2016/17 Annual Report

20 Years of the Arctic Energy Alliance

ARCTIC ENERGY ALLIANCE

Contents

Table of abbreviations

AEA	Arctic Energy Alliance
ARI	Aurora Research Institute
ECE	Education, Culture and Employment
EEIP	Energy Efficiency Incentive Program
GNWT	Government of the Northwest Territories
HVAC	Heating, ventilation and air conditioning
ICRC	Inuvialuit Cultural Resource Centre
NTPC	Northwest Territories Power Corporation
NWT	Northwest Territories
REACHE	Responsible Energy Approach for Community Heat and Electricity
ERS	EnerGuide Rating System

Foreword

This year, 2017, is a milestone for the Arctic Energy Alliance. For 20 years, we have been leading the North in taking action on climate change. And each year, we can see greater and greater results of our work.

Our organization has evolved significantly since its inception in 1997. We have grown from a small support group to an organization that effects real change. Today, we find ways for northerners to conserve energy, increase energy efficiency, and adopt alternative and renewable energy sources that are not just practical but financially sound as well, lowering energy costs in the process. And we can feel the respect and appreciation we get because of it.

The 2016/17 fiscal year was a banner one for the Arctic Energy Alliance—or the AEA, as we tend to call it. Not only are our core programs going strong, but we completed some extraordinary special projects as well. For example, we worked with Inuvialuktun elders and translators to make their language stronger by developing new energy-related terms. And our community LED swap-out project was so effective, it saved enough energy to take the equivalent of a small community off the NWT grid. On the heels of that project, we introduced point-of-sale rebates on LED light bulbs in all NWT communities that do not use hydroelectricity—a first for us—making it easier for people to adopt this energy-saving technology.

Including the LED swap-out project, we gave out more than 12,000 rebates in 2016/17, helping northerners save more than $700,000 on their energy costs and avoid nearly 1,000 tonnes of greenhouse gases every year.

Of course, we couldn't have done this without a cadre of dedicated, hard-working staff and eager, supportive clients. Working with these people has made all the difference.

I look forward to seeing what the next 20 years will bring.

Louie Azzolini
Executive Director

Installing solar panels to power the Inuvialuit community freezer in Inuvik.

2016/17 at a glance

The numbers below tell a story. It's a story of the North continuing to push toward cleaner energy production, greater energy efficiency, a lower carbon footprint and greater environmental responsibility. It's also a story of how the Arctic Energy Alliance helps the North achieve these goals.

In 2016/17, we distributed more than $1,000,000 in rebates, helping northerners save more than $700,000 a year on their energy costs.

Collectively, the projects we helped fund will save more electricity each year than is used by two small northern communities and will offset the equivalent of more than 340,000 litres of diesel annually.

But the numbers below don't tell the whole story. In 2016/17, we ran 24 programs and special projects, each with its own focus and results. For a greater understanding of each, be sure to read on.

Overall results

Programs and Projects		
Number of programs		**8**
Number of special projects		**16**
Rebates		
Total rebates/swaps	Including Energy Efficiency Incentive Program (EEIP) and residential community LED swap-out project	1,833
	Excluding EEIP and residential LED swap-out	80
Total value of rebates/swaps	Including EEIP and residential LED swap-out	$1,186,601
	Excluding EEIP and residential LED swap-out	$890,254
Average rebate	Including EEIP and residential LED swap-out	$616
	Excluding EEIP and residential LED swap-out	$11,128
Payback*		
Total capital cost		$2,763,289
Estimated annual savings		$546,942
Simple payback	Before rebates	4.4 years
	After rebates	2.9 years
Energy Savings*		
Estimated annual electricity savings	Including residential LED swap-out	1,375 MWh
	Equivalent to more than twice the electricity used by the community of Wekweeti in a year	
	Excluding residential LED swap-out	735 MWh

Estimated power demand avoided/ produced	Including residential LED swap-out	1,149 kW
	Equivalent to running 230 clothes dryers at the same time	
	Excluding residential LED swap-out	709 kW
Estimated annual fuel savings (gasoline, diesel or oil)**		58,818 L
	Equivalent to almost two typical tanker trucks	

Greenhouse Gas Reduction*		
Estimated annual greenhouse gases avoided	Including residential LED swap-out	919 tonnes
	Equivalent to burning 342,000 litres of diesel[1]	
	Excluding residential LED swap-out	494 tonnes

**Data for capital cost, annual savings, energy savings, and greenhouse gas reduction not available for Energy Efficiency Incentive Program. Payback data does not include the residential LED swap-out project, as there was no associated client cost.*

***Not counting fuel used for electricity generation. No fuel savings calculated for LED swap-out project.*

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 798 rebates (up 73 percent)

- Introduced point-of-sale rebates on LED light bulbs in most NWT communities

Energy Rating Service Support Program

Provides home energy evaluations.

- Evaluated 178 homes in the NWT and Nunavut

Commercial Energy Conservation and Efficiency Program

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

- Saved clients more electricity per year than is used by the community of Sambaa K'e

Community Government Building Energy Retrofit Program

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

- Identified nearly $300,000 in potential savings in three communities
- Helped the Town of Inuvik save more than 11,000 kWh a year

Alternative Energy Technologies Program

Provides incentives for northerners to incorporate renewable and alternative energy systems, such as solar, wind, wood and more.

- Provided more than $140,000 in rebates
- Avoided an annual greenhouse gas amount equivalent to burning more than 100 barrels of oil

Community Renewable Energy Program

Provides incentives to community and Indigenous governments for incorporating alternative or renewable energy technologies.

- Provided nearly $100,000 in rebates in four communities

[1] *Based on CO2 emissions of 2.68 kg per litre (https://people.exeter.ac.uk/TWDavies/energy_conversion/Calculation%20of%20CO2%20emissions%20from%20fuels.htm)*

Biomass Energy Program

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

- Held Burn It Smart workshops in five communities
- Helped the community of Whati install a district heating system

Regional Offices Program

Allows the AEA to keep a closer connection to communities throughout the NWT.

- Regional offices involved in every project the AEA undertakes, but also attend trade shows, events and other community engagement activities in every NWT community

Special projects

Community LED swap-out

Swapped out nearly 12,000 residential LED light bulbs and upgraded the lighting in 55 non-residential buildings in communities across the NWT, replacing inefficient bulbs

- Combined, participants will save more electricity annually than the community of Tsiigehtchic uses in a year

EnerGuide Rating System follow-ups in Kakisa

Evaluated and made energy-efficiency upgrades to virtually every home in the community.

Home evaluations and more in Nunavut

Evaluated 21 homes and held community engagement sessions in two Nunavut communities.

Community wood stove installations

Worked with four partner communities to install 49 safe, efficient wood stoves for residents.

Energy information and awareness

- Distributed energy efficiency equipment to all public libraries in the NWT
- Sponsored the Great Northern Solar Car Race at schools across the territory

Developing energy-related terminology in Inuvialuktun

Worked with elders and translators to help strengthen the Inuvialuktun language by developing new energy-related terminology.

Providing energy-efficiency funding to non-profit organizations

Through Indigenous and Northern Affairs Canada's Responsible Energy Approach for Community Heat and Electricity Program (REACHE), distributed funding to non-profit organizations non-hydro powered communities across the NWT for improving their energy efficiency.

- Provided more than $75,000 in funding to seven organizations in four communities

Budget

Source	Amount
Government of the Northwest Territories (GNWT) core/program funding	**$2,750,000**
Core funding for Regional Office Program, staff, offices, etc.	$1,600,000
Energy Efficiency Incentive Program	$200,000
Energy Rating Services Support Program	$150,000
Commercial Energy Conservation and Efficiency Program	$200,000
Community Government Building Energy Retrofit Program	$200,000
Alternative Energy Technologies Program	$200,000
Community Renewable Energy Program	$100,000
Biomass Energy Program	$100,000
GNWT supplementary project funding	**$750,000**
Community LED swap-out	$300,000
Community government solar project	$80,000
Commercial HVAC recommissioning	$50,000
Community government HVAC recommissioning	$50,000
Community wood stove project	$130,000
Condominium corporation biomass project*	$50,000
EnerGuide Rating System follow-up rebate	$65,000
Energy information and awareness	$25,000
Natural Resources Canada project funding	**$100,000**
Community energy plan update	$100,000
Indigenous and Northern Affairs Canada project funding	**$100,000**
REACHE retrofits	$100,000
Canada Mortgage and Housing Corporation project funding	**$30,000**
Building information support	$30,000
Membership dues	**$277,500**
Government of the Northwest Territories	$227,500
Government of Nunavut	$50,000
TOTAL	**$4,007,500**

**Project not pursued; funding reallocated*

Introduction

About the Arctic Energy Alliance

The Arctic Energy Alliance (AEA) is a not-for-profit society, based in the 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 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 20 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 North 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 Northwest Territories (NWT).

With our head office in Yellowknife, five regional offices across the Northwest Territories and 21 staff members, we touch every community in the NWT. Over the past several years, we've also expanded our reach into Nunavut, doing projects there when we can.

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

This report highlights our programs and projects from the 2016/17 fiscal year, including their results, so our readers can see the impact we have made.

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.

Core programs

A significant amount of the work we do is tied to seven core programs funded by the Government of the Northwest Territories (GNWT) Department of Infrastructure. These programs provide a range of services and support to residents, businesses, community governments, Indigenous governments and non-profit organizations throughout the NWT.

