

sustainable
energy
solutions



Arctic Energy Alliance

Community Energy Planning

September 8, 2005

What is Energy?

- We get energy from:
 - Heating Oil
 - Gasoline / Diesel
 - Propane / Natural Gas
 - Sun
 - Wind
 - Wood
 - Rivers
 - Batteries
 - Food ?



Energy is what we use to get work done.



- We use energy to:
 - Cook food & wash dishes
 - Drive cars, trucks, skidoos & boats
 - Light homes, offices & schools
 - Heat buildings & hot water
 - Fly airplanes
 - Shower & bath
 - Wash & dry clothes
 - Watch TV & listen to music
 - Use refrigerators & freezers
 - Run businesses & build things
 - Deliver water & pick up garbage

What is Community Energy Planning ?

- A community energy plan shows us better ways to make and use energy.
 - ✓ Use energy more efficiently
 - ✓ Use more renewable energy
 - ✓ Use less fossil fuels
- It tells us **what** to do, **how** to do it, and **who** should do it.



- Get Organized
- Develop Ideas
- Take Action

Why Create a Community Energy Plan?

- Help the economy
 - ✓ Create local jobs
 - ✓ Save money
 - ✓ Fund new energy projects



Why Create a Community Energy Plan?



- Help the environment
 - ✓ Reduce air and noise pollution
 - ✓ Have less fuel spills
 - ✓ Reduce greenhouse gas emissions

Why Create a Community Energy Plan?

- Help people and the community
 - ✓ Work together and take action
 - ✓ Learn new skills, be creative
 - ✓ Build healthy ways of living



Wha 'Ti Community Energy
Planning Team

Energy Planning in 6 Easy Steps!

1. Launch Effort – Get Organised

Form a group of people who are interested in energy.

2. Create a Community Energy Profile

Create an overview of how energy is used in your community.

3. Evaluate Energy Opportunities

Evaluate potential projects and partnerships that could improve community energy management.

4. Write the Community Energy Plan

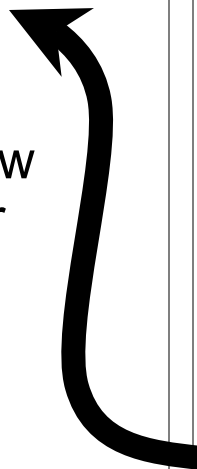
Assemble promising projects and partnerships into a plan for action.

5. Implement and Monitor the Plan

Complete projects listed in the plan and check to make sure that they are working properly.

6. Revise the Plan

Go back to Step 2 & repeat.



The Wha 'Ti Story

- Started community energy planning in 2002
- Formed an Elders' advisory committee and a youth action group.
- Wha 'Ti partnered with:
 - Ecology North
 - Pembina Institute
 - Arctic Energy Alliance
- Community Energy Plan showed that:
 - Small hydro could economically replace the diesel power plant
 - There are many ways of lowering energy bills and using energy more wisely in Wha 'Ti.
- Wha Ti now has an “Energy Coordinator” and plans to start building the small hydro plant in 2007.

Wha Ti Community Energy Plan

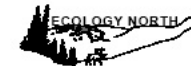
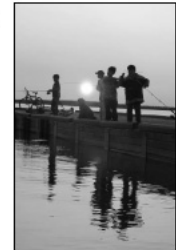
Options for Energy Supply and Management for Wha Ti, Northwest Territories

Prepared for the Wha Ti Charter Community by Ecology North and the Pembina Institute

Report prepared by

Bob Bromley, Ecology North
Jesse Row, Pembina Institute
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June 2004



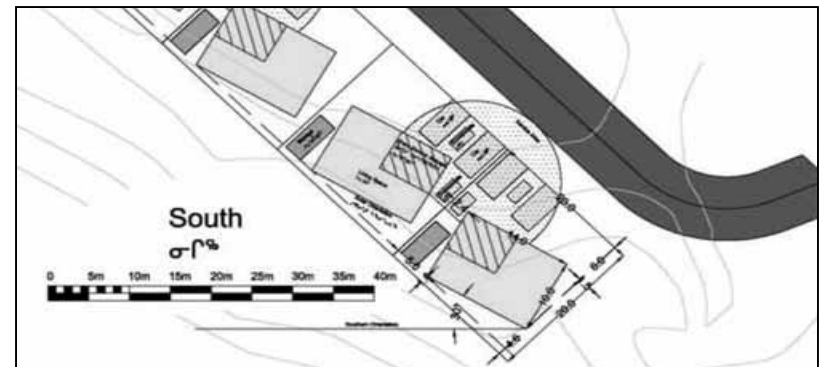
The Iqaluit Story

GHG Action Plan

- Joined “Partners for Climate Protection” in Nov 2002
- Reached Milestone “3” (Develop local action plan) in February 2004
- Committed to reducing municipal emissions by 20% by 2014.
- Council has just given go-ahead to begin implementation.

