



Indian and Northern
Affairs Canada

Affaires indiennes
et du Nord Canada



Reflections on **Success**

A Sustainable Future in a Changing Climate



Canada 

Aboriginal and Northern Community Action Program



This publication is available on the Internet at: <http://www.ainc-inac.gc.ca/clc/>

For more information on related products and services, please contact:



**Indian and Northern
Affairs Canada**

**Affaires indiennes
et du Nord Canada**

Email: icecap@ainc-inac.gc.ca

Internet: www.ainc-inac.gc.ca

Cette publication peut aussi être obtenue en français sous le titre:
Réflexions sur la réussite - Un avenir durable dans un climat changeant

This document has been prepared by:
Centre for Indigenous Environmental Resources
in collaboration with and for INAC

August 2007

Acronyms List

- ANCAP** Aboriginal and Northern
Community Action Program
- ANCCP** Aboriginal and Northern
Climate Change Program
- CC&E Kit** Climate Change and Energy
Resources for Aboriginal and
Northern Communities Kit
- CEB** Community Energy Baseline
- CEP** Community Energy Plan
- CFN** Cowessess First Nation
- CBIP** Commercial Building
Incentive Program
- EE** Energy Efficiency
- EGH** EnerGuide for Houses
- GHG** Greenhouse Gas
- GSHP** Ground Source Heat Pump
- INAC** Indian and Northern
Affairs Canada
- LEPWG** Large Energy Projects
Working Group
- NEBI** National Energy Baseline
Initiative
- NRCan** Natural Resources Canada
- RE** Renewable Energy
- TLC** Taku Land Corporation
- TRTFN** Taku River Tlingit First Nation
- UPC** Upnit Power Corporation
- WEMI** Wind Energy Monitoring Initiative





Reflections on Success

A Sustainable Future in a Changing Climate

SCIENTIFIC EVIDENCE INCREASINGLY SUGGESTS that climate change will disproportionately impact Aboriginal and northern peoples. Climate change impacts, such as those on winter ice roads, sea ice, water tables, and wildlife migration patterns, have the potential to be devastating. In the Arctic, the lives of humans and wildlife are already severely impacted due to shore erosion, melting permafrost and habitat changes. The increase of greenhouse gases (GHG) within the atmosphere is considered one of the most significant factors in global climate change. A small group of GHGs help to regulate the Earth's climate by trapping energy from the sun. Large increases in GHG emissions produced from human activities, such as burning fossil fuels, have intensified this natural process. Two of the biggest GHG emitting activities are energy production and transportation.

ANCCP — Climate of Awareness

Between 2001 and 2003 the Aboriginal and Northern Climate Change Program (ANCCP) created awareness and interest in reducing the GHG emission footprint of Aboriginal and northern communities through improved energy production, management and use.

ANCAP – Climate of Action

The success of the ANCCP in identifying benefits and opportunities associated with energy management and the reduction of GHG emissions led to the announcement of \$30.7 million of federal funding from 2003 to 2007. That funding would power up the action phase — the Aboriginal and Northern Community Action Program (ANCAP).

Energy Efficiency (EE) activities that reduce the amount of energy used by specific end-use devices and systems, such as lighting, heating and motor drive, typically without affecting the services provided. Such savings are generally achieved by substituting technically more advanced equipment, which use less electricity or energy, such as compact florescent light bulbs instead of incandescent bulbs.

Renewable Energy (RE) typically refers to energy derived from non-fossil fuel resources. Renewable sources of energy include wood, waste, geothermal, wind, photovoltaic, and passive or solar thermal energy.

The ANCAP officially came to a close on March 31, 2007. The program was able to achieve many of its objectives by supporting numerous communities in achieving their goals. The following serves as a record of the many successes realized by the First Nation and northern communities the ANCAP was able to support throughout the four years of the program. These stories were gathered by the First Nation organizations enlisted by the ANCAP to meet common goals. This document can also serve as a source of inspiration for other communities that want to become involved in climate change action both through mitigation activi-

ties, like improving energy efficiency and incorporating renewable energy options, and adaptation measures, such as completing risk assessments on community infrastructure. ■■■





The Program

THE ABORIGINAL AND NORTHERN CLIMATE CHANGE PROGRAM (ANCCP) of 2001 – 2003 identified climate and energy-related issues and opportunities for Aboriginal and northern communities. The program recognized that special attention needed to be directed towards engaging remote Aboriginal and northern communities more fully in order to develop mitigation and adaptation strategies that reflect their unique challenges. It also highlighted the importance of community involvement in developing solutions to meet those issues and opportunities.

ANCAP – Climate of Action

The Aboriginal and Northern Community Action Program (ANCAP) built on the knowledge gained during the ANCCP. The ANCAP aimed to assist Aboriginal and northern communities to develop initiatives in community energy planning, capacity building and raising awareness, energy efficiency (EE), renewable energy (RE), alternate diesel technologies, and sustainable transportation.

Climate of Partnership

The department of Indian and Northern Affairs Canada (INAC) managed the program in partnership with Natural Resources Canada (NRCAN). INAC utilized resources to engage and collaborate with Aboriginal and northern communities on climate change and energy

initiatives. NRCAN played an important role in the ANCAP by providing technical support on individual projects and training to the Pathfinder network. Pathfinders were individuals, located coast to coast, with both technical and community experience. They assisted communities in building their capacity to take action on climate change. Through the ANCAP many other partnerships were developed between First Nations, provincial and municipal governments, the ANCAP network, other organizations, utilities and the private sector.

The program had the potential to involve up to 700 Aboriginal and northern communities from all provinces and territories in Canada. Special efforts were focused on the approximately 130 Aboriginal and northern communities that rely on diesel generated power.

Program Integration

The ANCAP was integrated with a number of other federal and provincial programs to leverage its funding. Federal programs included EnerGuide for Houses, Energy Efficient Housing Initiative, Commercial Building Incentive Program, Energy Innovators Initiative, Renewable Energy Deployment Initiative, Renewable Energy Capacity Building Program, RETScreen International, and Energy Star for Equipment. Many of these programs had expertise that assisted partner First Nations and communities to meet their objectives.



Empowerment

The objective of the ANCAP was to increase capacity and involvement of Aboriginal and northern communities in climate change activities, and to contribute to the development of initiatives and opportunities to address sustainable energy needs, climate change impacts, and adaptation needs within these communities. The ANCAP included an emphasis on community energy planning and mapping, EE/RE applications, alternate diesel technologies, improved transportation and impacts and adaptations.