Our 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 Infrastructure)

Results

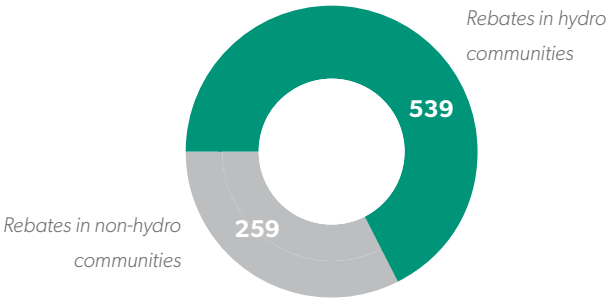
798 total rebates

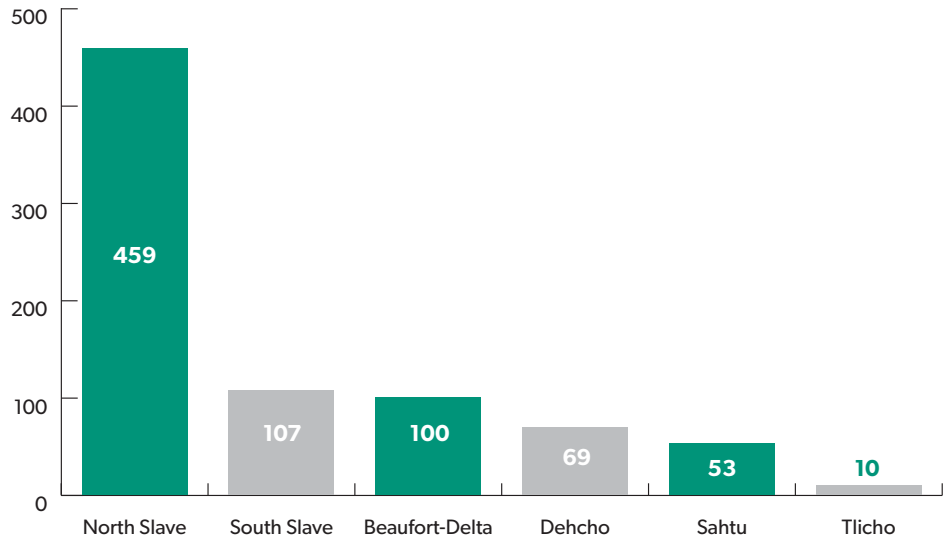
total value of rebates **$177,347**

$222
average rebate

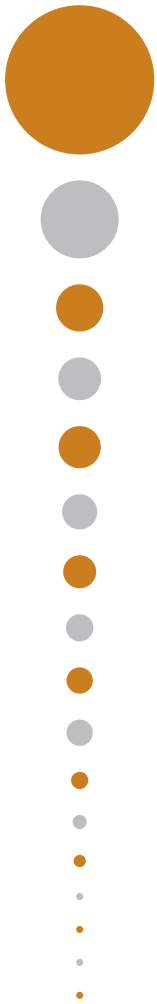
Between April 1, 2016 and March 31, 2017, the Arctic Energy Alliance gave out 338 more rebates than the previous fiscal year—an increase of 73 percent.

Rebates by region





Rebates by type



450	LED light bulbs
123	Washers
45	Wood stoves
37	Refrigerators
36	Pellet stoves
25	Gas furnaces
22	Instantaneous hot water heaters
15	Programmable thermostats
14	Insulation upgrades
14	Gas boilers
6	Oil boilers
4	ECM circulation pumps
3	Oil furnaces
1	Heat recovery ventilator (HRV)
1	Freezer
1	Drain water heat recovery
1	Air sealing

Increasing access to energy-saving technology

AEA launches instant rebate pilot project for LED light bulbs in non-hydro communities

On the heels of our successful community LED swap-out project (see page 24), the Arctic Energy Alliance partnered with the North West Company to make it easier for northerners to adopt energy-efficient LED lighting. From January 1 to March 31, 2017, we ran a pilot project to offer point-of-sale rebates on qualifying LED light bulbs in 27 NWT communities. The rebates—worth 50 percent of the cost of new bulbs—are available at Northern and NorthMart stores in communities that generate the bulk of their electricity using diesel or other non-hydro technology. We also piloted the project in two communities that use hydro power, offering a 25-percent rebate.

Switching to LED lighting allows residents to reduce their greenhouse gas emissions while lowering their power bills in the process—a welcome benefit in communities with high electricity costs. The pilot project encouraged the North West Company to make LED bulbs available in their NWT stores, while also making the bulbs more affordable for consumers.

During the three-month pilot project, the AEA gave out 174 rebates, saving consumers $888 (plus the reduced cost of using the bulbs). The project is continuing in the 2017/18 fiscal year, and we are planning to work with other vendors to expand it.

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.

FOR
residents

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

In addition to conducting home evaluations, the AEA provides free, unbiased home energy efficiency advice to NWT homeowners, and develops working partnerships with contractors and builders to increase their knowledge of building ventilation and envelope air tightness.

Results

	Target	Actual
Existing homes	66	47
New homes	N/A[2]	131
TOTAL		**178**

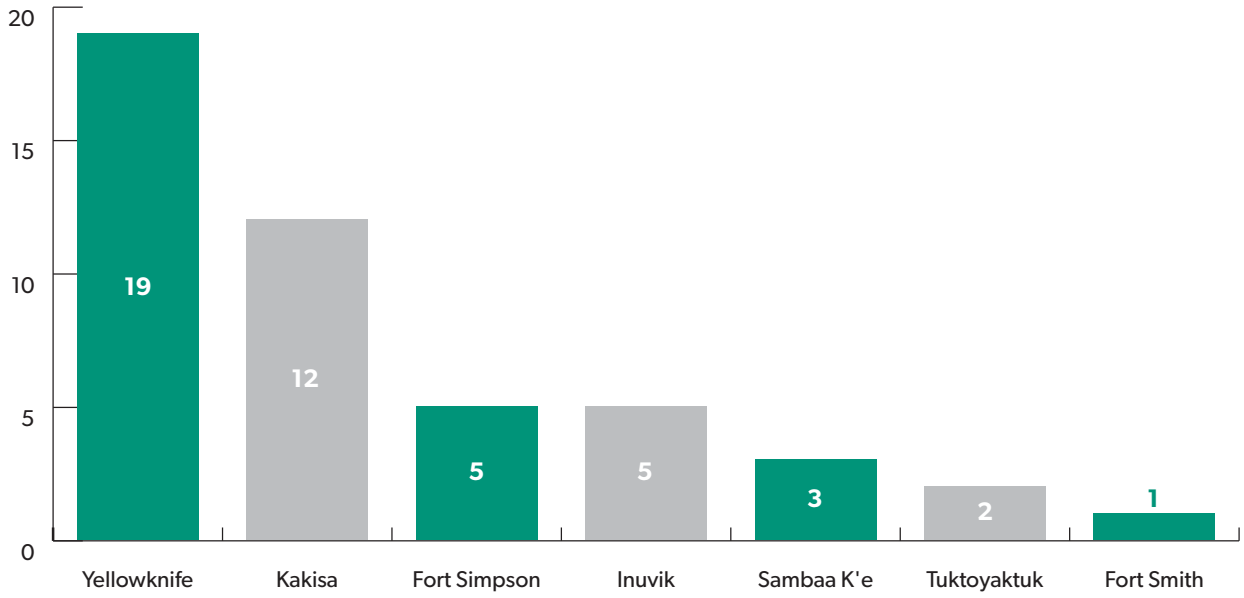
Existing homes

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

[2] *The target for evaluations of existing homes was based on program funding provided. Evaluation of a new home is a service provided for a fee, and the AEA does not set a target for this category.*

Pre-retrofit evaluations



The Arctic Energy Alliance conducted 47 pre-retrofit evaluations under the Energy Rating Services Support Program. This was lower than anticipated because our registered energy advisors spent time training for a new EnerGuide Rating System format.

As a special project with the Government of Nunavut, we also conducted 21 evaluations in the communities of Arviat and Kugluktuk (see page 28 for more information).

Post-retrofit evaluations

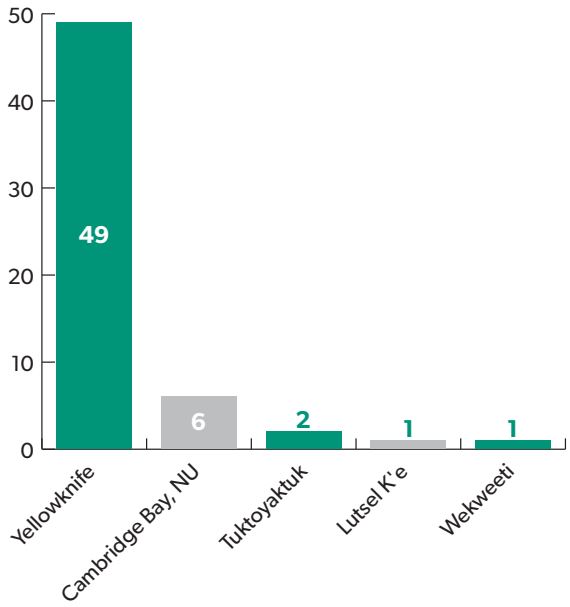
In 2016/17, the AEA conducted one post-retrofit evaluation, which was done in Yellowknife.