Sustainable Arctic Subdivision

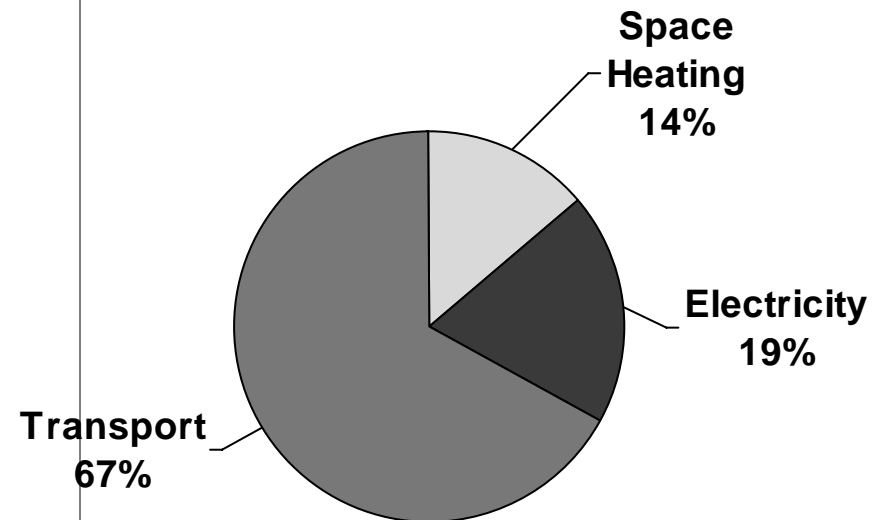
- The development plan was created through a “Design Charrette” in May 2004.
- Plan includes:
 - Southern orientation of lots & buildings
 - Energy efficiency standards for building permits
 - Transportation



Estimated NWT Energy Profile

- 93% of NWT energy supply is imported fossil fuel
 - 400 million litres per year
- Energy is the largest source of Greenhouse Gas emissions in the NWT
 - The NWT emitted 1.75 million Tonnes of CO₂ in 2001.
- \$230 million per year is spent on Energy in the NWT
 - More than half is spent outside the NWT
 - Roughly \$20,000 per family of four

NWT Fuel Consumption



Energy and \$ estimates from the NWT Greenhouse Gas Strategy, 2003




CO₂ emissions from the 2001 NWT GHG inventory, in press

Community Energy Profiles - Tuktoyaktuk

TUKTOYAKTUK ENERGY PROFILE (2003/04)

How Much of Each Fuel Comes into Tuktoyaktuk?

lots of energy → not much energy

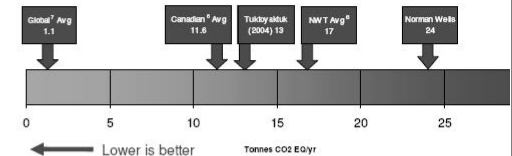
Diesel for Electricity Litres: 1,234,649 Energy: 44,941 GJ GHG Emissions: 3,371 Tonnes CO ₂ Eq/yr		diesel fuel
Gasoline Litres: 742,745 Energy: 25,996 GJ Cost: \$817,000 Emissions: 1,753 Tonnes CO ₂ Eq/yr		gasoline
Diesel for Vehicles and Fuel Oil Litres: 2,905,778 Energy: 105,770 GJ Cost: \$2,673,316 Emissions: 7,933 Tonnes CO ₂ Eq/yr		diesel fuel

Waste Heat

Electricity generation
Cost: \$2,446,277
Waste Heat: 2/3 of energy
Electricity: 1/3 of energy

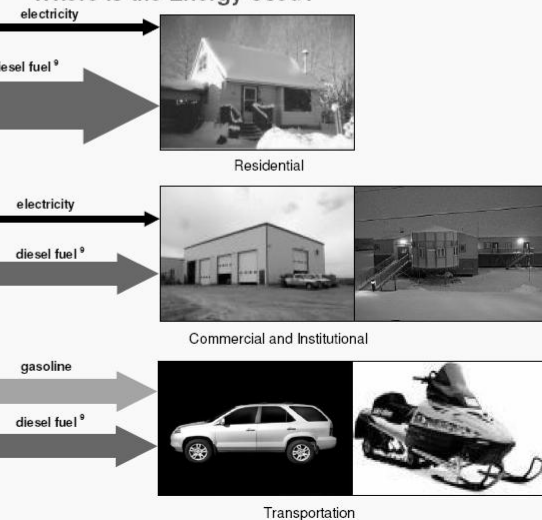
Greenhouse Gas Emissions
13,056 Tonnes CO₂ Eq/yr

Greenhouse Gas Emissions for Each Person in Tuktoyaktuk



Electricity

Where is the Energy Used?



 ARCTIC ENERGY ALLIANCE

TUKTOYAKTUK
26/06/2001

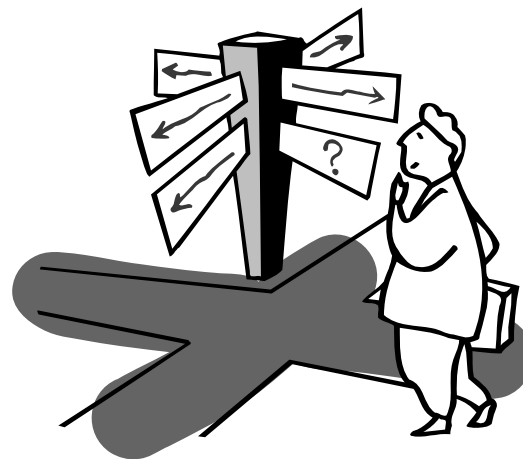
 ARCTIC ENERGY ALLIANCE

Community Energy Planning

More Funding is Available

- GNWT - Energy Conservation Program for municipal buildings
- Federal - CBIP – for new buildings
- Federal - EII – upgrade old buildings
- Federal – ANCAP – GHG reductions
- Federation of Canadian Municipalities – Green Funds
- Aboriginal Business Development Canada
- Private foundations
- More ...

- Applying for funds and managing projects is not always easy.
- We can help.



Community Energy Planning

We're here to help

- Proposal writing
- Project management
- Workshop facilitation
- Partnership building
- Advice
- Community energy profiles
- Identification and evaluation of energy options

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