To that end the ANCAP proposed to:

- Reduce 1.2 megatonnes (Mt) of GHG emissions (2002 baseline) from Aboriginal and northern communities by the first Kyoto reporting period, 2008 to 2012;
- Build Aboriginal capacity and optimize the economic development associated with EE and new sustainable energy infrastructure;
- Promote the participation of Aboriginal peoples, and northern communities and governments in projects that reduce GHG emissions, across all federal programming;
- Develop an Impacts and Adaptations Strategy for Aboriginal and northern communities; and,
- Integrate the management of climate change considerations, risks and opportunities in INAC policies and practices from a sustainable development perspective.

In addition, the ANCAP aimed to:

- Generate cleaner power and reduce the cost of energy consumption;
- Foster economic development and knowledge-based employment in Aboriginal and northern communities;
- Increase the use of local renewable energy resources, and improve the efficiency of generation and consumption systems;
- Make contributions to the reduction of environmental risks such as diesel fuel spills, water and air pollution (outdoor and indoor);
- Promote investment in a new generation of energy infrastructure needed to promote economic development and meet the demands of growing populations in Aboriginal and northern communities;
- Promote participation in other climate change mechanisms, such as the sequestration of carbon through the utilization and management of biomass, more efficient land use, and emissions trading; and,
- Yield various co-benefits of an economic, environmental and social nature while maintaining and respecting local customs and traditions.

In summary, over the past four years, this program endeavoured to assist Aboriginal and northern communities to address climate change issues and its relationship to energy use. ■■■



ANCAP Energy Pathfinders

BUILDING COMMUNITY CAPACITY TO TAKE ACTION ON climate change is a complex and sometimes challenging undertaking. Some communities, especially smaller ones, can lack the resources, expertise, experience or human resources to deal with these challenges. The ANCAP realized this and created the Pathfinder network to help communities “fill in these gaps”.



Improving EE and reducing GHGs are technical processes. **Making it happen is a people process.**

Relationship Builders

A major factor in the success of the Pathfinder program came from the way individual Pathfinders became known, trusted and respected by the communities they worked with. Pathfinders walked the earth in each community, attended meetings and provided technical and program information that helped communities make informed decisions. Pathfinders were often well versed in climate change and energy issues and this capacity was built upon by the ANCAP and NRCan through several training initiatives that allowed them to provide more expansive assistance and advice to the communities in their regions. Once decisions were made, Pathfinders mentored councils, committees and communities through the many technical, relational and paper processes they had to address.

Network of Trust

Energy and environmental programs involve people from many disciplines. Pathfinders were incredibly successful at bringing band councils, municipal governments and community representatives together with key government and program officials, financial officers, and private industry stakeholders. These human networks became the partnerships that sustained the projects, thereby creating a transparent and trustworthy process.

Catalysts for Success

Pathfinders helped communities in many areas including:

- Community Support — communicated, involved, empowered
- Funding — assisted with proposals and program forms or applications to identify program funding available within their regions and territories
- Assessed — energy audits, capacity, pre-feasibility analysis
- Energy Planned — identified potential RE and EE projects
- Supported — through training community members in proposal and application writing, preparing of project feasibility studies and business plans
- Trained — completed workshops on RE and EE technologies, tools and techniques including Dollars to \$ense and RETScreen pre-feasibility software
- Co-ordinated — INAC's ANCAP regional and headquarter representatives and others on regional plans and initiatives
- Networked — First Nations, northern communities, tribal councils, land claims organizations and other Aboriginal organizations within each region, across the country, and even internationally!

ANCAP Pathfinder Organizations

The ultimate success of the Pathfinder Network was built on a strong partnership between interested parties within the administrative organizations, such as the organizations that housed the Pathfinders, and the host organization, INAC. The system worked best when the Pathfinder organization had strong and respectful links to communities; was knowledgeable, experienced and trained on the technical subject matter; and, was willing to involve themselves in the project to work towards success. When this ideal arrangement or equation was completed, where these two factors co-existed, projects were almost guaranteed to be viable and lead to real energy savings and innovations.

People + Progress = **Success**

During the final year of the ANCAP network, regional and national Pathfinders were in place at the following organizations:

- Arctic Energy Alliance
- Assembly of First Nations
- Atlantic Policy Congress of First Nation Chiefs
- Centre for Indigenous Environmental Resources
- Dakh-Ka Tlingit Nation
- First Nations (Alberta) Technical Advisory Group
- First Nations of Quebec and Labrador Sustainable Development Institute
- Inuit Tapiriit Kanatami
- Naut'sa mawt Tribal Council
- Ontario First Nations Technical Services Corporation
- West Wind Environmental Inc. 

Empowering Partnerships

Addressing Energy Efficiency Barriers

The most practical step in a sustainable energy future is to reduce the demand for energy. The ANCAP identified that substantial energy and empowerment gains could be garnered by retrofitting existing residential and commercial stock, and planning for and designing new buildings to be as energy efficient as possible. Although the ANCAP did not have a mandate for housing, it did address some issues and was able to support some training within the area.

Partnership Progressions

The ANCAP partnered with NRCan through a number of major programs and initiatives, such as the Commercial Building Incentive Program (CBIP). These partnerships helped communities design, plan, retrofit and improve community facilities, both old and new, reduce GHG emissions, and improve energy use.

In 2004-2005, the ANCAP and the Office of Energy Efficiency developed the EnerGuide for Houses (EGH) for Aboriginal and northern communities to address EE barriers specific to retrofitting homes on First Nations and Inuit lands in the provinces and in all communities in the Northwest Territories and Nunavut. The CBIP helped communities address the same issues in non-residential properties.

Specific activities involved training EGH advisors, providing assistance with certain EE equipment and, various aspects of financial assistance that are part of the overall EGH Program. One practical application of that assistance was the purchase of “blower doors” used to seal a building and create a vacuum that allows for the identification of energy loss, drafts, and poor seals. ■■■



Raising Awareness, Building Capacity

Climate Change and Energy Resources for Aboriginal and Northern Communities – CC&E Kit

Access to information is key to crafting a strategy to reduce GHG emissions. However, limited internet access restricts many Aboriginal and Northern communities in their ability to learn more about climate change and energy. The ANCAP developed the Climate Change and Energy Resources for Aboriginal and Northern Communities (CC&E) Kit of resources to provide information needed to become better informed on issues related to climate change.

Materials and contents were selected and developed through collaboration with two steering committees comprised of First Nations, Inuit and Northern men, women, youth and Elders from across Canada. As a result, the CC&E Kit is a body of information that is culturally relevant. Delivery media utilize everything from PDFs to pamphlets to websites.