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

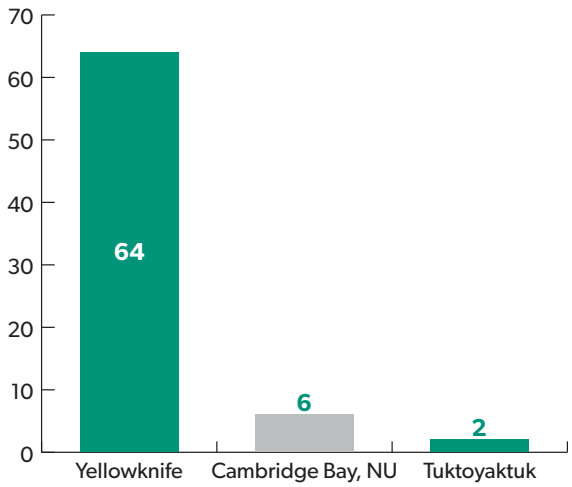


The Arctic Energy Alliance conducted 59 blueprint evaluations. Fifty-three of those were in the NWT. We also conducted 6 evaluations in Cambridge Bay, Nunavut.

"We build a better home because of the AEA's audits. We send the results of each test down to our factory and the next home gets even better because of it."

— Allan Hjelmeland, Homes North, Yellowknife

New home final evaluations



The AEA conducted 72 new home final evaluations. Sixty-six of those were in the NWT. We also conducted 6 evaluations in Cambridge Bay, Nunavut.

A new rating system

In 2016, Natural Resources Canada began moving to an updated EnerGuide Rating System format that provides more information on a home's energy use. As a result, our registered energy advisors took time over the 2016/17 fiscal year to get trained and certified on the new system.

The Arctic Energy Alliance now has four registered energy advisors trained in the new system.

Improving homes in Kakisa

When the AEA conducts a home evaluation, we make a list of recommendations to improve a home's energy efficiency. However, many homeowners choose not to pursue those upgrades, for a variety of reasons.

To make it easier for homeowners to improve their homes' energy efficiency, we partnered with the Ka'a'gee Tu First Nation to evaluate virtually all homes in the community of Kakisa and make some necessary upgrades such as new wood stove installations, air sealing, LED light bulb swap-outs and more. In the process, we were even able to address some health and safety issues.

See page 27 for more information.

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.

Rebates of up to $15,000 are available. The actual rebate amount paid to each business is the lesser of the following:

- $15,000
- One-third of the total eligible cost of the project
- Five times the annual estimated money saved in fuel, water and electricity

FOR
businesses

AEA FUNDING
$200,000 (from GNWT Infrastructure)

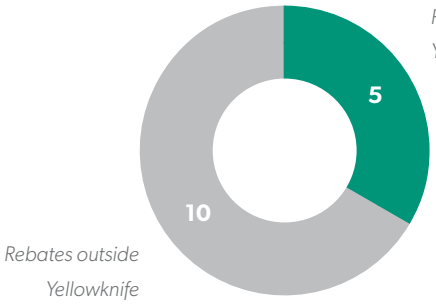
Results

15 total rebates

total value of rebates **$110,882**

$7,392
average rebate

Communities



Communities receiving rebates: **7**
plus 1 remote business

Payback

Capital cost (all projects, before rebates):
$486,399

Estimated annual savings (all projects):
$224,704

Simple payback (all projects, after rebates):
1.7 years

Energy savings

Annual electricity consumption avoided:
506,374 kWh
(more than the annual electricity used in the community of Sambaa K'e)

Power demand avoided: **105** kW
(the equivalent of 105 1,000-W block heaters running at the same time)

Annual oil consumption avoided: **3,805** L
(equivalent to more than three standard residential oil tanks)

Greenhouse gas reduction

Greenhouse gases avoided: **195** tonnes
(the equivalent of taking more than 41 cars off the road)[3]

Energy audits

As part of the Commercial Energy Conservation and Efficiency Program, the Arctic Energy Alliance provides a free energy audit service to NWT businesses. The process begins with a "yardstick" audit of a building, where we analyze utility bills to find potential energy savings. An AEA energy advisor will then visit the building to assess its heating, ventilation, air leakage, water use and lighting to determine the biggest savings for the lowest cost. The report from this audit can be used to determine which upgrades to make. This means we can help a business choose their most beneficial upgrades before they spend a penny.

In 2016/17, the AEA conducted six on-site commercial energy audits and 17 yardstick audits, and our goal is to increase that number for the next fiscal year.

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

Community Government Building Energy Retrofit Program

Through the Community Government Building Energy Retrofit Program, the Artic Energy Alliance provides information to community governments across the NWT on how they can better manage their energy use while saving money in the process.

FOR
community governments

AEA FUNDING
$200,000 (from GNWT Infrastructure)

One of the first steps is to conduct a targeted energy audit of community government buildings, which is subsidized by the AEA. The audit identifies 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 management services for a fee.

Results

Audits

3 communities with completed audits
(Inuvik, Gameti and Sambaa K'e)

building audits completed **20**

$291,270
potential annual savings

Completed projects

total rebates (completed projects) **1**
(Inuvik)

$9,063 total value of rebates

Payback

Capital cost **$18,126**

Estimated annual savings **$7,339**

Simple payback (after rebate) **1.2** years

Energy savings

Electricity consumption avoided **11,006** kWh
(equivalent to running a 100-watt TV for 110 hours)

Power demand avoided **3** kW
(equivalent to six 500-watt refrigerators running at the same time)

Greenhouse gas reduction

Greenhouse gases avoided **5.4** tonnes
(equivalent to 2,200 L of gasoline consumed)

Follow-ups

In addition to the work we completed in the 2016/17 fiscal year, the AEA followed up with community governments on both past and future opportunities.

In Jean Marie River and Deline, we verified the installation of programmable thermostats and efficient LED lighting, both of which were installed last fiscal year.

We also engaged with community governments throughout the NWT to increase the number of energy audits and building upgrades we complete next fiscal year.

The AEA's Tom Gross installing a programmable thermostat in a home in Jean Marie River.

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 three programs designed to help northerners adopt these technologies.

> "Working with the AEA was awesome. They followed up with me and made sure I had all the answers I needed. With the new solar system I don't have to listen to the generator; I can hear the birds in the morning. It's cleaner, it's simpler, and it just makes sense."
>
> *— Patrick Rauch, cabin owner, Yellowknife*

Alternative Energy Technologies Program

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

- For residents
- For businesses (including off-grid businesses)

FOR
residents, businesses

AEA FUNDING
$200,000 (from GNWT Infrastructure)

Results

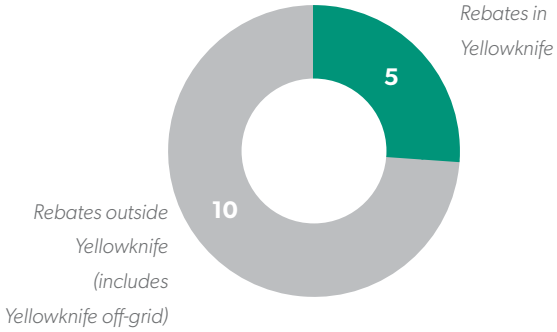
	Residential	Business	TOTAL
Total rebates	19	7	26
Total value of rebates	$58,876	$81,487	$140,363
Average rebate	$3,099	$11,641	$5,399

Project types

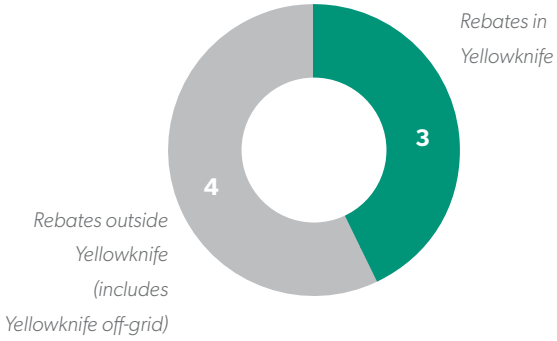
	Residential	Business	TOTAL
Solar photovoltaic	13	4	17
Biomass	3	3	6
Wind	3	0	3

Communities

Residential



Business



	Residential	Business	TOTAL
Communities receiving rebates	3	2	4*

** Yellowknife was represented in both the residential and business categories*

Payback

	Residential	Business	TOTAL
Capital cost (all projects, before rebates)	$240,986	$378,410	$619,396
Estimated annual savings	$17,216	$14,637	$31,853
Simple payback (after rebate)	10.6 years	20.3 years	15.0 years

Energy savings

	Residential	Business	TOTAL
Power demand avoided/ produced	130 kW	226 kW	356 kW*

** Equivalent to 71 household clothes dryers running at the same time*

Greenhouse gas reduction

	Residential	Business	TOTAL
Greenhouse gases avoided	28 tonnes	17 tonnes	45 tonnes*

** Equivalent to burning 104 barrels of crude oil[5]*

Community Renewable Energy Program

The Community Renewable Energy Program is aimed at community and Indigenous governments, and non-profit organizations. Like the Alternative Energy Technologies Program, it provides incentives for incorporating alternative or renewable energy technologies.

FOR
community governments, Indigenous governments, non-profit organizations

AEA FUNDING
$100,000 (from GNWT Infrastructure)

Results

7 total rebates

total value of rebates **$98,910**

$14,130
average rebate

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

Client summary

Project Type	Location	Installed Energy Capacity (kW)	Qualifying Capital Costs	Rebate Amount
Solar electricity (photovoltaic)	Aklavik	3	$34,424	$13,460
	Fort Providence	N/A *(completed project from previous fiscal year)*	$30,000	$15,000
	Inuvik	5	$10,900	$5,450
	Inuvik	15	$167,000	$20,000
	Inuvik	2.5	$50,000	$5,000
Biomass (pellet boiler)	Inuvik	80	$140,000	$20,000
	Yellowknife	28	$55,125	$20,000
	TOTALS	**133.5**	**$487,449**	**$98,910**

Biomass Energy Program

Through the Biomass Energy Program, the Arctic Energy Alliance provides northerners with accessible technical advice on existing or potential biomass projects.

