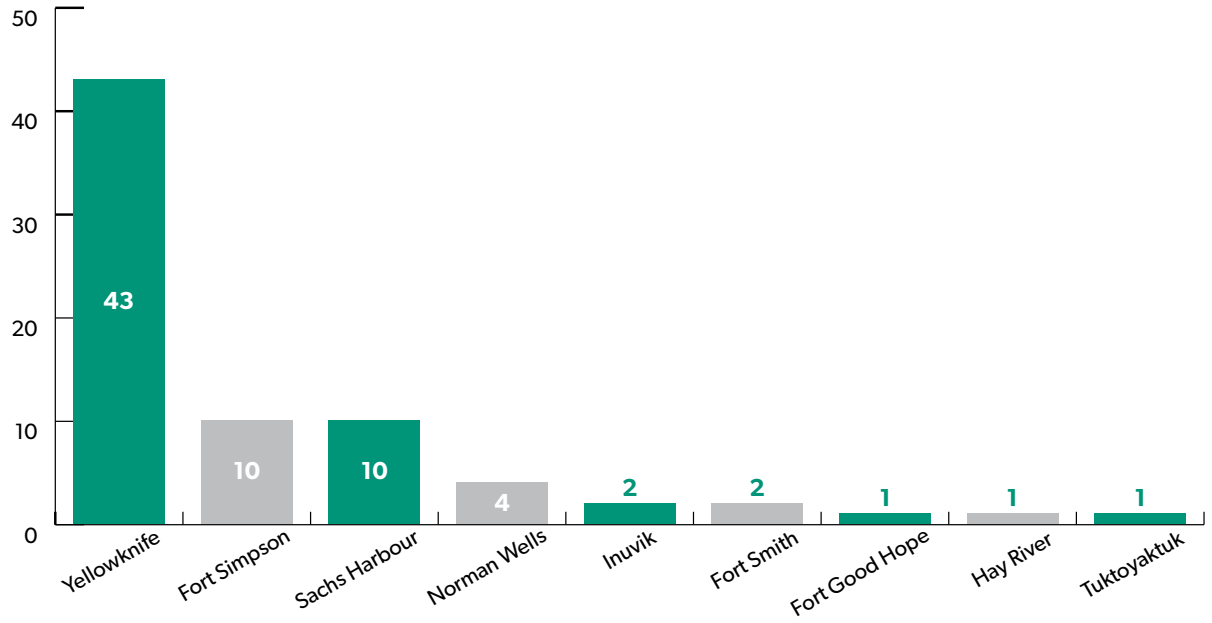
Existing homes

For existing homes, the Arctic Energy Alliance provides two types of evaluations:

- Pre-retrofit: conducted before implementing energy-saving upgrades
- Post-retrofit: conducted after a homeowner implements recommended upgrades

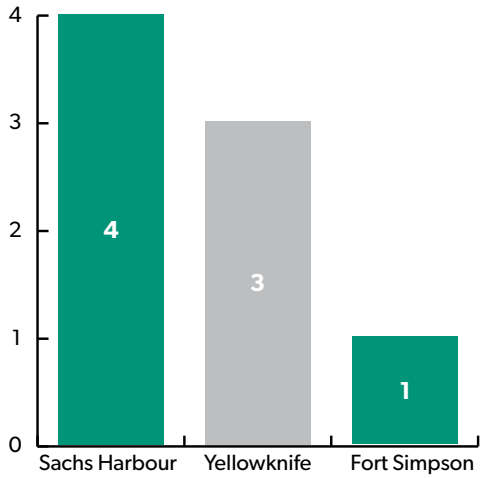
Pre-retrofit evaluations

total pre-retrofit evaluations: **74**



Post-retrofit evaluations

total post-retrofit evaluations: **8**



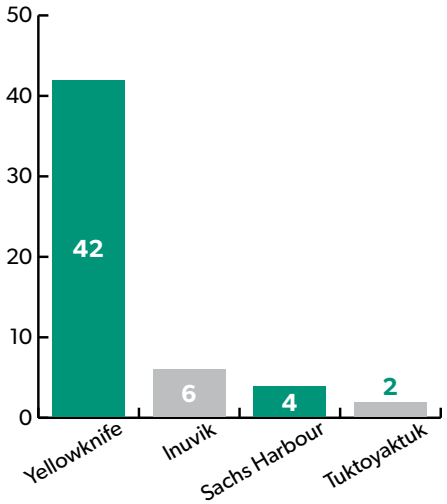
New homes

The AEA provides two types of evaluations for new home construction:

- Blueprint: conducted using building plans to calculate the expected energy use of a new home
- New home final: conducted when construction is complete

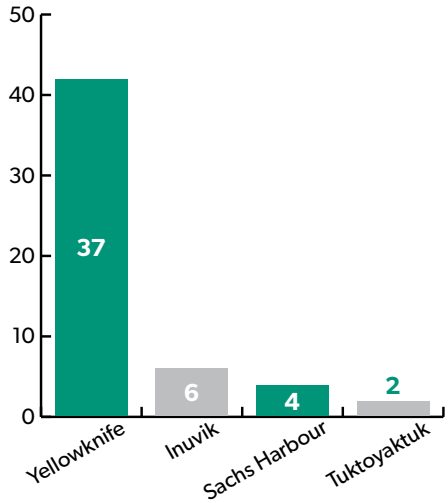
Blueprint evaluations

total blueprint evaluations: **54**



New home final evaluations

total new home final evaluations: **49**



Payback[7,8]

Potential annual savings (all existing homes):

$180,000

Greenhouse gases[8]

Potential annual greenhouse gases avoided: **330** tonnes

(equivalent to replacing nearly 6,600 incandescent light bulbs with LED bulbs in an average non-hydro NWT community)

Energy savings[8]

Potential annual electricity consumption avoided:

160,000 kWh

(equivalent to the electricity needed to run a 3,000-W clothes dryer for 53 hours)

Annual fossil fuel consumption avoided: **3,500** GJ

(equivalent to 191,000 L of heating oil—enough to fill nearly 4,600 20-L jerrycans)

[7] *Estimated capital costs are unknown, as the AEA does not ask for quotes on its recommended upgrades for homes.*

[8] *These numbers represent the estimated annual savings in money, greenhouse gases and energy that would result if all homeowners who had pre-retrofit evaluations done were to complete all of the AEA's recommended upgrades. Actual savings can be measured with a post-retrofit evaluation, but comparatively few homeowners choose to complete this process.*

New home evaluations are not included in these numbers. Although new homes can be energy efficient, they cannot be considered to save energy unless they replace an older home.