CC&E Kit resources are organized and divided into three user-specific sections:

General: Non-technical information for the general public who want to learn more about climate change and energy.

School: Non-technical information for teachers and students.



Technical: Climate change and energy information of a technical nature suitable for those working on community development or infrastructure, such as housing directors and building managers.

All materials are organized into the topics of ‘Climate Change’, and ‘Renewable Energy and Energy Efficiency’. The materials range from beginner to advanced levels. ■■■

National Energy Baseline Initiative

ABORIGINAL AND NORTHERN communities that have knowledge and control over their energy needs and options are more effective in creating a sustainable future. This principle guided many ANCAP approaches and initiatives.

Plan For Success

Because the ANCAP recognized the importance of quantifying energy use, it focused attention on Community Energy Planning (CEP). CEP is a holistic, long-term, stakeholder approach, which examines energy requirements, potential sources of power, and technical options with respect to energy efficiency and renewable energy. Furthermore, CEP provides plans and activity lists to achieve a catalog of energy-related goals and objectives.


Hands-on

A successful plan requires community involvement so that it engages and motivates many areas of the community, addresses the most pressing issues and identifies the community goals and vision. One of the first steps of a CEP is to establish a Community Energy Baseline (CEB). A CEB tracks energy use throughout the community and identifies opportunities for reductions, savings and use of new technologies.

The ANCAP developed the National Energy Baseline Initiative (NEBI) to enable communities to take the first step towards making more informed decisions. The initiative also promoted the planning and implementation phases of the process.

Helping Hands

This key first step in reducing GHG emissions and creating sustainable energy futures in First Nation and northern communities can be difficult when first initiating the process. ANCAP Pathfinders and regional offices played key roles in helping communities through the CEB process by first raising awareness and pointing out its many benefits. Many times Pathfinders helped to kick-start the process and were there to follow-up and assist communities in identifying energy projects, contributing to the development of energy plans, and completing climate change actions.

Nationally, the ANCAP provided funding and other support to complete well over 100 CEBs across Canada. 

Powerful Stories – Beaver Lake Cree Nation, Alberta

SolarWall™ Heats Recreation Complex



Assessment Process

Beaver Lake Cree Nation, situated 105 km northeast of Edmonton, participated in the National Energy Baseline Initiative (NEBI), supported by the ANCAP. Their community energy baseline (CEB) was completed in 2004-2005.

Recommendations and Preparations

After the CEB, participants chose to act on the recommendation to install a SolarWall™ heating system for the community centre.

A RETScreen model, by Natural Resources Canada, provided specific information on the GHG reductions and energy savings the community could expect from this project.

Obstacles Overcome

The community centre was already in the final construction stages when the CEB recommendations were received. The Beaver Lake Finance Officer acted quickly to incorporate the SolarWall™ system into


Quick Facts

GHG reduction: 43.36 tonnes/year
Energy Consumption Savings: 160 MWh
***Annual Dollar Savings: \$8,263.00**
***Project Payback Time: 1.5 years**

**Annual savings and project payback time include assistance from the ANCAP and other programs.*

the project. He immediately applied to the ANCAP and the Renewable Energy Deployment Initiative programs for financial assistance, which was approved.

Ongoing Benefits

A member of the community has now been trained on operating and maintaining the SolarWall™. Annual savings on heating costs are expected to be \$8,263.00, with a reduction in GHG emissions of 43.36 tonnes/year. 

Energy Pathways – Wha’ Ti First Nation, Northwest Territories



Quick Facts

Projected Reduction in GHG:
2500 tonnes annually
Annual Energy Savings:
\$66.00 - \$5,369.00*
Community Involvement:
Chiefs, Elders, Youth, Business
**Based upon specific homes with
specific fuel conversions.*

Wha’ Ti Community Energy Plan

First Needs and Deeds

The Tlicho (Dogrib) people of Wha’ Ti, NWT wanted to reduce their dependence on expensive fossil fuels. In 2003, a Community Energy Plan (CEP), including a community energy baseline study, was conducted to determine energy usage and potential savings.

Green Outcomes

The CEP resulted in recommendations for initiatives with significant energy, environmental and community-empowerment benefits.

Most significant was a “run of river” hydro-electric generating station, that doesn’t require the construction of a traditional dam and reservoir. This would reduce reliance on

the current diesel generator. The community continues to work on this initiative. Since the CEP, Wha’ Ti has acted on other recommendations as well, such as the installation of a solar powered water heating system for the Elders’ complex.

The Wha’ Ti CEP is a remarkable document because it provides a level of detail and expertise you’d expect from a major municipality and it’s written so that anyone can understand it.

Community-Wide Savings

The plan made recommendations for energy savings throughout the community. These involved: building orientation, building insulation, wind breaks,

household appliances, wood burning efficiencies, water conservation, water deliveries, solar collectors, and relocating the diesel generating station. ■■■

CBIP

ANCAP and Commercial Building Incentive Program

The Commercial Building Incentive Program (CBIP) encouraged and enabled building owners to design and build more highly energy-efficient buildings. The CBIP provided technical help, software and funding of up to \$60,000.00. But, designing EE buildings usually requires additional technical planning and costs.

Enabling Efficiency

The ANCAP offered an incentive of up to \$10,000.00 to support First Nation CBIP projects, mainly to complete the engineering energy simulator to prepare the file for submission. This initiative resulted in numerous First Nations and northern communities reaping the real value of the CBIP, which was improved energy performance and lowered energy and operating costs over the building’s lifetime! CBIP buildings required a minimum 25 percent savings per year but many exceeded this with an average saving of about 35 percent. ■■■



Geothermal Partnership – Rolling River First Nation, Manitoba

Rolling River Health Centre

Of Health and the Earth

Rolling River First Nation in Manitoba designed their new health centre from below the ground up! The result was a 10,000 sq. ft. new construction building that contained many RE and EE elements. These included a ground source heat pump (GSHP), which provides heating and cooling, and EE lighting.

Powerful Partnerships

Rolling River First Nation accessed funding from four programs to undertake the building’s RE and EE design elements. The ANCAP provided its CBIP incentive of \$10,000.00 to assist with the design process.



Powerful Partnerships and an Inclusive Process

The project used an Integrated Design Process in which all the design team members and other interested parties, such as the

owner, tenants, and funding partners, are consulted before design begins. This consultative process is typically the single most effective way to maximize the energy savings while minimizing incremental cost increases.