There are several ways to use biomass energy, such as biomass heating, co-generation (heat and electricity) and district heating (using one heat source for several buildings).

In 2016/17, the AEA conducted a series of workshops on heating with wood—called Burn It Smart—and supported the Community Government of Whati in installing a new biomass district heating system.

FOR

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

AEA FUNDING

$100,000 (from GNWT Infrastructure)

Burn It Smart workshops

Workshops held: **5**

(Deline, Tulita, Behchoko, Gameti, Colville Lake)

Total participants: **50**

The AEA's Burn It Smart workshops are designed to reinforce good wood-burning practices in communities across the NWT. Good burning practices result in increased safety, decreased emissions, more heat using less wood, and less smoke pollution.

A Burn It Smart workshop in Behchoko.

High-efficiency wood stoves are now the only kind of stove being sold in Canada. These stoves use advanced burning technology to achieve lower emissions and higher efficiency. They work

differently than older stoves and require dry wood to burn effectively. This runs contrary to the commonly-held belief that longer burns are achieved by mixing green wood with dry wood. While this works with older, low efficiency stoves, it does not work with energy-efficient stoves and results in increased creosote formation and lower heating efficiency.

The Burn It Smart workshops address the differences in the technology of the new high-efficiency wood stoves compared to the older ones, and how to burn effectively and get longer burn times, as well as best practices for wood harvest and storage, chimney installation, clearances, maintenance and safety equipment in the home.

Supporting the biomass district heating project in Whatì

Tonnes of greenhouse gases avoided annually
100

Litres of diesel avoided annually **38,100**

Annual net savings **$40,100**

Total capital cost **$346,505**

Simple payback **8.6** years

"It will take about a year before we'll really start to see the savings, but the heating system will help the community government quite a bit. Working with the Arctic Energy Alliance was a great experience. John was a huge help."

— Lisa Nitsiza, Community Government of Whati

The Community Government of Whati is not only reducing its heating bills by using renewable energy, but has become a utility provider in its own right. Over the past two fiscal years, the community government, with the support of the Arctic Energy Alliance, has planned for and installed a biomass district heating system. Using a biomass boiler installed in a shipping container, the system heats three community government buildings, as well as the local health centre, which is run by the territorial government.

The 2015/16 fiscal year involved planning the system, purchasing the equipment and transporting it to Whati on the winter road. In 2016/17, the district heat piping was buried once the ground thawed, the boiler and heat transfer stations were installed, and the buildings were connected. The boiler was fired up in March 2017.

The GNWT Department of Infrastructure negotiated a deal with the community government to purchase heat from the boiler for the local health centre. This involved an initial capital investment from the GNWT for connecting to the district heating system. This cost will be recovered thanks to savings over the cost of heating oil.

In addition to support from the AEA, the community government was aided by $100,000 in funding from POLAR Knowledge Canada.

The community government intends to expand the system in the future, selling heat to other clients.

The project acts as a model for other communities to follow. Not only is the community government reducing its operating costs and choosing renewable energy over fossil fuels, but is also using biomass energy to generate revenue. The future of biomass energy is looking good in Whati.

The pellet hopper for the district heating system, with the boiler container in the background.

Regional Offices Program

The Arctic Energy Alliance has offices in six communities across the NWT: Yellowknife, Inuvik, Norman Wells, Fort Simpson, Whati and Hay River. Together, these offices allow the AEA to provide education and advice, and promote and coordinate our programs across the territory.

Our regional offices—those outside Yellowknife—allow us to keep a closer connection to the communities. Who better to understand the needs of a region than the people who live there?

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

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

The AEA's regional offices are involved in every program and project that we undertake, but also engage in their own work, unique to each region. 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 community visits.

Bompas Elementary School spring culture camp 2016 (Fort Simpson)

Teresa Chilkowich, our Dehcho Regional Energy Project Coordinator, shared wood-burning and solar technologies with students at Bompas Elementary School's spring culture camp in June.

The students especially enjoyed the challenge of making fires without matches. Perseverance paid off for some, as sparks created a small flame to get their kindling lit.

Mahsi cho to the Bompas students and staff for letting the AEA take part in the camp.

Dehcho First Nations annual assembly (Jean Marie River)

In June, the AEA's Teresa Chilkowich attended the Dehcho First Nations' annual assembly to share information on energy conservation, energy efficiency and renewable energy. She also demonstrated several ways that homeowners can use renewable energy. It was a great opportunity to connect with community members and leaders from across the Dehcho region.

Dene National Assembly (Fort Simpson)

Teresa was on hand at the Dene National Assembly in June, showing off an array of energy-efficient and renewable-energy technologies. These included a solar-electric demonstration trailer, solar ovens, co-generation stoves (that produce heat and electricity), and more.

Of particular interest was the sLEDgehammer bike, on loan from Let's Talk Energy. By pedalling the bike, participants could generate electricity to light up a series of LED panels.

A participant pedals the sLEDgehammer energy-generating bike.

Community energy fair
(Jean Marie River)

The AEA helped organize a community energy fair in December, during the Tthets'ehk'e Deli (Jean Marie River) First Nation's open house. While there, we discussed the reports generated for homeowners participating in the Jean Marie River electricity monitoring project, which is managed by the AEA and the Northwest Territories Power Corporation, with support from Natural Resources Canada.

For more information on the electricity monitoring project, see page 32.

LED swap-out events in the Sahtu
(Fort Good Hope, Colville Lake and Deline)

In January and February, Wayne Lennie, our Sahtu Regional Energy Project Coordinator, travelled the winter roads around the Sahtu, hosting events to exchange LED light bulbs for less-efficient bulbs. He visited Fort Good Hope and Colville Lake with Craig Thomas and Steve Outlet from our Yellowknife office, and went to Deline with Alexandra Giroux, also from our Yellowknife office. All three events were well attended, and combined we swapped more than 650 bulbs.

For more information on the LED swap-out project, see page 24.

Thebacha Trade Show (Fort Smith)

Louise Schumann, Program Assistant in our South Slave office, spent a day answering lots of questions at the Thebacha Trade Show in April, with help from Mike Stuhec from our Yellowknife office. The buzz of excitement and activity started at 9 a.m. and didn't stop until the show closed at 5. Louise and Mike had plenty of reasons for people to visit the booth and talk about energy conservation and efficiency, including some neat gadgets, and an LED bulb giveaway. And, of course, everyone loves to pick up one of our sturdy, biodegradable bags.

The AEA's Louise Schumann mans our booth at the Thebacha Trade Show.

It was great to talk to so many people who had already taken advantage of AEA's home energy evaluation services and had implemented some of the recommendations. Way to go Fort Smith residents!

Business, Home & Leisure Show
(Hay River)

In November, Tom Gross (our South Slave Regional Energy Project Coordinator) and Louise Schumann attended the Business, Home & Leisure Show, hosted by the Hay River Chamber of Commerce. The crowds were steady and Arctic Energy Alliance's bright booth was well attended by energy-minded community members seeking information about LED lights, how to conserve energy and available rebates.

Healthy Living Fair (Fort Providence)

Also in November, Tom and Louise set up shop at the Healthy Living Fair in Fort Providence, speaking with about 100 people and swapping out more than 450 light bulbs as part of our community LED swap-out project.

Inuvik Fall Fair

Participating in the Fall Fair at the Inuvik Community Greenhouse in September was a great way to support the greenhouse, promote the AEA and connect with the community while showing off the annual AEA summer greenhouse plot. The AEA garden plot is included in the daily greenhouse tour and is used to promote energy conservation

and efficiency. It produces a crop of fresh potatoes which are donated to the Parish Hall Community Kitchen for soup.

While at the fair, Sheena Adams, our Beaufort-Delta Regional Energy Project Coordinator, also took the opportunity to swap out more than 800 light bulbs with local residents, replacing them with efficient LED bulbs.

Some of the incandescent light bulbs traded for efficient LEDs at the Inuvik Fall Fair.

Community energy planning open house (Aklavik)

In March, the AEA visited Aklavik to host an open house for community energy planning. Attendees enjoyed caribou stew and bannock while learning about energy conservation, efficiency and renewable energy. The information we collected from community members was used to assist Aklavik in the creation of its updated community energy plan. During this visit, the AEA team also met with youth, elders and the Aklavik Hamlet and Council.

Installing efficient wood stoves in Gameti and Behchoko

In September and October, AEA staff, led by Sonny Zoe, our Tlicho Regional Energy Project Coordinator, travelled to Gameti and Behchoko to install new, efficient wood stoves for community members. The project, co-funded by the AEA and the communities, concentrated on helping those residents in greatest need.

The Bekale family around their new wood stove.

After installing the new stoves, we also held Burn It Smart workshops in each community to help residents learn about safe, efficient wood-burning practices

For more information on the community wood stove project, see page 29.

Swapping out light bulbs in the Tlicho communities

In November and December, Sonny held events in Gameti, Wekweeti and Whati as part of our community LED swap-out project. While there, he gave away just shy of 1,000 LED light bulbs, replacing less-efficient incandescent bulbs. Not only did Sonny hold swap-out events, but also visited some people—such as elders—in their homes, to allow them to take part as well.

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 and Nunavut.

Over the 2016/17 fiscal year, the AEA conducted 16 projects, with funding provided by the Government of the Northwest Territories, the Government of Nunavut, Natural Resources Canada, Indigenous and Northern Affairs Canada, and the Canada Mortgage and Housing Corporation.