Potential greenhouse gas and energy savings by community

Community	Potential annual GHGs avoided (tonnes)	Potential annual electricity consumption avoided (kWh)	Potential annual fossil fuel consumption avoided/increased (GJ)
Fort Good Hope	9	5,600	↓ 63
Fort Simpson	42	18,000	↓ 320
Fort Smith*	9	1,700	↓ 130
Hay River*	4	160	↓ 74
Inuvik	3	420	↓ 42
Norman Wells	17	16,000	↓ 110
Sachs Harbour	34	7,900	↓ 380
Tuktoyaktuk	4	5,000	↑ 5
Yellowknife*	210	110,000	↓ 2,400

**Hydro community*

Potential greenhouse gas and energy savings by region

Region	Potential annual GHGs avoided (tonnes)	Potential annual electricity consumption avoided (kWh)	Potential annual fossil fuel consumption avoided (GJ)
Beaufort–Delta	41	13,000	420
Dehcho	42	18,000	320
North Slave	210	110,000	2,400
Sahtu	26	21,000	180
South Slave	13	1,900	200

Potential greenhouse gas and energy savings by hydro vs. non-hydro communities

Community type	Potential annual GHGs avoided (tonnes)	Potential annual electricity consumption avoided (kWh)	Potential annual fossil fuel consumption avoided (GJ)
Hydro	220	110,000	2,700
Non-hydro	110	53,000	910

Commercial Energy Conservation and Efficiency Program

The Commercial Energy Conservation and Efficiency Program provides rebates to NWT businesses that make upgrades to conserve energy and improve their energy efficiency. The program is open to businesses both on- and off-grid.

Through this program, the AEA also offers businesses building energy audits to find the greatest savings in energy, greenhouse gases and money. The first step is to conduct a "yardstick" audit, which looks at utility bill data. Next is a "targeted" audit, in which an AEA Energy Management Specialist will evaluate a building in person.

FOR
businesses

AEA FUNDING
$200,000 (from GNWT Department of Infrastructure)

Results

Audits

Building energy audits completed:

8 yardstick audits *(in 4 communities)*

7 targeted audits *(in 3 communities)*

The targeted energy audits identified roughly $43,000 in combined potential annual savings on energy bills and 62 tonnes of potential annual greenhouse gas savings.

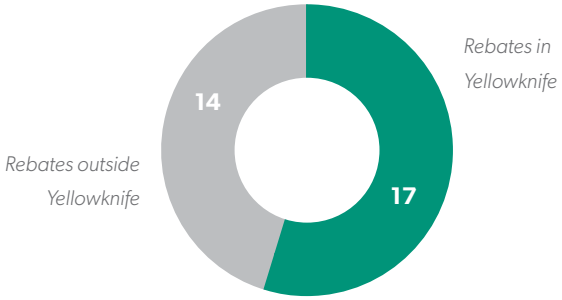
Completed projects

31 total rebates

total value of rebates **$160,000**

$5,300
average rebate

Communities



Communities receiving rebates: **7**

Payback

Capital cost (all projects, before rebates):

$780,000

Estimated annual savings (all projects):

$210,000

Simple payback (all projects, after rebates):

2.9 years

Greenhouse gases

Annual greenhouse gases increased: **29** tonnes
(can be offset by everyone in the NWT walking 3 km instead of driving[9])

Rebate cost per tonne reduced: N/A (greenhouse gas emissions increased)

[9] *https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator*

Energy savings

Annual electricity consumption avoided:

810,000 kWh

(more than the electricity used annually in the community of Tsiigehtchic)

Rebate cost per kWh avoided: **$0.20**

Power demand avoided: **190** kW

(equivalent to running 376 blenders at the same time)

Annual fossil fuel consumption increase (oil and propane): **1,900** GJ

(equivalent to 49,000 L of heating oil, or enough to fill more than 10 commercial oil tanks at 4,550 L [1,000-gallons] each)

Greenhouse gas and energy savings by community

Community	No. of rebates	Annual GHGs avoided/ increased (tonnes)	Rebate cost/ tonne of GHGs reduced	Annual electricity consumption avoided (kWh)	Rebate cost/ kWh avoided	Power demand avoided (kW)	Annual fossil fuel consumption avoided/ increased (GJ)
Fort Resolution*	1	↑ 2	-	10,000	$ 0.23	2	↓ 31
Fort Simpson	2	↓ 19	$ 1,100	0	-	0	↓ 240
Hay River*	7	↑ 24	-	240,000	$ 0.27	61	↑ 520
Inuvik	2	↓ 35	$ 490	69,000	$ 0.25	19	↑ 240
Norman Wells	1	↓ 16	$ 240	27,000	$ 0.14	5	-
Tsiigehtchic	1	↓ 8	$ 190	14,000	$ 0.11	3	↑ 41
Yellowknife*	17	↑ 81	-	460,000	$ 0.12	98	↑ 1,300

** Hydro community*

Why did oil and propane consumption increase?

Many businesses are converting their lighting to LEDs. LED lights use less electricity than other forms of lighting, but also produce less heat. This means that when the lighting in a building is converted to LEDs, the heating system will have to do a little more work to make up the difference.

The money saved by using less electricity for lighting is often greater than the extra spent on heating fuel. Twenty-seven of our clients completed lighting retrofits this year. On average, each of them will save an estimated $7,000 a year, even after taking additional heating fuel into account.

Most of the businesses that converted their lighting this year are located in communities that use hydroelectricity, which does not produce greenhouse gases. Using less hydroelectricity and burning more heating fuel means that greenhouse gas emissions increase slightly. On the other hand, our clients in communities that produce electricity by burning fuel such as diesel, natural gas or propane are both saving money and reducing their overall greenhouse gas emissions.

The AEA promotes energy efficiency, regardless of the energy source, due to the many benefits of energy efficient practices.

Greenhouse gas and energy savings by region

Region	No. of rebates	Annual GHGs avoided/ increased (tonnes)	Rebate cost/ tonne of GHGs reduced	Annual electricity consumption avoided (kWh)	Rebate cost/ kWh avoided	Power demand avoided (kW)	Annual fossil fuel consumption avoided/ increased (GJ)
Beaufort–Delta	3	↓ 44	$ 430	83,000	$ 0.22	22	↓ 44
Dehcho	2	↓ 19	$ 1,100	0	-	0	↓ 240
North Slave	17	↑ 81	-	460,000	$ 0.12	98	↑ 1,300
Sahtu	1	↓ 16	$ 240	27,000	$ 0.14	5	-
South Slave	8	↑ 26	-	250,000	$ 0.26	63	↑ 550

Greenhouse gas and energy savings by hydro vs. non-hydro communities

Community type	No. of rebates	Annual GHGs avoided/ increased (tonnes)	Rebate cost/ tonne of GHGs reduced	Annual electricity consumption avoided (kWh)	Rebate cost/ kWh avoided	Power demand avoided (kW)	Annual fossil fuel consumption increased (GJ)
Hydro	25	↑ 110	-	700,000	$ 0.17	160	1,800
Non-hydro	6	↓ 78	$ 550	110,000	$ 0.39	27	49

Community Government Building Energy Retrofit Program

Through the Community Government Building Energy Retrofit Program, the Arctic Energy Alliance supports community governments across the NWT to better manage their energy use and save money in the process.

FOR
community governments

AEA FUNDING
$190,000 (from GNWT Department of Infrastructure)

The first step is to conduct a "yardstick" energy audit of community government buildings, which looks at utility bill data. Next is a "targeted" energy audit, in which an AEA Energy Management Specialist will evaluate a building in person. Both of these audits are subsidized by the AEA. They identify ways to save electricity, heating fuel, water, greenhouse gas emissions and money. From there, we help the community government make the recommended changes, including providing rebates and offering project coordination services for a fee.

Results

Audits

Building energy audits completed:

19 yardstick audits *(in 3 communities)*

19 targeted audits *(in 3 communities)*

The targeted energy audits identified more than $280,000 in combined potential savings on energy bills.