Rolling River First Nation took a leadership role in pursuing RE and EE design and worked with a project architect to ensure the effort would lower operating and maintenance costs for the long term, saving funds that can be allocated elsewhere in the community. This planning and partnerships blueprint is one that many First Nations can use in their new construction projects. ■■■

Large Energy Projects Working Group

UNDER THE ANCAP, THE LARGE ENERGY Projects Working Group funded renewable energy and energy efficiency projects with GHG emissions reductions of more than 4,000 tonnes over the life cycle of the project. A life cycle was considered to be 20 years.

Funding History

The Large Energy Projects Working Group began during the 2005-2006 fiscal year and in its first year it was able to provide funding for approximately half of the 25 applications it received. At the close of 2007, the Large Energy Projects Working Group had supported 24 projects by providing \$2.8 million dollars in financial contributions. These projects embraced various RE

and EE technologies ranging from hydro to wind, and from biomass to solar projects.

Funding Limits

The maximum level of funding considered for large projects was \$250,000.00. However, this limit was increased to a maximum of \$350,000.00 for northern, isolated or off-grid communities. ■■■

Pic Mobert First Nation, Ontario

White River Water Power Development

Seed Money

The ANCAP contributed \$250,000.00 to Pic Mobert First Nation for the development of their hydro project, which included completing the design, development strategy, and preparation of their power purchase agreements submissions.

Power Provider

Hydro One and the Independent Electricity System Operator have indicated that the project will generate sufficient power that it can be connected to the provincial grid system. The First Nation is hopeful that a 20-year Standard Offer Contract with the

Ontario Power Authority to supply power for sale to the provincial grid will be secured in the future.

The \$60 Million Ripple Effect

Construction on the \$60,000,000.00 project located just outside Marathon, Ontario is expected to begin in December 2007. Pic Mobert First Nation plans to hire and buy locally during construction, providing local social and economic benefits. Once complete, both hydro projects are expected to help regulate water levels on White Lake, which will protect tourism and recreational assets.

Quick Facts

Power Generated:

18 MW project

GHG Savings:

18,231 tonnes/year

Construction Budget:

\$60,000,000.00

Business Partners

Pic Mobert Power Joint Venture was formed through the partnership developed between the Pic Mobert First Nation and Regional Power Incorporated. This project demonstrates that renewable energy projects require long-term commitment and support by Chief and Council, as well as community members. It also highlights the importance of forming partnerships with reputable partners, and selecting a financial partnership model that allows the community to participate and benefit significantly. ■■■

Green Energy Options for Remote Communities

Small Hydro Electricity Generation

Hydro electricity is generated when water from a higher elevation is channelled to fall over turbine blades. As the falling water passes over the blades, it turns the turbines and creates electricity.

Run-of-the-River Hydro

A "run-of-the-river" hydroelectric turbine relies on normal river flow, with the installation placed along an existing elevation drop in the river, for its electricity output. Run-of-the-river

systems do not collect water in reservoirs or flood land, although small dams may be used to divert water to the turbine.

Low Impact

Run-of-river plants usually produce lower impacts on the river and local environments because the flow of the river, its nutrients and silt – along with fish habitat – are preserved. Hydropower can eliminate the need for diesel generators and the GHG emissions they produce. ■■■

Quick Facts

Benefits of Small Hydro

- Do not take up much space;
- Rarely causes shoreline flooding;
- River diversions not required;
- Eliminates or reduces noise and emissions from diesel generators;
- Reduces risk of fuel spills;
- Provides clean, reliable, low-cost energy, that isn't subject to oil market fluctuations;
- Job creation in construction, operation and maintenance; and,
- Long lifespan of the small-hydro facility (over 50 years).

Hupacasath First Nation, British Columbia

Green Power Partnerships – China Creek Micro Hydro Project

How did this community of 250 become majority owners of the \$13.7 million, 6.5-megawatt China Creek Micro Hydro generating station? They did it through community vision, commitment and — the power of partnerships!

Partners in Success

The Hupacasath First Nation joined forces with Synex Energy, Ucluelet First Nation and the City of Port Alberni to form the Upnit Power Corporation (UPC). The UPC secured a 20-year contract with BC Hydro to supply 6.3 megawatts of energy to the Vancouver Island power grid. That's enough energy to power up to 6,000 homes! The UPC also facilitated cooperation and contributions from Western Economic Diversification, EcoTrust Canada, VanCity Capital, the provincial Environmental Assessment Office, and others.

Environmental Impact

The China Creek Micro Hydro Project replaced the proposed BC Hydro gas power generating station, averting a projected 31,000 tonnes of GHG emissions per year. As a “run-of-the-river” hydro project, China Creek did not require damming or great disruption of the environment typically associated with large-scale hydro projects.

Community Impact

Construction was completed in 2005 and since then it has been a source of revenue for Hupacasath and Ucluelet First Nations and their partners. The project generates \$171,000.00 a year in revenues from power sales to BC Hydro. Other community benefits have been realized through training and employment opportunities created through the project.

Quick Facts

The technology exists! Hupacasath First Nation's project illustrates that the key to a successful RE project is in organizing and maintaining the community goals, building finances, and forming the right technical and project partnerships.



With the success of the first hydro facility under their belt, the First Nation is now pursuing a second run-of-river hydro facility on another creek in their traditional territory. They have already received ANCAP funding for this second endeavour and have secured a contract from BC Hydro to sell their green power to the grid. ■■■

Taku River Tlingit First Nation, Yukon / British Columbia

Small Scale Hydro – Large Scale Savings!

The Taku River Tlingit First Nation (TRTFN), located adjacent to the town of Atlin BC, is an off-grid community. TRTFN will soon eliminate their dependence on diesel-generated power with the construction of a “run-of-the-river” hydroelectric generation station.

Savings and Revenue

The Atlin Hydroelectric Project will eliminate the 1.2 million litres of fuel used annually by the BC Hydro diesel generating station.



Should Atlin become grid-linked, surplus power will be sold to the grid and become a source of revenue for the Taku Land Corporation (TLC), which is owned by the TRTFN membership.

Community Benefits

Along with a secure supply of clean power, TRTFN and Atlin community members have been exposed to many capacity building opportunities. These activities include training in technical areas such as stream flow surveys and archaeological assessment. Construction will utilize local personnel, equipment and materials resulting in many economic benefits for the community and a local citizen will maintain the facility. Profits will remain in the community to be invested into social and cultural programs, and infrastructure.

Quick Facts

Projected Cost:

~\$13,000,000.00

Projected GHG Annual Savings:

4,350-6,050 tonnes

Power Capacity:

2 MW

Support

The TLC received support from the following: BC Hydro and the Ministry of Energy, Mines and Petroleum Resources. Provincial funding was accessed through British Columbia's First Nations and Remote Community Clean Energy Program, which received a financial contribution from Natural Resources Canada.