Community LED swap-out

By any measure, our community LED swap-out project was a rousing success. The Arctic Energy Alliance swapped out roughly 12,000 energy-efficient LED light bulbs across the NWT—from the residential portion of the project alone—replacing less-efficient incandescent and fluorescent bulbs. Collectively, the participants will save more electricity annually than the community of Tsiigehtchic uses in a year.

Replacing inefficient lighting is an easy and relatively inexpensive way to reduce energy consumption. But there are barriers to adoption of LED bulbs in the NWT. For example, LED bulbs carry a higher up-front cost than incandescent bulbs; some people are not aware of the energy-saving benefits; and at the outset of the project, LED bulbs were not available in all NWT communities. Through this project, the AEA addressed those barriers, supporting targeted replacement of inefficient lighting in homes, businesses, non-profit organizations and community buildings throughout the territory.

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

AEA FUNDING
$300,000 (from GNWT Infrastructure)

In 2015/16, we used that additional funding to purchase supplies for the project.

In 2016/17, AEA representatives travelled to all 25 communities in the NWT that do not use hydroelectricity—where electricity generated from burning diesel or other fuels produces greenhouse gases. We also conducted pilot projects in Yellowknife, Fort Providence and Hay River, which use hydroelectricity. We not only directly swapped bulbs with residents—giving them access to free LED bulbs that could last more than a decade—but also worked with owners of non-residential buildings to replace larger fluorescent bulbs, exit signs and exterior HID lighting.

The project was designed to have an immediate impact on energy use, and by extension, greenhouse gas emissions and power bills. But we also wanted it to do more. We wanted to increase awareness and acceptance of LED lighting technology in the NWT and have a lasting impact on the decisions northerners make when buying new lighting.

A project with such lofty goals could not have been possible without the help of a number of partners. Those included: local community governments in the communities we visited; the GNWT departments of Infrastructure, Municipal and Community Affairs, Environment and Natural Resources, and Health and Social Services; the NWT Housing Corporation; local housing associations; the NWT Association of Communities; and the North West Company. These partners provided additional funding or other support to ensure the project was successful.

Results

Metric	Target	Results
Residential bulbs exchanged	10,000	11,600
Communities with non-residential lighting upgrades	6	11
Estimated annual electricity consumption avoided	500,000 kWh	824,000 kWh
Estimated power demand avoided	400 kW	510 kW
Estimated annual greenhouse gas reduction	350 tonnes	570 tonnes

$780,000
total project cost (including costs not paid by the AEA)

estimated annual savings for clients
$390,000

2 years
total payback

Non-residential LED upgrades

Buildings upgraded **55**

Number of rebates **19**

Total value of rebates **$205,000**

Total cost **$409,000**

Estimated annual savings **$199,000**

Total payback **2.1** years

Annual electricity consumption avoided
184,000 kWh

Power demand avoided **70** kW

Estimated annual greenhouse gas reduction
122 tonnes

Residential LED swap-out

LED bulbs exchanged **11,600**

Total value of LED bulbs **$119,000**

Total cost **$119,000**

Estimated annual savings **$189,000**

Total payback **0.6** years

Annual electricity consumption avoided
640,000 kWh

Power demand avoided **440** kW

Estimated annual greenhouse gas reduction
425 tonnes

Lasting savings

Stemming from the success of the community LED swap-out project, and to address barriers to adoption of LED technology, the AEA partnered with the North West Company to provide point-of-sale rebates on LED bulbs. The rebates help provide access to energy-saving LED bulbs, and are available in Northern and NorthMart stores in all NWT communities that do not use hydroelectricity.

See page 12 for more information.

Community government solar project

Through the community government solar project, the Arctic Energy Alliance supported the installation of solar photovoltaic systems on community government buildings in the NWT. By installing photovoltaic systems, community governments can reduce their greenhouse gas emissions and electricity costs, while reducing diesel use.

FOR
community governments

AEA FUNDING
$80,000 (from GNWT Infrastructure)

Through two years of funding from the GNWT Department of Infrastructure, the AEA covered a portion of the cost to purchase the materials for four community governments. The communities were responsible for installation costs.

Results

Communities

Participating communities **4**

Payback

Total capital cost **$366,873**

Funding provided by AEA **$188,585**

Estimated annual savings **$39,466**

Simple payback (all projects) **9.3** years

Energy savings

Total system size **41** kW

(enough to power 4,555 LED light bulbs at the same time)

Annual electricity produced **34,216** kWh

(equivalent to running a 350-W freezer for 98 hours)

Greenhouse gas reduction

Total annual greenhouse gases avoided

26.8 tonnes

(the equivalent of driving an average passenger vehicle 104,000 km)[6]

"From just the solar system on my staff housing trailer, I've seen power bills go down to about sixty dollars a month in the summer, and that's at the full commercial rate. The savings for the recreation complex are probably even bigger, especially since we've also installed LEDs there."

— Fred Behrens, Hamlet of Aklavik

A contractor installs solar panels on the recreation centre in Fort Simpson.

Community	Capital Cost ($)	Funding Provided by AEA ($)	Estimated Annual Savings ($)	Simple Payback (years)	System Size (kW)	Annual electricity produced (kWh)	Annual greenhouse gases avoided (tonnes)
Aklavik	$146,184	$72,266	$8,505	17.2	15	10,695	8.3
Fort Simpson	$73,080	$38,850	$8,045	9.1	10	9,743	7.1
Jean Marie River	$66,549	$42,974	$14,838	4.5	6	5,762	5.4
Whati	$81,060	$34,495	$8,078	10.0	10	8,017	6.1
TOTAL	**$366,873**	**$188,585**	**$39,467**	**9.3**	**41**	**34,217**	**26.8**

Totals may not add up due to rounding errors

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

Energy Rating Services follow-ups in Kakisa

An EnerGuide Rating System evaluation is the first step toward improving a home's energy efficiency, but that efficiency can only improve when changes are made.

FOR
residents

AEA FUNDING
$65,000 (from GNWT Infrastructure)

The AEA found that few homeowners who had home evaluations done were choosing to follow up on the energy-saving recommendations. To encourage homeowners to take advantage of the energy and cost savings that home upgrades would bring, we partnered with the Ka'a'gee Tu First Nation to evaluate virtually all homes in the community of Kakisa and make some necessary upgrades.

The Arctic Energy Alliance conducted EnerGuide Rating System evaluations on 12 homes. We also conducted a secondary inspection of several building components not captured by the EnerGuide Rating System evaluation. In the end, we evaluated heating appliances, air sealing, electrical appliances, and much more.

When the evaluations and inspections were complete, we worked with contractors, on behalf of the First Nation, to improve the energy efficiency of the homes. Thanks to supplemental funding provided by the GNWT Department of Infrastructure, as well as community support (both financial and in-kind), we were able to make the following improvements:

- Wood Energy Technology Transfer-certified wood stove installations
- Air sealing
- Low-flush toilet installations
- Refrigerator replacements
- LED light bulb swap-outs
- Heating duct cleaning
- Oil-fired hot water heater installations
- Smoke and carbon monoxide detector replacements

Our evaluations revealed some issues beyond energy efficiency. In some cases, they also revealed health and safety issues. For example, one home had its ceiling plans changed during construction, resulting in moisture problems in the attic, and creating a haven for bats. Another home had a broken space heater, and the elders living there were using a burned-out wood stove. Luckily, we could refer the residents in these homes to organizations that could help.

We're glad we got a chance to work with the Ka'a'gee Tu First Nation and the residents of Kakisa to improve the energy efficiency and safety of the community's homes. It's an investment that's well worth it.

Results

$29,541
total relevant capital cost

funding provided by AEA
$29,541

$4,500
estimated annual savings

6.6 years simple payback

Solar electricity project follow-up in Lutsel K'e

Lutsel K'e is home to a one-of-a-kind project in the NWT, and possibly even within Canada. The Lutsel K'e Dene First Nation owns a 35-kW mini solar farm, from which it sells power to the Northwest Territories Power Corporation (NTPC) under a power purchase agreement—certainly a rarity for a small First Nations community.

The Arctic Energy Alliance provided project management services to the First Nation.

The equipment for the solar photovoltaic project was installed in November 2014. But due to several factors, including the adoption of a new territorial electrical code shortly after the installation, which required some changes to the project, the electrical permit was not approved until early 2016.

In April 2016, an AEA representative accompanied the solar technician to commission the system and make the final connection to NTPC. We also partnered with the Lutsel K'e Dene First Nation for the official grand opening of the solar farm the next month. The opening was well-attended by community members as well as government and NTPC representatives.

Due to the nature of the project, it has attracted attention from across the country. In the 2016/17 fiscal year, the AEA gave several presentations on it, with the permission and involvement of the Lutsel K'e Dene First Nation. Venues for these presentations included the Alternative and Emerging Energy Technologies conference in Inuvik in June 2016 and the Pan-Canadian Summit in Winnipeg in January 2017, among others.

The solar array in Lutsel K'e.

Home evaluations and more in Nunavut

The Government of Nunavut's Climate Change Secretariat (formerly the Energy Secretariat) has been a member and partner of the AEA for several years. Together, we are working on creating a territory that is more energy-efficient and less reliant on non-renewable sources of energy.

FOR
residents

AEA FUNDING
provided through membership fee

With similar mandates, the two organizations share information between the NWT and Nunavut, and work to solve problems specific to the North.

In 2016/17, the Government of Nunavut asked the AEA to conduct EnerGuide Rating System evaluations on homes in Arviat and Kugluktuk. These free evaluations would help homeowners understand the energy efficiency of their homes and improvements they could make to reduce their energy use and lower their bills.