Completed projects

6 total rebates *(in 5 communities)*

8 buildings retrofitted by clients

total value of rebates: **$87,000**

average rebate: **$15,000**

3 partnership agreements signed to complete work on 20 buildings in 3 communities next fiscal year

Payback

Capital cost (all projects, before rebates):

$210,000

Estimated annual savings: **$61,000**

Simple payback (after rebates): **2** years

Greenhouse gases

Annual greenhouse gases avoided: **90** tonnes

(equivalent to taking 19 cars off the road)[10]

Rebate cost per tonne reduced: **$970**

Energy savings

Annual electricity consumption avoided: **63,000** kWh

(equivalent to to the amount of electricity it would take to run 10 laptop computers 24 hours a day for a year)

Rebate cost per kWh avoided: **$1.40**

Power demand avoided: **24** kW

(equivalent to running 160 LCD TVs at the same time)

Annual fossil fuel consumption avoided (oil and propane): **920** GJ

(equivalent to 23,000 L of heating oil—or 145 barrels)

Greenhouse gas and energy savings by community

Community	No. of rebates	Annual GHGs avoided (tonnes)	Rebate cost/ tonne of GHGs reduced	Annual electricity consumption avoided (kWh)	Rebate cost/ kWh avoided	Power demand avoided (kW)	Annual fossil fuel consumption avoided/ increased (GJ)
Deline	2	4	$ 4,600	5,000	$ 3.60	8	↑ 7
Enterprise*	1	1	$ 1,000	0	-	0	↓ 8
Hay River*	1	48	$ 500	0	-	0	↓ 830
Inuvik	1	18	$ 1,000	7,000	$ 2.70	0	↓ 230
Norman Wells	1	20	$ 1,300	51,000	$ 0.49	16	↑ 140

** Hydro community*

[10] *https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator*

Greenhouse gas and energy savings by region

Region	No. of rebates	Annual GHGs avoided (tonnes)	Rebate cost/ tonne of GHGs reduced	Annual electricity consumption avoided (kWh)	Rebate cost/ kWh avoided	Power demand avoided (kW)	Annual fossil fuel consumption avoided/ increased (GJ)
Beaufort–Delta	1	18	$ 1,000	7,000	$ 2.70	0	↓ 230
Sahtu	3	23	$ 1,900	56,000	$ 0.78	24	↑ 150
South Slave	2	48	$ 500	0	-	0	↓ 830

Greenhouse gas and energy savings by hydro vs. non-hydro communities

Community type	No. of rebates	Annual GHGs avoided (tonnes)	Rebate cost/ tonne of GHGs reduced	Annual electricity consumption avoided (kWh)	Rebate cost/ kWh avoided	Power demand avoided (kW)	Annual fossil fuel consumption avoided(GJ)
Hydro	2	48	$ 500	0	-	0	830
Non-hydro	4	41	$ 1,500	63,000	$ 0.97	24	84

Progress to date

Since the AEA's targeted work with community governments began…

- 22 of the 33 community governments in the NWT have had targeted energy audits done by the AEA on most or all of their buildings.
- All of the community governments in the Tlicho territory and the Dehcho region have had audits completed.
- 13 NWT community governments have accessed funding to implement their recommended energy management opportunities. Most have accessed funding for more than one building or project in more than one year.
- 11 community governments have used the AEA's project coordination services to help them complete their projects.
- 73% of the community governments that have had targeted energy audits completed by the AEA have received a rebate and/or project coordination services from us to implement some of the audit recommendations.

The Deline Got'ine Government had the lights in the community's arena retrofitted to LEDs. The AEA provided a rebate under the Community Government Building Energy Retrofit Program.

Renewable and alternative energy programs

Replacing fossil fuels with renewable or alternative energy sources can greatly reduce greenhouse gas emissions. The Arctic Energy Alliance has two programs designed to help northerners adopt these technologies.

Alternative Energy Technologies Program

The Alternative Energy Technologies Program provides incentives for northerners to adopt alternative energy systems, such as solar, wind, wood and more. The program is divided into three streams:

- For residents
- For businesses (including off-grid businesses)
- For community-based organizations (including community governments, non-profit organizations and Indigenous governments)

FOR

residents, businesses, non-profit organizations, Indigenous governments, community governments

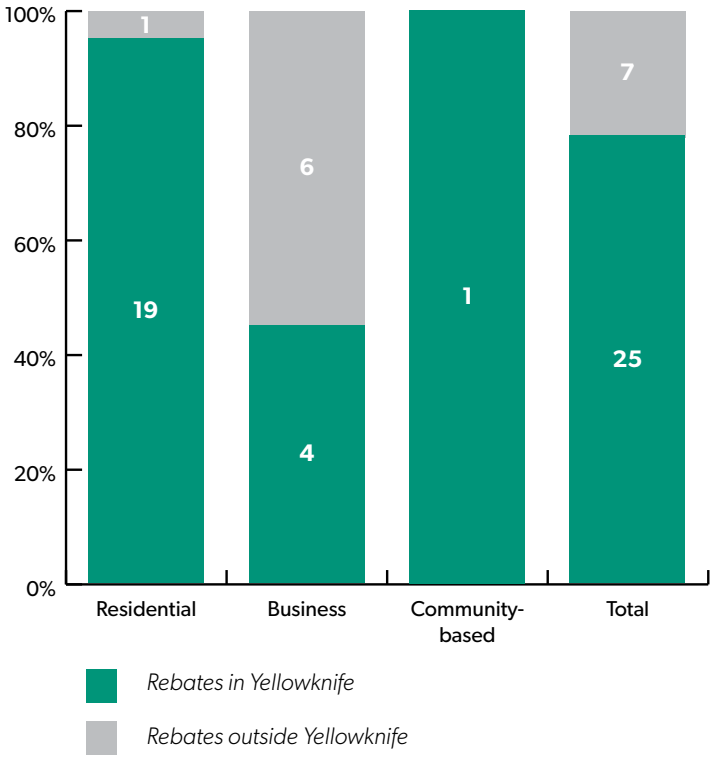
AEA FUNDING

$300,000 (from GNWT Department of Infrastructure)

Project types

	Residential	Business	Community-based	TOTAL
Solar photo-voltaic	20	10	1	31
Biomass	0	1	0	1

Communities



Results

	Residential	Business	Community-based	TOTAL
Total rebates	20	11	1	32
Total value of rebates	$56,000	$97,000	$13,000	$166,000
Average rebate	$2,800	$8,800	$13,000	$5,000

Payback[11]

	Residential	Business	Community-based	TOTAL
Capital costs *(before rebates)*	$200,000	$260,000	$25,000	$490,000
Estimated annual savings	$22,000	$21,000	$2,000	$45,000
Simple payback *(after rebates)*	6.4 years	8.0 years	6.0 years	7.1 years

Greenhouse gases

	Residential	Business	Community-based	TOTAL
Annual greenhouse gases avoided (tonnes)	2	24	0	26
Rebate cost per tonne reduced	$12,000*	$2,000*	-	$3,100*

**Does not include off-grid locations (see footnote 11)*

Energy savings

	Residential	Business	Community-based	TOTAL
Annual electricity avoided/ produced (kWh)	87,000	60,000	7,000	154,000
Rebate cost/kWh avoided/ produced	$0.64	$1.60	$1.70	$1.00
Power demand avoided (kW)	72	44	7	120

Grid-tied vs. off-grid projects

Up until the end of the 2018/19 fiscal year, rebate funding under the Alternative Energy Technologies Program was based on the capital cost of a project, and not on its energy savings. This made it simpler for clients to apply but made it difficult for the AEA to track numbers such as energy savings and greenhouse gas reductions. In the case of grid-tied systems, the savings are often easy to estimate because we know how communities across the NWT generate electricity. Off-grid systems are more complicated because the savings depend on each individual location. For example, what sort of generator or heating system will the new system replace or offset?