The ANCAP supported the project, which allowed the TLC to leverage funding from other sources. TRTFN found that securing development phase financing was one of the most important barriers that had to be surpassed and the ANCAP assisted with overcoming this hurdle. ■■■



Wind Energy Monitoring Initiative

IN ABORIGINAL TRADITION, THE WIND IS A symbol of change, such as the transition from one season to the next. Wind energy is also in a process of change. Technological improvements have made wind power a viable green energy option. For Aboriginal and northern communities in Canada, this represents a new source of economic empowerment and climate change action.

Assessment

In 2004-2005, the ANCAP obtained 15 wind monitoring towers and anemometers (wind measuring devices) for assessing the wind potential of Aboriginal communities. Of the 15, ten were 50-meter towers used to determine the feasibility of large wind turbines. The remaining five were 20-metre towers used in remote locations.


Working through INAC regional offices and Pathfinders, the ANCAP Wind Energy Monitoring Initiative (WEMI) loaned these devices to communities across the country. The monitoring programs varied, tailored to site and community needs.

Fifty-meter towers and equipment were deployed to:

- Kelly Lake Métis Settlement, Tumbler Ridge, British Columbia (through an agreement with NRCan)
- Swan Lake First Nation, Manitoba
- Cree Nation of Nemaska, Quebec
- Cowessess First Nation, Saskatchewan
- Gordon First Nation, Saskatchewan
- Chapel Island First Nation, Nova Scotia

Bridges to Partnership

NRCan's Clean Energy Decision Support Centre at Varennes in Quebec provided advice to the ANCAP as it developed the WEMI. Through the initiative, the wind measuring equipment yielded vital data, identifying wind power potential in many communities. With these 'information assets' communities can plan and develop power projects in partnership with renewable energy companies, utilities, provincial or territorial governments and private investors.

The WEMI was an innovative way to empower and equip Aboriginal communities to be full partners in wind energy development across Canada. In total the ANCAP provided support to 31 wind projects through funding, equipment loans or the Pathfinder network. 



Cowessess First Nation, Saskatchewan

Cowessess Wind Power Assessment

Cowessess First Nation (CFN) in Saskatchewan is pursuing the path to green energy self-sufficiency. The first step was taken with the installation of a 50-meter ANCAP wind-monitoring tower. If the wind resource proves positive, CFN will pursue the development of a wind farm at this location.

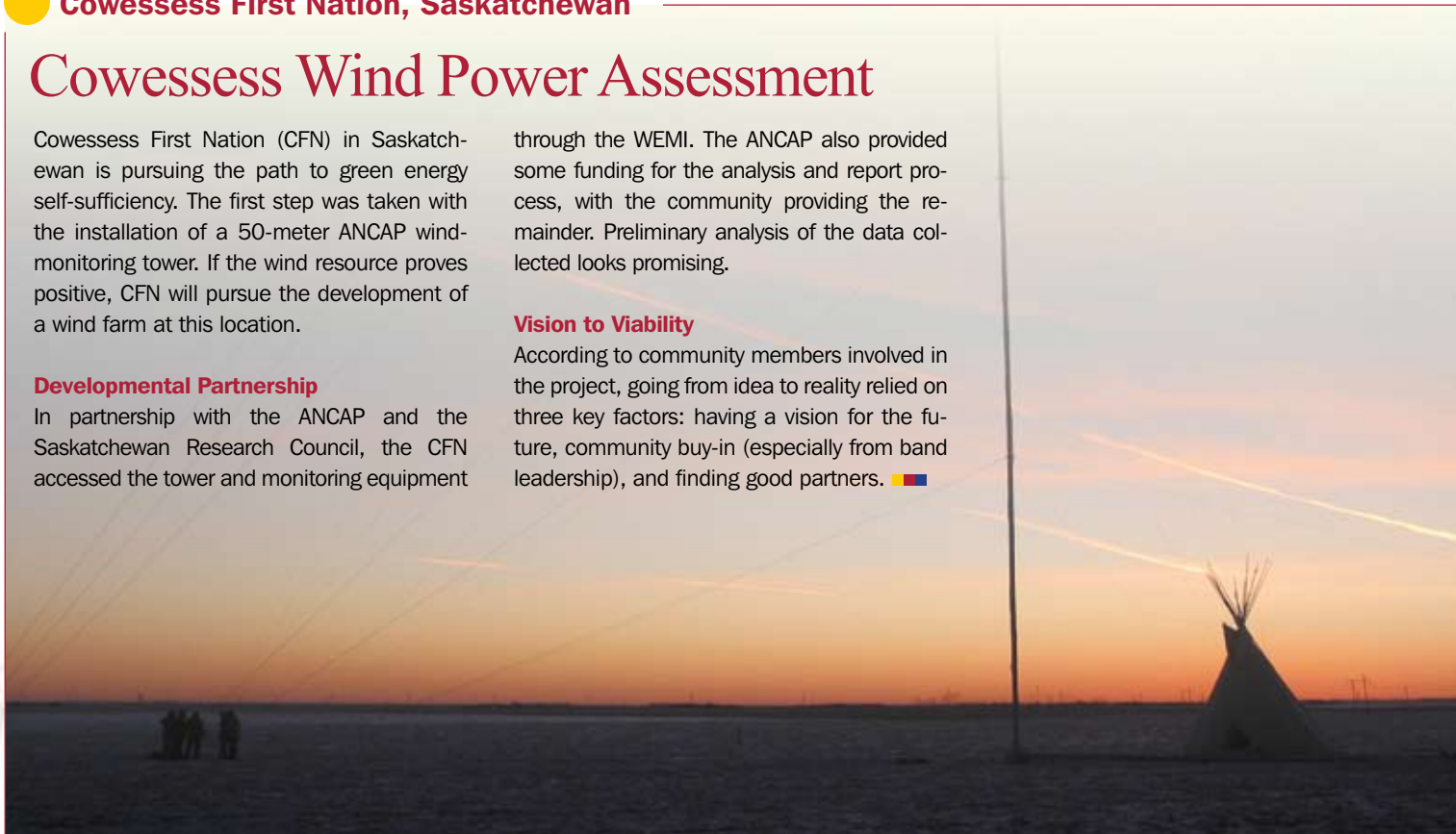
Developmental Partnership

In partnership with the ANCAP and the Saskatchewan Research Council, the CFN accessed the tower and monitoring equipment

through the WEMI. The ANCAP also provided some funding for the analysis and report process, with the community providing the remainder. Preliminary analysis of the data collected looks promising.