See page 12 for more information on EnerGuide Rating System evaluations.

Existing home evaluations

Arviat **11**

Kugluktuk **10**

Conducting a blower door test in a home in Arviat.

Community engagement

An AEA community visit wouldn't be complete without an engagement session. We held community energy presentations in each Nunavut community we visited, covering energy conservation, energy efficiency and renewable energy. Each presentation lasted two to three hours. The session in Kugluktuk resulted in five additional homeowners asking for evaluations. We were able to meet the request by conducting short "walk-through" energy assessments before we had to leave.

Also in Kugluktuk, we held a public engagement session with residents and Premier Peter Taptuna that saw a fantastic turnout.

In Arviat the Arctic Energy Alliance worked with the hamlet office on the initial design of an alternative energy system involving wind, solar and energy-storage technologies. The intent of the system would be to offset some of the electricity produced by the local diesel grid.

HVAC recommissioning

Recommissioning is a way to ensure that existing equipment and systems in buildings are operating in the best way possible to meet the needs of the people who use them.

In 2016/17, the Arctic Energy Alliance launched projects to recommission the HVAC (heating, ventilation and air conditioning) systems in commercial and community government buildings in NWT communities that do not use hydroelectricity. The AEA hired contractors to inspect, repair and calibrate the HVAC systems of participating clients.

FOR
businesses, community governments, Indigenous governments

AEA FUNDING
$100,000—$50,000 for each project (from GNWT Infrastructure)

Results

The projects are continuing into the 2017/18 fiscal year, and total project costs and estimated energy savings will not be available until their completion. The results to date are presented below.

Commercial buildings

Participating communities **2**
(Inuvik and Fort Simpson)

Buildings evaluated **5**

Possible rebates identified **$28,703**

Community buildings

Participating governments **3**
(Village of Fort Simpson, Tthets'ehk'e Deli [Jean Marie River] First Nation and Liidlii Kue First Nation)

Buildings evaluated **4**

Possible rebates identified **$21,775**

Partnering with communities to install efficient wood stoves in homes

This is the second year of the community wood stove project, which was developed as a partnership project between the Arctic Energy Alliance and the communities of Gameti, Behchoko, Tulita, Deline and Fort Good Hope.

FOR
residents

AEA FUNDING
$130,000 (from GNWT Infrastructure)

Through the project, the AEA and our community partners aim to increase wood-burning safety by supporting code-compliant installations, reduce particulate emissions in smoke, and increase wood-burning efficiency by installing EPA-certified wood stoves.

Although on the surface this project is about installing code-compliant stoves, chimneys, flues

and hearth pads, it also addresses underlying issues of safety and energy security in NWT communities by providing new, efficient stoves for people who need them most.

Each of the communities participating in the project contributed 50 percent of the project costs for that community. The remaining 50 percent is supplied by the AEA through supplementary funding.

In 2015/16, the AEA used additional funding to coordinate the purchase and delivery of wood stoves, chimneys and other equipment to the participating communities. In 2016/17, we ensured that the stoves were installed in all the communities, except Fort Good Hope, according to Wood Energy Technology Transfer certification. The stoves in Fort Good Hope are anticipated to be installed in the next fiscal year.

"I love the new stove. It heats up the whole house way faster than my old one."

— Bella Nitsiza, Whati

Results

49 wood stoves installed

Gameti **15**

Behchoko **16**

Tulita **8**

Deline **10**

Energy information and awareness

Through our energy information and awareness projects, the Arctic Energy Alliance finds creative ways to help northerners learn about renewable and alternative energy, energy efficiency and energy conservation.

In 2016/17, we delivered two energy information and awareness projects, thanks to partnerships with NWT Public Library Services and the GNWT Department of Education, Culture and Employment (ECE). Those projects allowed us to provide electricity monitoring and demonstration equipment to NWT public libraries and to encourage NWT kids to build and race solar cars.

FOR
residents, businesses

AEA FUNDING
$25,000 (from GNWT Infrastructure)

NWT libraries lending out energy efficiency equipment

Through a partnership with NWT Public Library Services and ECE, the Arctic Energy Alliance is encouraging northerners to become more aware of their energy use. We did this by supplying energy efficiency-related equipment to every library in the NWT, available for anyone to borrow and use at home or at work. That equipment included:

- Kill-a-Watt electricity monitors, which can be used to calculate the energy used by appliances, computers, phones, TVs and more
- LED light boxes (one for each library), which show the difference in power use between LED light bulbs and other forms of lighting

ECE promoted the roll-out, preparing posters, newspaper ads and Facebook ads to notify residents of the new equipment.

The Great Northern Solar Car Race

The AEA once again partnered with ECE to sponsor the Great Northern Solar Car Race. Seven schools from across the NWT held competitions for students to design, build and race solar-powered model cars using kits provided by the AEA.

The contest included three categories:

- Fastest car to cover 25 metres
- Longest distance travelled at one time without stopping
- Lightest car

The project allowed students to gain a better awareness of renewable energy while fostering collaborative learning, creativity and innovation.

All participating schools received a renewable energy resource kit, which demonstrates the principles of a fuel cell, wind turbine, water turbine, biomass energy and solar power. All participating students received a pair of LED light bulbs to be used in their study area at home. Schools with entries that placed in the top three for each category received an additional four resource kits. Individual team members who placed in the top three for each category received iTunes gift cards.

The winning teams from each category were:

- Fastest car **12.28** seconds
  Leelou, Shaelyn and Erin from N.J. McPherson School (teacher Helen Wong)
- Longest distance **58** metres
  Bhaven and Caleb from Range Lake North School (teacher Heather Jelinski)
- Lightest car **110** grams
  Rowan and Joel from N.J. McPherson School (teacher Helen Wong)

Developing energy-related terminology in Inuvialuktun

Energy efficiency and renewable energy are still relatively new fields in the grand scheme of things. And they are fields that are still advancing. With numerous energy-related developments in the past few decades, Inuvialuktun, like many Indigenous languages, did not have a broad vocabulary to talk about the topic. So the AEA partnered with the Inuvialuit Cultural Resource Centre (ICRC) to close the gap.

FOR
residents

AEA FUNDING
allocated from a portion of AEA core funding (from GNWT Infrastructure)

The AEA and ICRC held a three-day workshop during Aboriginal Languages Month in March, inviting nine Inuvialuit elders from all six Inuvialuit Settlement Region communities to participate. Each of the three regional dialects (Inuinnaqtun, Siglitun and Uummarmiutun) was represented.

The AEA worked with Inuvialuktun language experts to develop terms related to energy efficiency, energy conservation and renewable energy in the Inuvialuktun language. By developing these new terms, the elders could help revitalize their language and share knowledge about the terms being developed and translated.

In total, 186 terms were translated. These words will be used to promote, educate and communicate about energy efficiency, energy conservation and renewable energy in the region.

The elders said they enjoyed the project very much, and that, in addition to practicing, sharing and modernizing their traditional language, they appreciated the opportunity to learn about AEA and all the services and funding we offer.

This project was done with support from the Aurora Research Institute (ARI) and received a

two-year scientific research permit. The final results from this project will be published in the ARI library, ICRC library and Royal Roads University Library.

This is the second time the AEA has supported a terminology development project in an NWT Indigenous language. These projects not only support the revitalization of Indigenous languages, but because they involve elders with significant knowledge of their languages, they create another source of energy-related information in our communities.

186 terms translated

Building an NWT-wide energy database

In the NWT, an incredible amount of data is captured on the territory's energy use. But that data is broadly dispersed throughout GNWT departments, as well as arm's-length and outside organizations such as NTPC and the Arctic Energy Alliance.

The AEA and the GNWT Department of Infrastructure wanted to develop a centralized database that would collect all available NWT energy data in a single, easy-to-access location. This would allow contributing organizations to more easily share and use that data.

FOR
community governments, Indigenous governments

AEA FUNDING
allocated from a portion of AEA core funding (from GNWT Infrastructure)

The database would include information such as:

- Energy supply and demand (e.g. fuel use and electricity consumption at the community level)
- Energy infrastructure (e.g. solar system locations and sizes, and biomass boilers in use)
- AEA-funded initiatives
- Department of Infrastructure energy conservation projects
- Power generated by NTPC

The AEA collected the existing data from various sources and worked with a database specialist to create the structure for the new database. From there, the Department of Infrastructure took on the task of advancing the project. The database has since been built and all information has been entered. All that remains is to finish training users and to migrate the finished product from the testing environment to the GNWT's hosting environment so that all registered users can access it.

Advanced electricity monitoring in Jean Marie River

Since 2012, the Arctic Energy Alliance has been working with Natural Resources Canada (NRCan) and NTPC to gather and analyze data on electricity generation and use in the community of Jean Marie River.

The project functions as a case study with two specific goals:

- To allow community members and NTPC to know more about electricity use in Jean Marie River and to have more control over that use
- To use community-specific data to determine the possibilities for integrating renewable energy systems on a large scale

FOR
residents, businesses, community government, Indigenous government

AEA FUNDING
allocated from a portion of AEA core funding (from GNWT Infrastructure)

An important aspect of the project is community involvement. With advanced metering, homeowners are able to view their electricity usage in real time. Homeowners have also been provided with energy use reports, and the AEA held an energy fair in the community to help address questions and gather more information. Engagement is continuing into 2017/18.

The following metering systems have been set up in the community:

- Advanced meters on homes with 15-minute time steps, which also include electricity monitors for residents to view their energy use in real time
- Monitors on the largest community loads
- Monitors on the three generators in the community

Data collection began in December 2015 and continued through the 2016/17 fiscal year. In 2016/17 we also introduced a new method of data collection to allow for better monitoring of electricity generation and use. This will lead to improved power management and better information for integrating renewable energy systems.