In 2018/19, half of the rebates we gave out went to off-grid locations—10 out of 20 residential rebates and 6 out of 11 commercial rebates. All but one of these were for solar electric systems. Without collecting additional data, we were not able to calculate greenhouse gas savings for these off-grid systems. In reality the greenhouse gas savings from the Alternative Energy Technologies Program are much higher this year than the numbers presented in this report.

As of the beginning of the 2019/20 fiscal year, we have begun collecting the necessary data so we can report on these numbers in the future.

Greenhouse gas savings numbers are low in this report for another reason as well. All of the on-grid residential rebates we gave out this year were for solar panels installed in Yellowknife, which uses hydroelectricity. Installing solar panels in a hydro community has several benefits, but it does not offset greenhouse gas emissions. Similarly, two out of five on-grid commercial rebates were for grid-tied solar systems in Yellowknife, as was the only community-based rebate this year. Four additional clients applied for community-based rebates—three of which were in non-hydro communities—but for various reasons all four withdrew their applications or did not qualify.

[11] Payback and energy savings data are for renewable electricity projects at grid-connected locations only—a total of 10 residential locations, 5 business locations and 1 community-based location. Estimated savings were not available for off-grid locations. Our application process has been updated for 2019/20 to address this gap.

These figures are based on estimates used to pre-approve rebate applications, and may not accurately reflect the final systems as installed.

Combined greenhouse gas and energy savings by community

Community	No. of rebates	Annual GHGs avoided (tonnes)	Rebate cost/tonne of GHGs reduced	Annual electricity consumption avoided (kWh)	Rebate cost/kWh avoided/ produced	Power demand avoided (kW)
Deline	1	4	$ 1,800	5,000	$ 1.40	5
Fort Simpson	1	9	$ 1,200	12,000	$ 0.89	12
Paulatuk	1	11	$ 1,400	15,000	$ 1.00	15
Remote	4	Not tracked	-	14,000	$ 2.10	14
Yellowknife*	25	3†	$ 17,000†	110,000	$ 0.95	140

** Hydro community*

† Does not include off-grid locations (see footnote 11)

Combined greenhouse gas and energy savings by region

Region	No. of rebates	Annual GHGs avoided (tonnes)	Rebate cost/tonne of GHGs reduced	Annual electricity consumption avoided (kWh)	Rebate cost/kWh avoided/ produced	Power demand avoided (kW)
Beaufort–Delta	1	11	$ 1,400	15,000	$ 1.00	15
Dehcho	1	9	$ 1,200	12,000	$ 0.89	12
North Slave	26	3†	$ 17,000†	110,000	$ 0.95	150
Sahtu	4	4†	$ 1,800†	13,000	$ 2.40	13

† Does not include off-grid locations (see footnote 11)

Combined greenhouse gas and energy savings by hydro vs. non-hydro communities

Community type	No. of rebates	Annual GHGs avoided (tonnes)	Rebate cost/tonne of GHGs reduced	Annual electricity consumption avoided (kWh)	Rebate cost/kWh avoided/ produced	Power demand avoided (kW)
Hydro	13	3	$ 17,000	90,000	$ 0.55	90
Non-hydro	19	24†	$ 1,400†	64,000	$ 1.80	99

† Does not include off-grid locations (see footnote 11)

Biomass Energy Program

Through the Biomass Energy Program, the Arctic Energy Alliance provides northerners with accessible technical advice, project coordination, and education on existing or potential biomass projects. AEA staff also help clients by facilitating the development of partnerships with potential project funders.

There are several ways to use biomass energy, such as biomass heating (for example, a wood-pellet furnace or boiler), co-generation (heat and electricity from the same system) and district heating (using one heat source for several buildings).

In the 2018/19 fiscal year, the AEA provided support for existing biomass district heating systems in three communities, and worked with eight communities and organizations to discuss options for installing new systems.

FOR

residents, businesses, community governments, Indigenous governments, non-profit organizations

AEA FUNDING

$100,000 (from GNWT Department of Infrastructure)

Supporting existing systems

The communities of Whati, Behchoko and Kakisa have had biomass heating systems in place for a few years, with varying levels of success.

The Community Government of Whati installed a district heating system that supplies heat to four buildings, one of which is owned by the GNWT. This was the first full winter of operation. The AEA has provided ongoing support, including helping to develop a billing procedure for selling heat to the GNWT. We have also been working with the community government on plans to expand the system to provide heat to additional buildings.

Kakisa installed a pellet boiler several years ago but has struggled with various technical challenges to get it operating consistently. This year we developed a project scope and got a contractor's quote to have the necessary changes made in order to get the system running at peak capacity. The First Nation opted to defer the project to another fiscal year.

Behchoko has multiple pellet boilers in the community, and one—owned by the community government—has never completed commissioning and become operational. It has been sitting unused for several years. So we scoped out what was needed to get the system fully operational and made recommendations to the community government. The project is expected to move forward in the 2019/20 fiscal year, with the system becoming operational for the next heating season.

Providing guidance on new systems

With biomass heating systems becoming more common across the NWT—and the savings being evident—more and more communities and organizations are looking to biomass for their heating needs.

The communities of Katlodeeche and Aklavik have already had pre-feasibility work done. The AEA had previously presented pre-feasibility information to the Katlodeeche First Nation, but a recent change in leadership meant the new leaders were not familiar with the proposed plans. So the AEA met with the new chief and senior administrative officer to present the information to them so they can include the project in their plans.

Aklavik has been moving toward a biomass heating system for its recreation complex ever since the opportunity was identified for its community energy plan in the 2016/17 fiscal year. The AEA has been involved from the start, helping to develop pre-feasibility analysis and contributing to a larger study. In 2018/19, we continued to provide advice and recommendations so the community can move toward the installation of a biomass heating system potentially as early as next fiscal year.

Jean Marie River has been working toward a new system as well. The community has done a number of energy-efficiency projects over the last few years, and is now very interested in a biomass system to heat a number of community buildings. The AEA is working with the community to determine an appropriate scope for the project through a pre-feasibility analysis, and once this is complete we will assist the community to move toward implementation.

The community governments in Behchoko, Enterprise, Fort Providence and Gameti have all been discussing options with the AEA for new biomass heating systems. In each case, we have scoped out the project and made some recommendations to the community government so it can get a pre-feasibility analysis done.

Finally, the Gwich'in Tribal Council (GTC) came to the AEA in the 2017/18 fiscal year to conduct an energy assessment of its Gwich'in Wellness Camp near Inuvik. Since then, the GTC has been implementing the energy-efficiency recommendations from that assessment and is now ready to install a biomass heating system. The AEA discussed options and recommendations with the GTC so it can get a pre-feasibility analysis done in the 2019/20 fiscal year.