Vision to Viability

According to community members involved in the project, going from idea to reality relied on three key factors: having a vision for the future, community buy-in (especially from band leadership), and finding good partners. ■■■



Green Energy Options for Remote Communities

A View from Twenty Meters

Changing Fuels

Many remote communities produce their power from diesel generators that burn fossil fuels. The ANCAP helped communities assess whether the wind above could change all that.

Equipment Loans

Often there is limited and inconsistent data available on the wind potential for the North and on First Nations' lands. ANCAP's WEMI equipment loan program provided a number of First Nations with 20-meter wind towers and equipment needed to assess the wind-potential in their area.

Participating Communities

- Kyoquot First Nation, British Columbia
- Rocky Bay First Nation, Ontario
- Sayisi Dene First Nation, Manitoba
- Shamattawa First Nation, Manitoba
- Selkirk First Nation, Yukon



Starting Breezes

Collecting wind data is crucial to assessing whether this clean, renewable energy is viable. It is also a tool to attract partners in developing a wind-diesel system. The view from 20-metres is helping some communities see:

- Short-term employment during monitoring and long-term employment should a wind-diesel system come to fruition;
- Increased power self-sufficiency and energy security;
- Potential power sales to local grid;
- Improved environment through reduced GHG emissions produced by burning and transporting diesel fuel;
- Reduction in potential environmental hazards related to fuel transportation and storage;
- Reduced reliance on winter roads;
- Community involvement and empowerment; and,
- Partnership opportunities with governments, non-government agencies and the private sector.

ANCAP's 20-metre WEMI helped communities assess the potential of this renewable, green resource. ■■■

Integrating Clean Energy Into Capital Programming

THE ANCAP IDENTIFIED THE NEED TO BUILD A PARTNERSHIP with the infrastructure sector within Indian and Northern Affairs Canada's (INAC) Capital Program. The aim of this partnership was to better incorporate clean energy and energy efficiency projects and assist communities in overcoming financial obstacles.

Clean Energy Capital Programming

Through the "Integrating Clean Energy into Capital Programming" initiative, the ANCAP set aside funds to offset the incremental cost of integrating RE and EE technologies into INAC-funded infrastructure projects.

Capital Integration 2006-2007

ANCAP funded EE/RE school projects through its Capital Integration objective in 2006-2007 in the following First Nations:

- Aroland First Nation, Ontario
- Hesquith First Nation, British Columbia

- Lytton First Nation, British Columbia
- Skeetchestn Indian Band, British Columbia
- Sturgeon Lake First Nation, Saskatchewan

Although the ANCAP investments were small relative to the size of the projects, it resulted in important operations and maintenance savings each year for the communities.

Capital and Community Gains

The ANCAP encouraged communities to reinvest their energy savings into other RE and EE projects. This included training, workshops or investments in technology. Green energy is one of the best ways to produce culturally sensitive benefits today, and for generations to come. Remote and off-grid communities will receive not only fuel cost savings but also reduced fuel requirements, lowered environmental risk associated with fuel spills and resulting contaminated sites and liabilities, and increased sustainability, self-reliance and clean air. ■■■

With RE and EE options built into community building projects, First Nations will enjoy cost savings from operation and maintenance with only small increases in the capital costs.

An Energy Efficient Education – Skeetchestn Indian Band, British Columbia

Skeetchestn Community School

Energy Opportunities

One of the highest costs to communities can be associated with the operation and maintenance of educational facilities. RE and EE options can help to alleviate these costs because over the long term great savings can be realized. However, these often require additional capital funds.

Community Involvement

In 1997, the Skeetchestn Indian Band began the process of designing their new school building. The First Nation started asking for community input and parents got involved in designing the environment where their children would be spending a large portion of their time. The result was a plan so comprehensive that no changes were required during construction.

Learning and the Environment

The resulting plan was also a "green" design. It incorporated passive and active energy saving technologies that will benefit the

community and the environment for years to come. The facility is comprised of three classrooms, a multipurpose room, library, kitchen facility, change rooms and a mid-sized gymnasium. A hillside location was chosen to maximize the use of natural daylight. The First Nation opted for a geothermal unit for low-cost, low-emission heating and cooling instead of a typical natural gas heating system. The exterior stucco cavity walls are designed to minimize heat absorption and visually blend into the landscape.

Construction Phase

Construction began in November 2003 and the project was completed on time and under budget for the school opening on September 7, 2004!

Challenges

Incorporating EE technologies into the building raised the cost of construction and made it more difficult to secure those additional funds from Capital programs within the region. Also,

Quick Facts

Incremental Cost (Geothermal):

\$82,000.00

GHG Savings:

122 Tonnes

Energy Savings:

40% reduction

Resource Savings:

35,351 m³ of natural gas

if Skeetchestn had to immediately start a long-term payback program to INAC to cover the additional funds required to install the geothermal system, then the financial benefits to the community would be delayed for years.

Funding & Environmental Rewards

After construction, the ANCAP provided \$82,000.00 to reimburse INAC-BC region Capital for the funds they contributed towards the incremental cost between a natural gas system and their geothermal system. This funding basically eliminated the payback time for this component of the project, allowing the First Nation to re-direct the annual dollar savings to other programs and services. ■■■

LUMOS: Clean Energy Value Advisors

'Top 10' Key Factors in Successful Aboriginal Clean Energy Projects

Christopher Henderson, President of Lumos & Coordinator of the Aboriginal Clean Energy (ACE) Network, ANCAP Strategic Advisor, and Large Energy Projects Working Group member, provided these Key Factors.

Lumos Clean Energy Value Advisors has conducted a review of the Aboriginal Clean Energy projects in Canada and they have concluded that the "top 10" Key Factors that tend to be characteristic of Aboriginal Clean Energy projects that have successfully moved from: clean energy concept to project development to energy systems operation.