NRCan has analyzed the past year's data, which will be presented in a report in 2017/18. Data collection, analysis and reporting will continue into the next fiscal year.

Electricity monitoring units allow residents of Jean Marie River to see their energy use in real time.

Updating community energy profiles

Since 2005, the Arctic Energy Alliance has been producing community energy profiles to provide a clear picture of how individual communities across the North use energy. The information is presented in a plain-language poster format that is easy to grasp at a glance. By understanding how a community uses energy, its leaders can find the best ways to use it wisely, save energy and make the community more sustainable.

FOR
community government, Indigenous government

AEA FUNDING
re-allocated from program/project surpluses (from GNWT Infrastructure)

A community energy profile describes:

- The types of fuels a community uses to produce energy and how much energy the community uses
- The amount of money a community spends on energy
- The amounts of greenhouse gases each fuel produces
- The amount of waste heat each diesel power plant produces
- The amount of energy a community uses in homes, in other community buildings, and for transportation within the community

In 2016/17, we completed our third round of community energy profiles, updating the profiles of 19 NWT communities using data from 2014/15. The data was provided by NTPC, Northland Utilities, the Petroleum Products Division of the GNWT Department of Infrastructure, and private fuel distributors. Due to a lack of access to data, there were some additional communities for which we were unable to produce profiles.

Providing energy-efficiency funding for non-profit organizations

Through Indigenous and Northern Affairs Canada's Responsible Energy Approach for Community Heat and Electricity (REACHE) Program, the AEA distributed funding to non-profit organizations in non-hydro powered communities across the NWT for improving their energy efficiency.

We provided qualifying organizations with 50 percent of the funding for their projects, up to a per-project maximum of $25,000 or five times the estimated annual savings (whichever was lower). The REACHE program encourages upgrading or recommissioning lighting, HVAC systems, air sealing and building envelopes to reduce greenhouse gas emissions.

FOR
non-profit organizations

AEA FUNDING
$100,000 (from Indigenous and Northern Affairs Canada)

Results

Participating organizations **7**

Communities represented **4**
(Paulatuk, Inuvik, Norman Wells and Fort Simpson)

Total rebate amount **$75,156**

Total cost of all projects **$157,326**

Energy planning in NWT communities

Community energy plans help communities improve their energy management. By implementing a plan, a community can reduce public costs, keep more money in the community, improve public health by reducing pollution and reduce greenhouse gas emissions.

FOR
community governments

AEA FUNDING
$100,000 (from Natural Resources Canada)

The Arctic Energy Alliance has a long history of helping northern communities develop energy plans. In the 2009/10 fiscal year, we put that experience to the test as communities across the NWT developed energy plans as a requirement for accessing funding under the federal Gas Tax initiative. Where possible, we have also worked with those communities to implement their plans.

Community energy plans should be updated periodically. And since the original plans were put in place, the AEA has been working with communities to keep them up to date. In 2016/17, we submitted a proposal to Natural Resources Canada to work with two to three NWT communities to update their energy plans and to implement projects from those plans in the next fiscal year.

From a list of applicants, we selected three communities, and two chose to participate in the planning project—Aklavik and Fort Providence.

Representatives from the two communities took part in an orientation session with the AEA in January 2017, worked with us to review and update their plans in February, and adopted the revised plans in March.

Each of the communities identified and prioritized projects that would increase its energy efficiency, and their hamlet councils submitted funding

applications to Natural Resources Canada to implement those projects. This work is scheduled to begin in 2017/18.

Studying northern homes for the Canada Mortgage and Housing Corporation

Between 2010 and 2012, the Canada Mortgage and Housing Corporation (CMHC) built 142 houses in Nunavut using structurally insulated panels (SIPs), which are known for being energy-efficient. The CMHC wanted to compare fuel usage in the houses, known as the Tuktu SIP houses, to that of stick-built single-family dwelling houses from the same timeframe.

The AEA compared available data from 119 SIP houses and 60 stick-built homes in all 25 Nunavut communities. We found that stick-built homes in Nunavut have been constructed to a high standard—since at least the 1990s—and as such, there was not a large difference in fuel usage between the two types of homes. However, the Tuktu SIP houses may provide better indoor air quality and comfort.

We also conducted an EnerGuide Rating System evaluation on a SIP house in Arviat, which achieved a high rating of 80 out of 100: certainly a feat in the Canadian Arctic.

In 2017/18, we will continue to work with the CHMC, studying its sustainable houses across the North.

FOR
the Canada Mortgage and Housing Corporation

AEA FUNDING
$30,000 (from the Canada Mortgage and Housing Corporation)

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 (NWT only)	Commercial Energy Conservation and Efficiency Program	Community Government Building Energy Retrofit Program	Alternative Energy Technologies Program – Residential	Alternative Energy Technologies Program – Commercial	Community Renewable Energy Program	Biomass Energy Program	LED Swap-out – Residential	LED Swap-out – Non-residential	Community Solar Project	ERS Follow-ups in Kakisa	HVAC Recommissioning	EnerGuide Rating System Evaluations in Nunavut	Total	Percentage of total
Total no. of rebates*	798	-	15	1	20	7	7	1	955	19	4	1	5	-	1,833	100%
No. of rebates in Yellowknife	459	-	5	-	5	3	1	-	-	4	-	-	-	-	477	26%
No. of rebates outside Yellowknife	339	-	10	1	15	4	6	1	955	15	4	1	5	-	1,356	74%
Total value of rebates	$177,347	-	$110,882	$9,063	$59,308	$81,487	$98,910	$57,000	$119,000	$205,000	$188,585	$29,541	$50,478	-	$1,129,601	-
Average rebate	$222	-	$7,392	$9,063	$2,965	$11,641	$14,130	$57,000	$125	$10,789	$47,146	$29,541	$10,096	-	$616	-
Total capital cost	-	-	$486,399	$18,126	$240,986	$378,410	$487,449	$346,505	$119,000	$409,000	$366,873	$29,541	-	-	$2,882,289	-
Est. annual savings	-	-	$224,704	$7,339	$17,216	$14,637	-	$40,100	$189,000	$199,000	$39,446	$4,500	-	-	$735,942	-
Est. annual electricity savings (MWh)	-	-	506	11	-	-	-	-	640	184	34	-	-	-	1,375	-
Estimated power demand avoided/produced (kW)	-	-	105	3	130	226	134	-	440	70	41	-	-	-	1,149	
Est. annual fuel savings (litres)	-	-	3,805	-	10,673	6,240	-	38,100	-	-	-	-	-	-	58,818	-
Est. annual greenhouse gases avoided (tonnes)	-	-	195	5	28	17	-	100	425	122	27	-	-	-	919	-
Total no. of desktop energy evaluations (blueprint and yardstick evaluations)	-	53	17	37	-	-	-	-	-	-	-	-	5	6	118	100%
No. of desktop energy evaluations in Yellowknife	-	49	14	-	-	-	-	-	-	-	-	-	-	-	63	53%
No. of desktop energy evaluations outside Yellowknife	-	4	3	37	-	-	-	-	-	-	-	-	5	6	55	47%
Total no. of on-site energy evaluations (ERS and audits)	-	114	6	20	-	-	-	-	-	-	-	12	-	27	179	100%
No. of on-site energy evaluations in Yellowknife	-	84	1	-	-	-	-	-	-	-	-	-	-	-	85	47%
No. of on-site energy evaluations outside Yellowknife	-	30	5	20	-	-	-	-	-	-	-	12	-	27	94	53%

**Includes rebates and LED swaps*

Staff hours by program/project

9,843	Regional Offices Program
6,844	AEA - Administration
2,999	Energy Rating Services Support Program
1,989	Energy Management
1,667	EnerGuide Rating System for New Homes
1,520	Commercial Energy Conservation and Efficiency Program
1,152	Biomass Energy Program
1,096	Community LED Swap-out Project
912	Energy Efficiency and Incentive Program
902	Alternative Energy Technologies Program
759	Community Woodstove Project
728	Community Government Building Energy Retrofit Program
594	Community Energy Planning
427	Nunavut
409	Community Government Solar Project
268	HVAC Recommissioning: Commercial Buildings
262	Energy Rating Services Community Follow-up
255	Communications
238	HVAC Recommissioning: Community Government Buildings
232	NWTHC Northern Sustainable House Monitoring
206	REACHE LED & Energy Retrofits
184	Energy Information and Awareness
139	Canada Mortgage and Housing Corporation
102	Condo Corporation Biomass Project
84	Community Energy Profiles
33,811	**TOTAL**

Financial management

Highlights

Results of operations for the year ended March 31, 2017

- The AEA had an overall annual deficit of $13,000, representing 0.03% of total expenditures. This is a 121% decrease over the previous year's surplus of $62,000, which represented 2% of total revenues. However, this deficit was less than anticipated, representing just 25% of the planned amount.
- Net financial assets increased $176,000 over the course of the year, compared to a decrease of $97,000 the previous year. This was primarily due to the use of prepaid airfares and LED lighting supplies purchased in the previous fiscal year.
- Contributions from the GNWT totalled $3,803,000, an increase of 16% over the previous year, meeting 104% of the plan.
- Other source income totalled $149,000, down 20% over the previous year, but meeting 103% of the plan for 2016/17.
- Consulting fees totalled $168,000, an increase of 86% over the previous year. This met the plan at a rate of 347%. This was due to the use of consultants and contractors to support the delivery of special projects.
- Office and general expenses totalled $552,000, up 126% over the previous year, and exceeding the plan at a rate of 127%. This was largely due to the purchase of materials for special projects.
- Rebate expenses totalled $710,000, a decrease of 22% over the previous year, meeting 88% of the plan. This is primarily due to a combination of a lower than expected uptake in several programs (e.g. clients' projects were not completed in the fiscal year), and the fact that all rebates for the community wood stove project were distributed in 2015/16 (installations were conducted in 2016/17).
- Travel and accommodation expenses totalled $289,000, up 95% over the previous year, and meeting 92% of the plan. This was due to the delivery of supplementary projects.