Top: The pellet silo for the biomass boiler at Chief Jimmy Bruneau School in Behchoko, just one of the biomass boilers in the community.

Bottom: Inside the biomass boiler in Kakisa.

Community engagement

While the Arctic Energy Alliance is well known for its rebate and energy evaluation programs, community engagement is just as important. By engaging with community members, the AEA can provide education and advice, and promote and coordinate our programs across the NWT. When people are energy conscious, they are more likely to adopt efficient and renewable energy practices. Engagement is one of the main tools we use to foster that energy consciousness.

FOR
residents, businesses, community governments, Indigenous governments, non-profit organizations

AEA FUNDING
allocated from $1,600,000 core funding (from GNWT Department of Infrastructure)

The AEA has offices in six communities across the NWT: Fort Simpson, Hay River, Inuvik, Norman Wells, Whati and Yellowknife. These offices allow us to keep a closer connection to the communities throughout the territory. Who better to understand the needs of each region than the people who live there?

Each of the AEA's offices is involved in every program and project that we undertake, but also engage in their own work, unique to each region. In fact, we have a Regional Office Program to coordinate the work of our regional offices, and community engagement is a huge component. One of the main ways we get involved in our communities is through trade shows, events and other community engagement activities. We partner with organizations throughout the NWT to help educate northerners on our programs and the importance of responsible energy use.

The following are highlights from just a few of those activities.

Beaufort–Delta office (Inuvik)

2018 Top of the World Loppet (Inuvik))

Over the past few years, the AEA has been a proud sponsor of the Top of the World Loppet. As we've done before, we were on hand to give out AEA-branded sunglasses to youth and relay racers. The sponsorship makes sense for us, since the Inuvik Ski Club has embraced solar power and energy-efficient LED lighting for it chalet.

We were sorry to hear the loppet couldn't go ahead in 2019, but we hope it can come back strong in the near future.

Inuvialuit Day and more in Paulatuk

Inuvialuit Day, on June 5 of each year, celebrates the signing of the Inuvialuit Final Agreement. The AEA joined in the community events in Paulatuk, handing out prizes, and speaking with everyone from youth to elders about solar electricity and energy in general. Over the course of our three-day visit, we also took part in a community event at the local greenhouse—where we had a demonstration of the type of solar systems that are installed in Paulatuk, including the new system that was set to be installed at the visitors' centre—worked with a contractor to help get the solar system working on the greenhouse, and more.

Dehcho office (Fort Simpson)

Dehcho First Nations Annual Assembly (Wrigley)

The AEA was on hand for the Dehcho First Nations (DFN) Annual Assembly, hosted by the Pehdzeh Ki First Nation in July. We had plenty to keep delegates, community members and visitors entertained and informed, with a demonstration of our electric bike, an information table and an interactive climate action station.

Our electric bike even helped the evening bingo game start on time. We were able to use the battery to charge DFN Executive Director Alison de Pelham's mobile phone so she could use it as a bingo number generator while the power cords for the bingo ball machine were being located.

Community Healthy Living Fairs (Fort Liard, Fort Simpson, Jean Marie River, Nahanni Butte, Sambaa K'e)

Over the past couple of years, the Community Healthy Living Fairs, hosted by the Government of the Northwest Territories, have been an invaluable way for the AEA to engage with people in smaller communities across the NWT. Virtually the entire community comes out, and the fairs give us an excellent opportunity to answer questions and provide energy-related advice and education.

This year we attended fairs in five Dehcho communities—among others across the territory. As always, the Strengthening Partnerships days were the most exciting. On these days, community members engage the presenters in activities to share local history and culture, such as short trips out on the land or learning to make traditional arts and crafts.

Opposite: Patrick Gall sporting AEA sunglasses at the Top of the World Loppet in Inuvik.

Right: Dehcho First Nations CEO Alison de Pelham uses the AEA's e-bike to run a bingo game from her phone while the bingo ball machine is being set up.

Sahtu office (Norman Wells)

Grand opening of new Sahtu regional office (Norman Wells)

In 2018, the AEA's Sahtu regional office moved to a more central location within Norman Wells. Near the town square, the new office is more visible and more accessible for residents. In October, we held a grand opening, inviting anyone and everyone to see the new space and ask questions about our programs and services. Staff from our Beaufort–Delta and Yellowknife offices even joined for the occasion.

Documenting projects in Deline

The AEA has recently been involved in a couple of significant projects in Deline. One was the replacement of the lights in the arena with energy-efficient LEDs, which was partially funded through our Community Government Building Energy Retrofit Program. The other was our community wood stove project, where we partner with a community to install efficient, code-compliant wood stoves in the homes of residents.

In March, the AEA travelled to Deline to document these projects through photos and video. These can be used in informational videos, case studies and other materials.

Getting to see the LED upgrade was particularly helpful, as we could see first-hand the reactions of arena users to the new, brighter lights, and the enthusiasm they generated.

South Slave office (Hay River)

House as a System/Home Winterization workshops (Hay River)

In the fall of 2018 the staff in the AEA's South Slave office decided to offer a workshop for residents to learn some basic building science and how to best prepare their homes for winter. The experience was a great learning opportunity not only for participants, but also for the AEA, as conversations with participants led us to some points that can make the workshop even better in the future.

Mad Science Club (Hay River)

Mad Science Club is an after-school program offered by the NWT Centennial Library in Hay River. Kids from the ages of 8 to 12 get to participate in experiments and activities to explore science topics. In March, the AEA led a session on electricity awareness. As part of the session, the kids were able to test a variety of small appliances to compare the power used by each one and to discover some ways to save electricity.

A home winterization display at our booth at the Hay River Trade Show and Fall Fair: just one of the many community engagement activities we participated in around the South Slave region.

Tlicho office (Whati)

Home energy assessments and visits in Behchoko

One way the AEA engages with people is through events such as trade shows or fairs. Another is through one-on-one visits at home. While larger events allow us to speak with a lot of people over a short period of time, one-on-one visits allow us the time to get into deeper, more meaningful conversations.

Sonny Zoe, our Tlicho Regional Energy Project Coordinator, enjoys the one-on-one approach and takes the opportunity whenever he can. In December, he travelled to Behchoko to visit with seven residents and provide walkthrough home energy assessments. Through the advice and education he was able to provide, he helped one resident save about 20 percent on his power bill.

Sustainable living presentation (Wekweeti)

Being Tlicho, Sonny is very tied to his culture. This is why he has developed sustainable living presentations, based on Indigenous culture, that he delivers in the Tlicho communities. The presentations are typically well-attended, and discuss not just ways to cut energy costs and reduce greenhouse gas emissions, but also the importance of traditional foods and cultural activities.

Yellowknife office

Yellowknife Spring Trade Show

The annual Spring Trade Show is one of Yellowknife's biggest engagement events of the year, with hundreds—if not thousands—of attendees. So it goes without saying that it's one of the best opportunities every year for the AEA to speak face-to-face with residents. At the 2018 show we not only handed out information on our programs and showcased some of the technologies we offer rebates on, but also brought something new: our electric bike. The Spring Trade Show was a fantastic venue to speak with people about the benefits of using an e-bike as an alternative to a car.