- 1. Leadership:** Committed and Capable Local First Nation Leader/Champion (living and breathing the project, sometimes for months/years).
- 2. Strong Governance:** Full support from Band Council, Elders and Community (giving the leader/champion the license to move the project forward and take major decisions).
- 3. Sustainable Development:** A project focused on delivering social, economic and environmental benefits to the community as a whole, from a sustainable development standpoint (a 'benefits for all' approach).
- 4. Partnerships:** Private construction/technology and/or project development partners involved through the whole course of the project (as partners, not simply as contractors).
- 5. Enterprise Model:** An Enterprise Approach to project development that takes a business approach to the development of the project, which includes building sustainable economic growth (going from one project to the next one, leveraging experience in additional clean energy projects).
- 6. Management:** A clear and rigorous projects development process (moving forward step by step).
- 7. Financing Negotiations/Planning:** Continuous and early discussions/negotiations with concessional (i.e. government) and private financing for the capital project itself (dealing with the money early).
- 8. Equity:** Direct contribution of Band equity/resources (real commitment to the project).
- 9. Utility Support:** Agreement or basis of understanding, with the local utility; regarding the utility's involvement with the project and the First Nation. For example, as a purchaser of power through an independent power purchaser (ensuring that the utility is not an obstacle, and preferable a supporter, of the project).
- 10. Corporate Finance:** Strong cash and financial management of the project, discretely, during all stages: development, construction and operations (financial accountability and transparency, coupled with tight management of costs and revenues). 🇨🇦

Aboriginal Leadership in a World Energy Forum

Globe™

Every two years, senior business executives, government officials and environmental experts from over 70 nations meet at GLOBE™. GLOBE™ is the foremost meeting of its kind in the world. Delegates exchange ideas, cultivate partnerships and apply business solutions to energy and climate related challenges.

ANCAP Synergy

In 2006, the ANCAP National meeting was coordinated to coincide with Globe™ 2006. Regional ANCAP Energy Pathfinders and INAC representatives were encouraged to take in the

conference as a means of building connections and capacity within the ANCAP network.

Keynote Presentations

In 2004, ANCAP representatives presented: Aboriginal Corporate Clean Energy Partnerships. At the following Globe in 2006, a keynote session entitled: Clean Energy Opportunities in Off-grid Aboriginal and Northern Communities: The Smart Energy Approach took place. ANCAP representatives participated in this session and an ANCAP supported project was highlighted.



Emerging Solutions

Through programs such as the ANCAP, clean energy partners are creating solutions that make social, economic and environmental sense and creating a new era in small community empowerment. 🇨🇦



Impacts and Adaptation – Climate Change and Traditional Values

ALTHOUGH THE PRINCIPAL FOCUS of the ANCAP was on GHG emissions reduction or mitigation, climate change impacts on traditional ways of life in Aboriginal and northern communities and identifying adaptation measures were also important. There must be harmony and balance between the two approaches during communities' decision-making processes to produce results.

Process of Acceptance

The ANCAP, and its predecessor the ANCCP, recognized the importance of supporting adaptation activities in northern and Aboriginal communities. As a result the following strategies were developed to maximize the chances for successful adaptation: formalized awareness and communications strategies crucial to obtaining community buy-in; development of adaptation management frameworks for the North; impacts and adaptation partnerships with Aboriginal and northern organizations;


and, conducting research and analysis on impacts and adaptation.

A Uniquely Canadian Perspective on Global Climate Change

There is much to study and understand about climate change and its effects on biospheres and ecosystems important to Aboriginal people, particularly in the north. To this end, the ANCAP supported activities that have 'linked' Canadian Aboriginal and northern organizations and communities with counterparts elsewhere in the world. The lessons learned by one community can be shared with many.

ANCAP Impact and Adaptation Principles:

1. ANCAP Impacts and Adaptation recognized the variability of climate change impacts and their intensities, and was flexible to address both national and regional priorities when supporting projects.

2. The program aimed to foster community-based and driven initiatives because it believed that communities and individuals are the essence of projects.
3. Community involvement was a key element to successful implementation of adaptation initiatives and projects.
4. Projects helped to develop the overall adaptive capacity of communities.
5. Projects contributed to and relied on a strong information base integrating both science and traditional knowledge.
6. Projects with a partnership approach that leveraged or built on other funding or efforts, experience and success were encouraged. 

Impacts and Adaptation Strategies for Remote First Nations

Climate Change Impacts on Ice, Winter Roads, Access Trails, and Manitoba First Nations

First Nations View

This project tackled an issue facing many northern and remote communities — the impact of climate change on ice, winter roads and access trails. The Centre for Indigenous Environmental Resources and the following five First Nations in Manitoba participated in the project:

- Barren Lands First Nation;
- St. Theresa Point First Nation;
- York Landing Cree Nation;
- Poplar River First Nation; and,
- Bunibonibee Cree Nation.

First Nations, First Hand

The project included First Nation perspectives, experiences and expectations on what community members, leadership, as well as provincial and federal governments can do to help.

Seed Funding

The ANCAP provided over 50% of the funding to complete this project. Natural Resources Canada provided the remainder. As First Nations communities and organizations did not have these sorts of funds available, the funding provided by the ANCAP was critical to the completion of this project.

External Resources

Strategies from external sources such as government departments, Tribal Councils, transportation companies, construction companies, and western science were considered.

Seven Strategies of Solution

Ultimately, the study identified seven tangible, overarching strategies crucial to helping First Nations reliant on winter-roads to adapt to the impacts of climate change.

These included:

- Developing Climate Change Action Plans;
- Increase Security of Winter Roads;
- Develop a Communication Strategy;
- Increase Social / Cultural / Recreational Opportunities;
- Increase Consumption of Local Foods;
- Enhance Community Safety; and,
- Increase Funding Opportunities for Community Operations.

Broader Applications

The Centre for Indigenous Environmental Resources project team concluded that communities should start the process by developing their own Community Climate Change Action Plan. Additionally, many of the strategies are applicable to a broad group of First Nations across northern Canada, even those that are not reliant on winter roads. ■■■

Impacts and Adaptation Options for Municipal Infrastructure

Climate Change Impacts, Infrastructure Risks and Adaptive Capacity Project for the City of Iqaluit

First Steps

Although addressing climate change issues can seem overwhelming, smaller projects are often the best first steps, often serving as the impetus for subsequent initiatives. It is expected that some of the project findings will be integrated into more inclusive community adaptation plans.

First Partnerships

In this program, the City of Iqaluit, in partnership with Nunavut Research Institute, worked to identify impacts of climate change on its infrastructure, and the community's capacity for adaptive measures.

Information Gathering

Interviews were conducted with municipal staff, community leaders and individuals who design, build and service Iqaluit's infrastructure to determine what climatic or

environmental hazards currently pose risks to infrastructure and how they currently cope with them. Research was also conducted with climate change experts and leaders in communities with similar conditions and experiences.

Information Gaps

Since the concept of adaptation planning is relatively new, there were many gaps in the information needed to develop adaptation options. For example, many Global Circulation Models are regionally based and do not identify local climate anomalies, making it challenging to develop local climate scenarios.

Success Factors

One of the main success factors for this project was the information base that resulted from combining local, community-based

consultations with climate change and adaptation research gathered from external sources. This approach exposed decision makers to a wide range of impacts and adaptations. This was crucial in helping them to identify potential solutions that are pertinent to Iqaluit. The process also helped build community awareness of the problem and buy-in for the adaptation process.

