Overview of Region

- 35,989 square miles
- 11 villages
- 7,400 (pop. 2008)
- 82.5 % Alaska Native
- More than 12,000 NANA shareholders
- 48 % more expensive than Anchorage

Source: Alaska Economic Trends, August 2009
Cost of Energy

- 55.4% of households received energy assistance last winter (2008)
  - Gasoline – $6.68 per gallon (average)
  - Stove oil – $630 per winter month (average)
  - Electricity – $294 per month (average)
Opportunities

- Alternative and traditional energy sources
- Public/private partnerships
- Willingness of the people
- Unexplored potential
- Job creation
NANA Strategic Energy Plan (SEP)

• Energy Options Analysis completed

• Regional Energy Plan Completed (www.nana.com)

• Regional Energy Summit

• Energy Surveys Completed

• Secured funding in the amount of $16 million (WHPacific and NANA Pacific)
Regional Projects

- Wind diesel development
- Hydroelectric feasibility
- Biomass development
- Solar/Photovoltaic
- Energy efficiency & conservation
- Fossil Fuel
NANA Wind Resource Assessment Program (WRAP)

- Wind data collection
- New turbines
  - Noorvik, Deering, Buckland
- Erecting met towers
  - Noatak, Red Dog, Ambler
- Exploring public/private partnerships
NANA Geothermal Assessment Program (GAP)

- Report completed – site identification (www.nana.com)
- Seven hot springs in the NANA region
- Mapped hot springs are 40 miles or more from NANA region communities
- Collaboration with the University of Alaska, Fairbanks (Alaska Center for Energy & Power)
Biomass, Hydro, Solar

- Biomass resource assessment for upper Kobuk (Partner: NIHA)
- Hydro feasibility study (AVEC)
- Solar (AVEC)
Natural Gas & Oil Exploration

- Partnered with Trio
- One of the largest unexplored areas in North America
- 3 on-shore potential drill locations
  - Kobuk Delta, the Baldwin Peninsula, and Cape Espenberg
- Village outreach
- Currently working on permits to perform drilling operations
Energy Efficiency and Conservation Block Grant

- Department of Energy (DOE) and Denali Commission

- Funds projects that:
  - Reduce energy use
  - Reduce fossil fuel emissions
  - Improve in energy efficiency.

- 9 of 11 villages elected to participate

- Tribes decide on grant use
Constraints & Concerns

• Government
  – Streamline funding process
  – Uncertain permit requirements
  – Not eligible for AEA grants

• Immediate concerns
  – Fuel crisis in 4 villages
  – Fuel providers
  – Lack of choice
Next Steps

• Update Strategic Energy & Energy Options plan

• Continue collaborations

• Identify potential demonstration and research opportunities

• Monitor Funding Opportunities
  – Federal Department of Energy
  – AEA

• Develop “bankable” regional energy projects
Wind Energy in NW AK/NANA Region
Existing Wind Power in NANA Region

Need to improve penetration level

- Kotzebue – Utility, KEA
  - Class 4 to 5 wind resource
  - Ten AOC 15/50 (65 kW) wind turbines
  - One NW100 (100 kW) wind turbine
  - One Vestas V15 (65 kW) wind turbine
  - Since 1997

- Selawik – Utility, AVEC
  - Class 2 to 3 wind resource
  - Four AOC 15/50 (65 kW) wind turbines
  - Since 2001
Predicted Wind Resource in NANA Region Villages

One Year data
Buckland- class 3
Noorvik- Existing class 2-3
Deering- class 6
Kivalina- class 6-7

Under Assessment
Ambler- 4 months of data
Kiana
Bornite/NOVA Gold- could benefit
Upper Kobuk
Teck Alaska Renewable Energy Public Private Partnership
NANA Region Wind Program- Next Steps

- Support on-going efforts- AVEC, KEA, & Teck
- Conceptualize small (10 kw and less) deployment for certain applications
- Conceptualize regional remote monitoring controls/strategy
- Further expand work-force development in the region
- Identify opportunities for technology
Geothermal Assessment Program

- Initial enthusiasm with geothermal potential
- Limited data and analysis
- Development of NANA GAP Report
- Identified 7 hot springs
- Granite Mountain & Division Hot Springs—higher likelihood of development
Rough Outline of geologic provinces in southern NANA lands

- Seward Peninsula province
- Selawik & Kotzebue Basins province
- Yukon-Koyukuk province

The Nana Region
Geologic map of the Buckland region

- Buckland/Deering Geologic map
  - Red = granitic rocks, which are favorable host rocks for geothermal resources;
  - all others = which are probably not good host rocks for geothermal resources.
  - Strong Possibility that geothermal resources could extend northward as well. Geothermal exploration should focus on the circled area.
Granite Mountain Field Work-2009

- Field work activities
- Geological Assessment
- Chemistry Analysis
- Geothermometry
- Heat flow assessment
Geothermal Development - Discussion and Next Steps

- Fairly typical of geothermal systems in the interior of Alaska.
- <1mw power production potential
- Comparable in temperature to Chena
- Isolated no infrastructure
- Significant cost to develop