Climate Change Forum and Charrette (Yellowknife)

In October, several AEA staff attended the Climate Change Forum and Charrette, hosted by the NWT Association of Communities and Ecology North. It was an excellent chance to engage with community and Indigenous governments in particular, but also a range of others, from leaders to researchers to climate specialists. A forum that brings attention to climate change, particularly as it affects the NWT, is a great way to discuss how people across the territory can take action.

Northwest Territories Association of Communities annual general meeting (Yellowknife)

The Northwest Territories Association of Communities (NWTAC) is a non-profit organization that represents the interests of all 33 community governments in the NWT. Its annual general meeting brings together community government representatives, territorial leaders and other interested parties. This makes it an ideal place for the AEA to discuss our community-based programs. Staff from our Yellowknife and Tlicho offices attended the 2018/19 AGM to build relationships and talk about not only our community-based programs, but all AEA programs that can benefit community members. We also set up an information booth in the trade show area, so delegates could easily find and take home information that was relevant to them.

Sonny Zoe, the AEA's Regional Energy Project Coordinator for the Tlicho territory, gives a sustainable living presentation to students in Gameti.

Special projects

In addition to our core programs, the Arctic Energy Alliance undertakes special projects as opportunities arise. These projects can support residents, businesses, community or Indigenous governments, or non-profit organizations in the NWT.

Over the 2018/19 fiscal year, the AEA conducted five projects, with funding provided by the GNWT Department of Infrastructure (through its core funding to the AEA), Crown Indigenous Relations and Northern Affairs Canada, and Natural Resources Canada.

Community energy profiles

Community energy profiles are a tool used by organizations such as the AEA, the GNWT, community governments and contractors to show how communities across the NWT are using energy. This includes the costs and amounts of various energy sources (such as petroleum products, wood and electricity), where and how those energy sources are used, and related greenhouse gas emissions. This information is useful so communities can understand their energy use and opportunities for saving energy and money, reducing their environmental footprints and making their communities more sustainable.

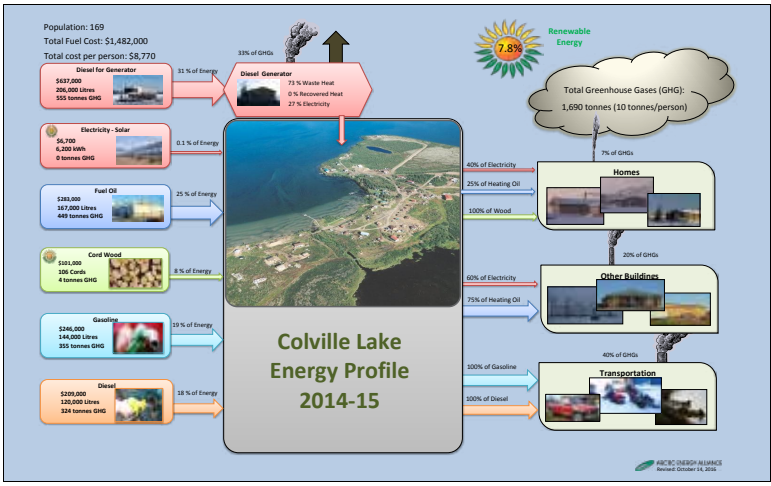
For 2003/04, 2007/08 and again for 2014/15, the AEA produced community energy profiles to show how communities across the NWT are using energy.

The 2014/15 update was incomplete due to the AEA's inability to access key data. The AEA sees the need to update these profiles so that the information stays current. However, one of the ongoing challenges with producing community energy profiles has been collecting reliable data on heating fuel use. For petroleum products, publicly available data can only be obtained for communities serviced by the GNWT's Fuel Services division. And no reliable information exists for people who use wood as a heating fuel. AEA staff spent time developing partnerships and initiated a strategy for collecting usable data so we can produce updated profiles in 2019/20.

Community labour capacity building

The capacity of NWT communities to take on energy-efficiency and renewable-energy projects is an important aspect of whether these projects can get off the ground. That's why the AEA saw an opportunity to help develop that capacity in the coming years to be even greater than it is today.

The first step was to get an idea of the capacity that already exists within the territory. So we built an internal list of all known trade services that exist in each community, such as carpentry, plumbing, heating and general contracting. The list has already proven valuable, as we have been able to use it to advise businesses within given regions of potential contract opportunities, and to reach out to companies that may be interested in training sessions that the AEA coordinates.



An example of a community energy profile poster from 2014/15.

The list will be updated annually, and in the coming years we plan to expand on this work to create even more opportunities for local companies, and potentially even to find chances for individuals within communities to build on their own capacities.

Community wood stove projects

Under our community wood stove projects, the AEA typically forms a two-year partnership with each participating community, where each partner has designated roles and responsibilities and provides 50 percent of the funding for new stoves. In the first year, the stoves and related materials are purchased and delivered to a community. The second year involves the code-compliant installation of the stoves and related materials in the homes of local residents.

The goals of each project are to:

- increase wood burning safety by supporting code-compliant installations
- reduce particulate emissions in smoke from wood stoves
- increase local capacity around wood harvesting and seasonal local employment
- increase wood burning efficiency by installing EPA-certified wood stoves

In 2018/19, the AEA took part in two community wood stove projects. The first, funded by the GNWT Department of Infrastructure and the Government of Canada, began this fiscal year. The AEA partnered with the Tlicho Government and each of the Tlicho community governments in Behchoko, Gameti, Wekweeti and Whati. The AEA then had home assessments completed and arranged for a total of 54 stoves to be delivered to the four communities. The stoves will be installed in the 2019/20 fiscal year.

The second project was funded by the GNWT through Crown Indigenous Relations and Northern Affairs Canada, under its Northern REACHE program, and started in the 2017/18 fiscal year. In 2018/19, the AEA completed the project, arranging for 55 stoves to be installed in five communities (Behchoko, Deline, Gameti, Wekweeti and Whati).

Home energy retrofit project in Sachs Harbour

In the 2017/18 fiscal year, the AEA began a two-year pilot project, funded by the GNWT Department of Infrastructure and Natural Resources Canada, to implement energy efficiency retrofits to residents' homes in two NWT communities. These retrofits are designed to reduce energy use (fossil fuel use in particular), costs and greenhouse gas emissions.

In the first year of the project, the AEA partnered with the Tthets'éhk'é Deli (Jean Marie River) First Nation. In 2018/19 (year two), the AEA partnered with the Hamlet of Sachs Harbour.

The AEA conducted the following activities in the community:

- Held an information and sign-up workshop
- Conducted initial home energy evaluations and walkthroughs with participating homeowners
- Identified the retrofit options with the best potential payback, according to available funding
- Reviewed the results of the home energy evaluations and walkthroughs with homeowners
- Confirmed the work to be completed and obtained permission from homeowners
- Obtained quotes and secured contractors to complete the work
- Confirmed the work was completed
- Conducted post-retrofit home energy evaluations to assess the level of improvement
- Held an evaluation/feedback meeting

All 10 homeowners in Sachs Harbour chose to participate in the project, and the AEA conducted post-retrofit evaluations on four homes to gauge the results of a sample of the upgrades.