Financial position at March 31, 2017

- Total assets equaled $1,729,000, up 2% from a year ago.
- Cash and short-term investments totalled $1,123,000, an increase of 6% over the previous year.
- Accounts receivable totalled $523,000, up 46% from the previous year, due to new and increased funding.
- Prepaid expenses totalled $13,000, a decrease of 93% over 2015/16, largely due to the purchase of airfares and LED lighting supplies in 2015/16 to be used in 2016/17.
- Accounts payable and accrued liabilities totalled $745,000, up 49% over the previous year, due primarily to a delay in bank processing at the fiscal year end.
- Deferred revenues totalled $179,000, down 52% from a year ago, largely because deferred revenue from 2015/16 was paid back in 2016/17.
- Net assets totalled $805,131, a decrease of 2% over the previous year, which includes $731,000 in internally restricted reserves (compared to $710,000 in 2015/16).
- There was an unrestricted accumulated surplus of $31,000, compared to $51,000 a year ago. This represents accumulated unspent core funding and consulting projects.

Cash flows for the year ended March 31, 2017

- Gross cash from operations showed a deficit of $5,000, compared to a surplus of $77,000 the previous year. This was largely due to increased expenses paid for wages, benefits, materials and services, primarily related to special projects.
- Cash receipts from the GNWT totalled $3,590,000, down 3% from last year.
- Receipts from other sources totalled $138,000, a decrease of 1% over the previous year.
- There was a net cash flow decrease of $172,765, down 148% over the previous year, largely due to increased expenses paid for wages, benefits, materials and services.

Participants in the community LED swap-out project marked their homes on a map. Shown is a map of Fort Providence.

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 or grow. Combined with the confidence governments have 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.

Financial statements

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INDEPENDENT AUDITOR'S REPORT

To the Members of
Arctic Energy Alliance

We have audited the accompanying financial statements of Arctic Energy Alliance, which comprise the Statement of Financial Position as at March 31, 2017, and the Statements of Operations, Changes in Net Assets, and Cash Flows for the year then ended, and a summary of significant accounting policies and other explanatory information.

Management's Responsibility for the Financial Statements
Management is responsible for the preparation and fair presentation of these financial statements in accordance with Canadian public sector accounting standards, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility
Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the Society's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Society's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion
In our opinion, the financial statements present fairly, in all material respects, the financial position of Arctic Energy Alliance as at March 31, 2017, and the results of its operations and its cash flows for the year then ended in accordance with Canadian public sector accounting standards.

Avery Cooper & Co. Ltd.
Chartered Professional Accountants
Yellowknife, NT

June 30, 2017

ARCTIC ENERGY ALLIANCE

STATEMENT OF FINANCIAL POSITION

March 31, 2017

ASSETS

	2017	2016
CURRENT		
Cash	$ 27,581	$ 515,527
Short term investments (note 3)	1,095,701	543,299
Accounts receivable (note 4)	523,266	358,643
Prepaid expenses	13,314	187,064
	1,659,862	1,604,533
TANGIBLE CAPITAL ASSETS (note 5)	69,521	87,970
	$ 1,729,383	$ 1,692,503

LIABILITIES

CURRENT		
Bank indebtedness	$ 229,958	$ -
Wages and benefits payable	165,455	112,041
Government remittances payable (note 6)	6,075	30,726
Trade payables and accruals (note 7)	314,861	340,931
Provision for rebates (note 8)	29,066	16,800
Deferred revenue (note 9)	160,393	351,828
	905,808	852,326
DEFERRED GOVERNMENT ASSISTANCE (note 10)	18,444	22,150
	924,252	874,476

NET ASSETS

RESERVES per page 3	731,212	709,605
INVESTED IN TANGIBLE CAPITAL ASSETS per page 3	43,076	57,820
ACCUMULATED SURPLUS per page 3	30,843	50,602
	805,131	818,027
	$ 1,729,383	$ 1,692,503

Approved:

_____ Member _____ Member

ARCTIC ENERGY ALLIANCE

STATEMENT OF CHANGES IN NET ASSETS

For the year ended March 31, 2017

	2017			
	Accumulated Surplus	Reserves	Invested in Tangible Capital Assets	Total
BALANCE, opening	$ 50,602	$ 709,605	$ 57,820	$ 818,027
Deficiency of revenues over expenses	(12,896)	-	-	(12,896)
Transfer to reserves (note 15)	(21,607)	21,607	-	-
Amortization of tangible capital assets	18,450	-	(18,450)	-
Amortization of deferred government assistance	(3,706)	-	3,706	-
BALANCE, closing	$ 30,843	$ 731,212	$ 43,076	$ 805,131

	2016			
	Accumulated Surplus	Reserves	Invested in Tangible Capital Assets	Total
BALANCE, opening	$ 133,526	$ 566,000	$ 56,884	$ 756,410
Excess of revenues over expenses	61,617	-	-	61,617
Transfer to reserves	(143,605)	143,605	-	-
Purchase of tangible capital assets	(28,537)	-	28,537	-
Amortization of tangible capital assets	23,307	-	(23,307)	-
Amortization of deferred government assistance	(3,706)	-	3,706	-
Asset retirement obligation	8,000	-	(8,000)	-
BALANCE, closing	$ 50,602	$ 709,605	$ 57,820	$ 818,027

ARCTIC ENERGY ALLIANCE

STATEMENT OF OPERATIONS
For the year ended March 31, 2017

	2017 Budget	2017 Actual	2016 Actual
REVENUES			
Contributions from GNWT	$ 3,667,000	$ 3,803,471	$ 3,264,595
Contributions from Canada	100,000	81,186	5,461
Other source income	144,614	149,140	186,710
Membership fees	277,500	277,500	277,500
Interest income	9,000	10,065	9,491
	4,198,114	4,321,362	3,743,757
EXPENSES			
Advertising and promotion	68,647	47,577	52,778
Amortization	18,900	18,450	23,307
Consulting fees	48,500	168,183	90,627
Equipment rental	4,600	3,279	24,426
Facility rental and tradeshow fees	21,637	10,317	14,577
Fees and dues	4,155	12,725	5,992
Hospitality	23,000	13,892	8,834
Insurance	13,000	13,265	12,190
Interest and bank charges	4,800	5,010	5,285
Office and general	435,046	552,384	243,858
Professional development	57,050	25,825	39,691
Professional fees	20,000	22,433	25,801
Rebates	805,000	709,901	906,207
Rent and utilities	158,600	155,981	146,336
Telephone, Internet and Website	46,400	36,689	34,870
Travel and accommodation	314,558	288,835	148,076
Wages and benefits	2,207,140	2,249,512	1,899,285
	4,251,033	4,334,258	3,682,140
(DEFICIENCY) EXCESS OF REVENUES OVER EXPENSES	$ (52,919)	$ (12,896)	$ 61,617

ARCTIC ENERGY ALLIANCE

STATEMENT OF CASH FLOWS
For the year ended March 31, 2017

	2017	2016
CASH FLOWS FROM OPERATING ACTIVITIES		
Cash receipts from GNWT	$ 3,589,979	$ 3,691,532
Cash receipts from Canada	-	19,350
Cash receipts from membership fees	322,500	270,000
Cash receipts from other sources	138,003	139,949
Cash receipts from interest	7,663	6,444
Contributions repaid	(98,948)	(109,371)
Cash paid for wages and benefits	(2,220,748)	(1,851,507)
Cash paid for materials and services	(1,911,214)	(1,807,154)
	(172,765)	359,243
CASH FLOWS FROM CAPITAL ACTIVITIES		
Purchase of tangible capital assets	-	(28,537)
CASH FLOWS FROM INVESTING ACTIVITIES		
Redemption of short term investments	544,861	60,776
Purchase of short term investments	(1,090,000)	(540,000)
	(545,139)	(479,224)
DECREASE IN CASH	(717,904)	(148,518)
CASH, opening	515,527	664,045
(BANK INDEBTEDNESS) CASH, closing	$ (202,377)	$ 515,527
REPRESENTED BY:		
Cash	$ 27,581	$ 515,527
Cheques issued in excess of deposits	(229,958)	-
	$ (202,377)	$ 515,527

Membership and governance

Board of directors

- John Vandenberg (president), Assistant Deputy Minister, GNWT Department of Infrastructure
- Scott Reid (vice-president), Director, Infrastructure Services, NWT Housing Corporation
- Gordon Van Tighem (treasurer), Chairman, NWT Public Utilities Board
- Louie Azzolini (secretary), Executive Director, Arctic Energy Alliance
- Erin Kelly, Assistant Deputy Minister, 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.
- Colleen Healey, Climate Change Program Manager, Government of Nunavut

General members

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

Sustaining members

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

Staff

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

"I Louie Azzolini, 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."

Louie Azzolini,
Executive Director
September 13, 2017

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Fax: 867 695 2038

TLICHO REGIONAL OFFICE
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Fax: 867 573 3018

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Toll Free: 1 877 755 5855
Fax: 867 873 0303

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