Next Steps

The ANCAP provided the resources to begin the adaptation planning process and create awareness about the importance of addressing climate change at the local level. Many northern communities require additional resources to undertake an initiative like this by themselves. However, with strategic partnerships, information networking and community determination — changes can be made. ■■■



Key Program Performance and Outcomes 2003–2007

THE PATH TO EMPOWERMENT ON energy and climate change issues has many steps. The points below illustrate some of the steps the ANCAP took from 2003-2007.

Respect and Involvement

The ANCAP was the first Federal program fully dedicated to engaging and involving Aboriginal peoples and northern communities in climate change action.

Empowerment Through Knowledge

The ANCAP, through community energy planning and its National Energy Baseline Initiative has helped Aboriginal and northern communities plan and take action on climate issues while making their communities more socially and economically sustainable.

Income Generation and Economic Development

ANCAP-sponsored projects have generated income and economic development in Aboriginal and northern communities. For example, Hupacasath's China Creek Hydro facility is now generating a net surplus for the community of \$171,000.00 a year as a result of green power sales to BC Hydro.

National Process for Success

The ANCAP established the national Pathfinder network to provide Aboriginal and northern communities with expertise in climate change and clean energy technology and guidance through program access processes. Working at an arms length from the government proved to be a key component in program awareness and project initiation.

Community Energy Planning

ANCAP's Community Energy Planning focus provided the opportunity for elders, chiefs, band members and community leaders to engage in an involved and empowering

process for gathering the information they need to make informed decisions on energy consumption and GHG emissions.

Large GHG Reductions

ANCAP's Large Energy Projects Working Group (LEPWG) was able to catalyze a total of 24 projects. Three of those projects currently operating or under construction will produce a net reduction of 2.7 Megatonnes (2,700,000 tonnes) of GHG's over the project life cycle. The remaining 21 projects will increase this reduction to 19.7 Megatonnes (19,700,000 tonnes).


Wind Energy Monitoring Initiative

The ANCAP through its Wind Energy Monitoring Initiative (WEMI) was able to help dozens of Aboriginal communities identify the amount of wind energy resource available on traditional or tribal lands. This inventory will help communities work with financial and technical partners to develop this renewable resource.

Integration with Departmental Programming

The ANCAP helped Aboriginal and northern communities access funding and technical expertise by integrating their energy and climate change issues with INAC Economic Development, Infrastructure, Claims and off-grid and remote communities programming.

Adaptation Risk Assessment

A risk assessment process was established to identify key adaptation risks and pilot studies were completed to develop community adaptation plans. 



Lessons Learned

The ANCAP was a broad and dynamic program with an expansive scope. Given this, there were many lessons learned in a variety of areas throughout Canada in the many Aboriginal and northern communities and the First Nation organizations that participated in the program.

Community Involvement

One of the prime lessons that Pathfinders learned was that success is increased when the whole community is informed, actively involved, and functionally empowered throughout the process. There is an even stronger need for communities to have ownership of their projects and this is true for all projects from energy baselines to the development of large energy projects. Having a sense of ownership not only increased project success but also increased future energy management and planning. Other success factors included a strong resolve for RE and EE projects within community leadership and the presence of a community champion who consistently works toward project and community goals.

Community Planning

ANCAP's National Energy Baseline Initiative provided a strong starting point for many communities. There are examples of First Nation and northern communities that completed RE and EE projects independent of the ANCAP once the Community Energy Baselines (CEB) were completed. For example, Swan Lake First Nation in Manitoba completed several RE and EE projects such as solar panels for a remote youth camp to reduce dependence on a diesel generator and EE residential projects like increasing insulation in attics and basements. CEBs also supplied needed regional and national information that could be compared to non-First Nation averages.

CEBs gave the ANCAP and its Pathfinders a good understanding of the energy issues facing First Nation and northern communities. In some regions, the residential sector was

responsible for the majority of energy consumption within the community. This finding pointed out the need for improved housing programs and increased funding required to: improve building standards, incorporate EE design, and support RE options within First Nation and northern communities. In other regions that utilize renewable energy sources the transportation sector resulted in the highest financial costs, energy use and GHG emissions. This highlighted a need for attention on sustainable transportation such as fleet management for water and sewer trucks, road maintenance equipment and school buses. Although the ANCAP did not have a mandate for housing, it did provide some involvement through the support of training and capacity building initiatives.

ANCAP Involvement

The LEPWG and the WEMI provided a wealth of lessons because the projects completed were diverse and the ANCAP was involved at varied stages along the project timeline from pre-feasibility to construction. Projects supported early in the developmental stages, such as wind monitoring, could not show GHG emission reductions but these were seen as investments in the future. These are now points of potential RE projects that will not only provide environmental benefits but will meet community goals and traditions of sustainability as well as other social and economic benefits.

ANCAP Planning


The ANCAP endeavoured to engage Capital sectors nationally while Pathfinders and communities did the same within their regions. Work in INAC's Regional capital sectors is based on five-year plans, so it was difficult for Pathfinders to participate in these discussions because of ANCAP's program length. However, this represents an opportunity to do more within INAC and to implement sustainability plans.

Adaptation

Climate change adaptation within First Nation and northern communities is an important area but it is not often funded. Despite its late start, the ANCAP Impacts and Adaptation assisted many communities to take the vital first steps towards adaptation. Communities are interested and recognize that measures need to be taken in order to adapt to climate change but support, information and resources are required to do so. In the arctic, where impacts are more readily apparent, immediate and practical action is needed such as completion of risk assessments and engagement of planners to support the process.

Pathfinder Network

The Pathfinder network was an innovative concept and it created an environment for success. Pathfinders were able to share results and experience throughout the network, allowing them to also share success because communities and organizations with common goals were now able to inspire and support each other on RE, EE and other projects. Bottom line, the Pathfinder template of networking and involvement could help other governments and programs achieve much more than the sum of their parts.

Overall the ANCAP was a successful program. It accomplished many of its objectives, raised capacity and knowledge within climate change and energy issues and it supported a multitude of First Nation and community-driven projects that were often linked to economic development. Even though the ANCAP came to a close on March 31, 2007, the lessons learned can continue to provide guidance for future climate change and energy activities. The ANCAP leaves a powerful legacy and the benefits created will continue to bring climate change, RE and EE projects to fruition for years to come. 



For more information on related products and services, please contact:



**Indian and Northern
Affairs Canada**

**Affaires indiennes
et du Nord Canada**

Email: icecap@ainc-inac.gc.ca

Internet: www.ainc-inac.gc.ca