The four sample homes that received post-retrofit evaluations are expected to see the following combined savings each year from using less electricity and heating fuel:

- 36 gigajoules of energy
- 6.5 tonnes of greenhouse gases
- $2,600

With the six additional homes factored in, these savings are even higher. The numbers show that the savings are substantial for homeowners in such a small, remote community.

Northern partnerships project

The AEA runs programs and projects to interact with its core client groups—NWT residents, businesses, community and Indigenous governments, and non-profit organizations who want to save energy or adopt renewable energy technologies. But there are plenty of other individuals and organizations out there that do energy-related work in the North, but aren't covered by our programs. These include contractors, post-secondary students, government departments and pan-northern working groups, among others. Forming partnerships to share knowledge with these people means that everyone benefits.

In 2018/19, the AEA participated in four northern partnerships to share information—and to learn in return.

Smart Solar Buildings and Communities Strategic Research Network

The Smart Solar Buildings and Communities Strategic Research Network is organized by the Natural Sciences and Engineering Research Council of Canada and directed by researchers from Carleton and Concordia universities. It is a network of researchers and related organizations across the country seeking to find ways to reduce greenhouse gas emissions. The AEA provided feedback on northern-related research proposals, and will continue to provide support to the network in the future.

City of Yellowknife's Community Energy Planning Committee

The Community Energy Planning Committee advises City Council and works closely with the administration to help ensure the City's community energy plan is implemented and evolves efficiently. For several years, the AEA has been involved in reviewing and providing input on plans and activities related to the larger community energy plan.

QUEST

QUEST is a Canada-wide non-governmental organization that works to encourage people to adopt "efficient and integrated community-scale energy systems." The AEA worked with QUEST to review the scoring frameworks for its Smart Energy Communities projects in Yellowknife and Inuvik, helping to ensure that the perspectives of northern communities were represented. The scorecard will be the first tool of its kind to evaluate how multiple sectors, including local governments, utilities, the real estate sector, and other critical stakeholders are undertaking the transition to Smart Energy Communities.

Concordia University graduate student Asok Thirunavukarasu

The AEA has worked with Asok in the past, providing him with home energy evaluation data for a study on the effectiveness of the City of Yellowknife's energy efficiency by-law for homes. In 2018/19, we provided him with more current data so he could update the results of his study. Asok presented his research and data at the International Building Physics Conference, where he presented on behalf of Concordia's Centre for Zero-Energy Study.

Operations management

The Arctic Energy Alliance uses cash-based cost tracking, accrual accounting, and project resource-loading systems in our operations. Our cash-based project cost planning and tracking system, together with our accounting system, enables project- and ledger-level budgeting and expense tracking. These two systems are linked.

We use timesheet and billing software that includes project setup, budgets, resources assignment, timesheets, and advanced reporting tools. Using this software, each staff member is allocated time for each project and task to which they are assigned. This enables us to plan and report on staff activity at project and task levels.

The AEA has an established financial system including policies, procedures, budgeting and expenditure control. The system requires all expenditures at the project and ledger levels be planned and budgeted for. Once project and ledger-level budgets are loaded into our tracking and accounting software, purchase orders can only be issued if they are budgeted for, and only within prescribed spending thresholds. All purchase orders are electronically generated and are used to track planned, in-progress and actual expenditures against budgeted expenditures.

Salary time expenditures are tracked using our timesheet software and paid using our accounting system. Every two weeks, staff members submit their timesheets to the Executive Director for review and approval. This system restricts staff to only booking time against projects and tasks they are assigned. The approved timesheets are loaded into the accounting system and used to allocate staff costs to projects, and for payment purposes.

The AEA associates individual expenditures to vendors and projects. A single line item amount can be allocated to one or more projects, or the AEA can allocate entire transactions to one or more projects. This provides us the flexibility to provide detailed project-level expenditures such as those provided in our quarterly reporting.

The table on the next page summarizes the outcome of the AEA's work, and the subsequent chart reports the total staff hours dedicated to achieve that outcome.

Impact of AEA programs and projects

Metric	Energy Efficiency Incentive Program	Energy Rating Services Support Program	Commercial Energy Conservation and Efficiency Program	Community Government Building Energy Retrofit Program	Alternative Energy Technologies Program – Residential	Alternative Energy Technologies Program – Commercial	Alternative Energy Technologies Program – Community-based	Total	Percentage of total
Total no. of rebates	620	-	31	6	20	11	1	689	100%
No. of rebates in Yellowknife	341	-	17	-	19	5	1	351	51%
No. of rebates outside Yellowknife	279	-	14	6	1	6	-	338	49%
Total value of rebates	$210,000	-	$160,000	$87,000	$56,000	$97,000	$13,000	$630,000	-
Average rebate	$350	-	$5,300	$15,000	$2,800	$8,800	$13,000	$910	-
Total capital cost	$1,500,000	-	$780,000	$210,000	$200,000	$260,000	$25,000	$3,000,000	-
Est. annual savings	$220,000	-	$210,000	$61,000	$22,000	$21,000	$2,000	$530,000	-
Est. annual electricity savings (MWh)	560	160*	810	63	72	44	7	1,500‡	-
Rebate cost per MWh avoided/produced	$380	-	$200	$1,400	$640	$1,600	$1,700	$420	-
Estimated power demand avoided/produced (kW)	-	-	190	24	72	44	7	340	-
Est. annual fossil fuel savings (GJ)	4,200	3,500*	1,900	920	-	-	-	7,100‡	-
Est. annual greenhouse gases avoided (tonnes)	460	330*	29	90	2	24	-	630‡	-
Rebate cost per tonne of greenhouse gas emissions reduced	$460	-	$5,700	$970	$12,000†	$2,000†	-	$1,000	-
Total no. of desktop energy evaluations (blueprint and yardstick evaluations)	-	54	6	19	-	-	-	67	100%
No. of desktop energy evaluations in Yellowknife	-	42	4	-	-	-	-	42	63%
No. of desktop energy evaluations outside Yellowknife	-	12	2	19	-	-	-	25	37%
Total no. of on-site energy evaluations	-	131	2	19	-	-	-	150	100%
No. of on-site energy evaluations in Yellowknife	-	83	1	-	-	-	-	83	55%
No. of on-site energy evaluations outside Yellowknife	-	48	1	19	-	-	-	67	45%

**Potential savings only. Actual savings could not be accurately measured.*

† Not including off-grid locations.

‡ Not including potential savings.

Staff hours by program/project*

7,160	Regional Offices Program
5,970	Administration
4,280	Program Development and Delivery Support
1,600	Energy Rating Services Support Program
1,310	Community Government Building Energy Retrofit Program
1,290	Communications
1,220	Commercial Energy Conservation and Efficiency Program
980	EnerGuide Rating System for New Homes service†
810	Community wood stove projects
790	Energy Efficiency Incentive Program
650	Biomass Energy Program
610	Alternative Energy Technologies Program
490	Energy Management Program (Buildings and Partnerships)
340	Non-profit Energy Efficiency and Conservation Program
330	South Slave Electric Heat Incentive Program
170	Consulting for Government of Nunavut
150	Deep Home Energy Retrofit Program
28,150	TOTAL

** Rounded to the nearest 10.*

† The EnerGuide Rating System for New Homes service is managed under the Energy Rating Services Support Program. Staff hours have been separated in this table for the purposes of reporting hours by funding source. The Energy Rating Services Support Program is fully funded by the GNWT and the EnerGuide Rating System for New Homes service is provided on a fee-for-service basis.

Financial management

Highlights

Results of operations for the year ending March 31, 2019

- Overall revenues totalled $3.8 million and overall expenses totalled $3.7 million.
- The AEA budgeted for an overall deficit of $76,000 this year, but ended the year with an overall surplus of $89,000, representing 2% of total revenues. This is a 3% decrease over the previous year's surplus of $91,000, which represented 3% of total revenues.
- Net financial assets increased $110,000 over the course of the year, compared to a $120,000 increase the previous year.

Key revenues	Value	Increase/ decrease from 2017/18	Comparison to budget
GNWT contributions	$3,300,000	↑ 10%	110%
Other source income	$ 110,000	↓ 140	110%
Consulting fees	$ 220,000	↑ 130%	980%

Key expenses	Value	Increase/ decrease from 2017/18	Comparison to budget
Office and general expenses/ project materials	$ 160,000	↓ 27%	260%
Rebates distributed	$ 770,000	↑ 17%	99%
Travel and accommodations	$ 170,000	↓ 14%	100%

Financial position at March 31, 2019

Key assets	Value	Increase/ decrease from 2017/18	Primary reasons
Total assets	$2,300,000	↑ 75%	Additional funding through Low Carbon Economy Leadership Fund (LCELF)
Cash and short-term investments	$ 1,700,000	↑ 170%	Temporarily placed LCELF funding into a short-term investment
Accounts receivable	$ 620,000	↓ 5%	Additional funding paid an advance
Prepaid expenses	-	↓ 100%	All prepaid expenses from previous years used up; no new expenses

Key liabilities	Value	Increase/ decrease from 2017/18	Primary reasons
Total liabilities	$ 1,400,000	200%	Returning unspent additional funding
Accounts payable and accrued liabilities	$ 1,400,000	250%	Returning unspent additional funding
Deferred revenues	-	100%	No deferred revenues

Key net assets	Value	Increase/ decrease from 2017/18	Notes
Total net assets	$ 990,000	↑ **10%**	
Internally restricted reserves	$ 880,000	↑ 4%	
Unrestricted accumulated surplus	$ 99,000	↑ 160%	Represents accumulated unspent core funding and consulting projects

Cash flow for the year ending March 31, 2019

- Gross cash from operations showed a surplus of $71,000, compared to a surplus of $97,000 the previous year. This is largely due to several expenses that came in under budget.
- There was a net cash flow of $1 million, up 450% over the previous year, largely due to additional funding through the Low Carbon Economy Leadership Fund.

Key cash receipts	Value	Increase/ decrease from 2017/18
GNWT contributions	$ 4,300,000	↑ **44%**
Other sources	$ 100,000	↑ **37%**

Management discussion and analysis

The Arctic Energy Alliance prudently manages its people and money to deliver quantifiable results in line with the organization's strategic plan. The organization is financially sound, has a three-month operating reserve and can respond to changes in our financial or operating environment quickly and effectively.

As evidenced in this annual report, the Arctic Energy Alliance delivered an outstanding variety and number of public services this year, and was able to do so effectively with the right balance of management and financial controls, thus ensuring an effective and prudent use of public money.

The financial future of the organization is positive because of two principal factors: the cost of heating and electric energy in the Northwest Territories, and the Government of Canada's commitment to addressing the factors underlying climate change. Therefore, demand for the services the organization delivers is expected to remain stable. Combined with the confidence governments have in funding a fiscally and operationally sound organization like the Arctic Energy Alliance, it is reasonable to expect funding stability over the next three to four years. In fact, the AEA saw an increase in funding partway through the 2018/19 fiscal year, which was provided by the Government of Canada and the GNWT through the federal Low Carbon Economy Leadership Fund. In 2019/20 the AEA will be ramping up its operations to take full advantage of this additional funding, including hiring and training new staff members to increase capacity, adding new programs and project to address areas not covered by existing programs, and increasing incentive amounts to encourage more people to adopt energy-efficient and renewable-energy technologies.

Membership and governance

As at March 31, 2019.

Board of directors

- John Vandenberg, President, Arctic Energy Alliance
- Scott Reid, Vice-President, Arctic Energy Alliance
- Gordon Van Tighem, Treasurer, Arctic Energy Alliance
- Mark Heyck, Secretary and Executive Director, Arctic Energy Alliance
- Robert Jenkins, Assistant Deputy Minister, Environment and Climate Change, GNWT Department of Environment and Natural Resources
- Grace Lau-a, Director, Community Operations, GNWT Department of Municipal and Community Affairs
- Myra Berrub, Manager, Energy Services, Northwest Territories Power Corporation
- Sara Brown, Chief Executive Officer, NWT Association of Communities
- Derek McHugh, Northland Utilities (Yellowknife) Ltd.

General members

- GNWT Department of Infrastructure
- GNWT Department of Environment and Natural Resources
- GNWT Department of Municipal and Community Affairs
- NWT Association of Communities
- NWT Housing Corporation
- NWT Public Utilities Board

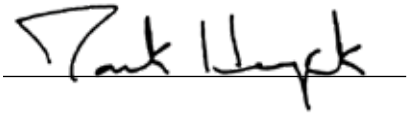
Sustaining members

- Northland Utilities (Yellowknife) Ltd.
- Northwest Territories Power Corporation

Staff

- Sheena Adams, Regional Energy Project Coordinator, Beaufort–Delta
- Ken Baigent, Senior Energy Management Specialist
- John W. Carr, Senior Technical Specialist
- Teresa Chilkowich, Regional Energy Project Coordinator, Dehcho
- Kevin Cull, Communications Coordinator
- Lise Dolen, Regional Energy Project Coordinator, Sahtu
- Scott Dowler, Energy Management Specialist
- Alexandra Giroux, Energy Management Specialist
- Mike Goodwin, Energy Management Specialist
- Tom Gross, Regional Energy Project Coordinator, South Slave
- Barbara Guay, Administrative Assistant
- Faye MacDonald, Office Manager
- Margaret Mahon, Senior Energy Management Specialist
- Leanne Robinson, Energy Management Specialist
- Louise Schumann, Program Assistant, South Slave
- Craig Thomas, Operations Manager
- Linda Todd, Program Coordinator
- Nick Walker, Energy Management Specialist
- Jennifer Wicks, Human Resources and Program Assistant
- Christine Wrigley, Finance and Administrative Assistant
- Sonny Zoe, Regional Energy Project Coordinator, Tlicho

"I Mark Heyck, Executive Director of the Arctic Energy Alliance, duly authorized on behalf of the board of directors of the Arctic Energy Alliance, represent and warrant that this annual report is true and accurate."



Mark Heyck,
Executive Director
July 16, 2018

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The Arctic Energy Alliance is a non-profit, non-government agency whose vision is that "NWT Society will become a global leader in clean, efficient, sustainable energy practices." The Arctic Energy Alliance's mission is to promote and facilitate the adoption of efficient and renewable and energy practices by all members of NWT society.

ARCTIC ENERGY ALLIANCE