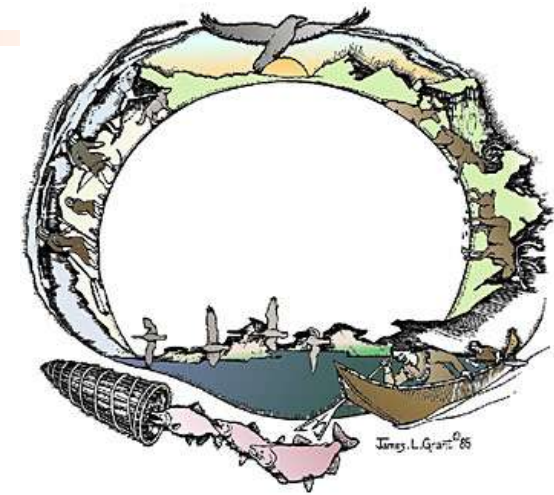

Energy Solutions in Rural Alaska:



Tanana Chiefs Conference and Alaska Center for Energy and Power

**DOE Tribal Energy Program Review
October 28, 2010**



ACEP
Alaska Center for Energy and Power



TANANA CHIEFS CONFERENCE provides a unified voice to advance tribal governments, economic and social development, promote education and physical and mental wellness, and protect language, traditional, and cultural values.



ACEP
Alaska Center for Energy and Power

Alaska Center for Energy and Power meets state and local needs for applied energy research by developing, refining, demonstrating, and ultimately helping commercialize marketable technologies that provide practical solutions to real-world problems.



TCC-ACEP PARTNERSHIP:

Matches the rural service capacity of TCC with the engineering and technical expertise of ACEP to achieve energy solutions in rural communities.





What does the term “energy solutions” mean?

- ✓ utilize local resources
- ✓ lower cost of electricity and heat for local consumers
- ✓ reduce dependence on fossil fuels

...but most important of all...



“Energy solutions” means creating sustainable communities.



Reykjavik in 1932

All buildings heated using fossil fuels



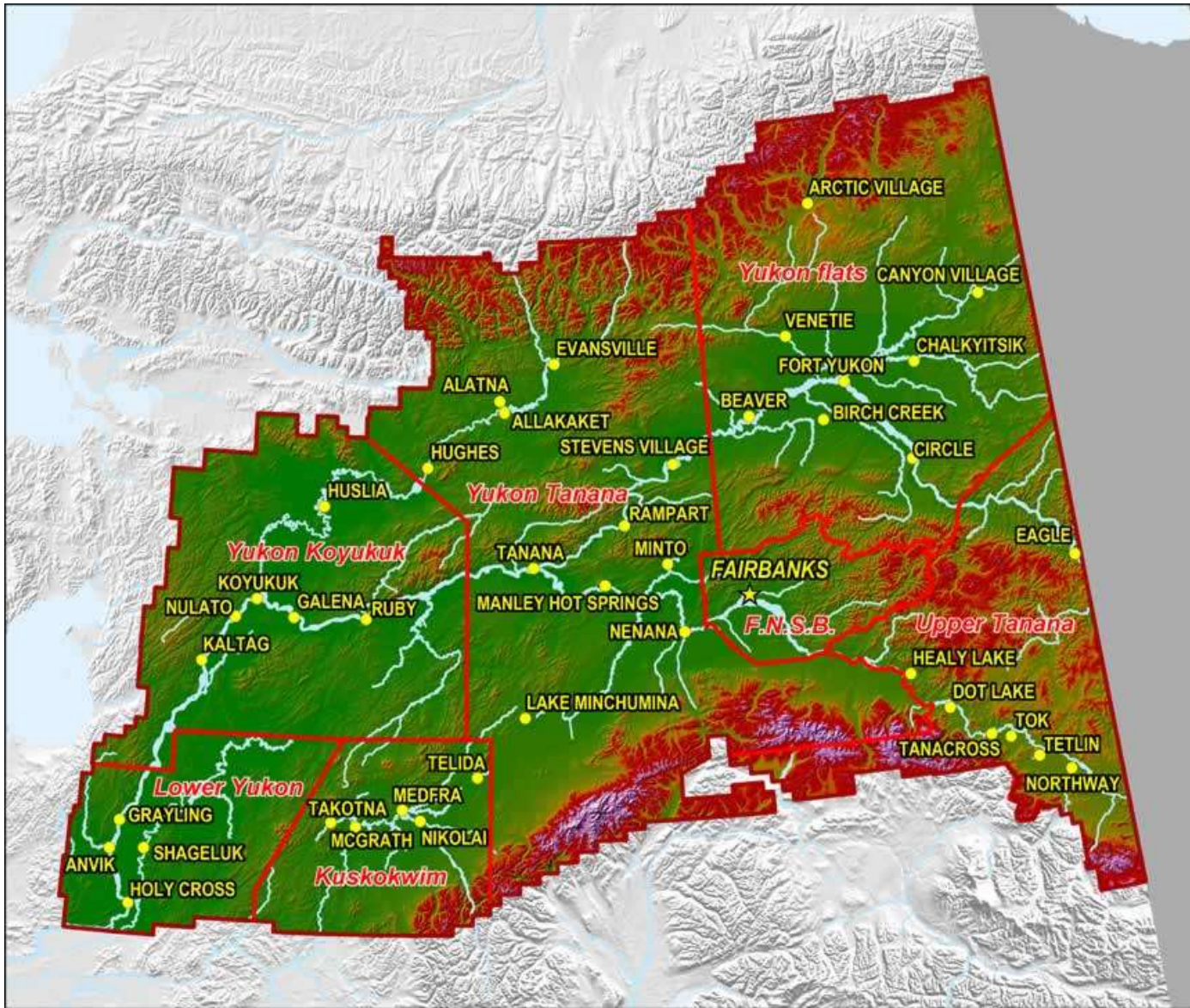
Reykjavik Using Fossil Fuels

Reykjavik today

One of the cleanest cities in the world



Reykjavik Using Geothermal





How do we get there?

Energy projects in TCC communities must meet three basic criteria:

- ✓ Community planning
- ✓ Economically feasible
- ✓ Technically feasible



Energy research at the University of Alaska

Geophysical Institute

Institute for Social and Economic Research

Institute of Northern Engineering

Petroleum Development Laboratory

Agriculture and Forestry Experiment Station

UAA Logistics Program

Institute of Arctic Biology

UAA Engineering Program

International Arctic Research Center

Resilience and Adaptation Program

Cooperation Extension

Rural Campuses



Energy Projects Funded Under TCC-ACEP Partnership

- ✓ Diesel Generator Efficiency Project = \$280,000
- ✓ Organic Rankine Cycle Project = \$304,306
- ✓ Diesel Efficiency Field Testing = \$551,408
- ✓ Galena Greenhouse & Power Plant Project = \$320,452
- ✓ Energy Efficiency & Conservation Block Grants = \$585,300
- ✓ Interior Regional Energy Plan = \$299,810
- ✓ Nikolai Pre-paid Electric Meters = \$60,000

TOTAL FUNDING = \$2,401,276





Sustainable Agriculture & Community Greenhouses

- Heated with recovered heat from village power plant
- Community garden
- Fresh, nutritious, affordable produce
- Local employment
- Educational tool for students
- Reduce amount of imported food, carbon emissions, and solid waste in landfill





Wood-fired Heating Systems

- Currently installed in Tanana, Dot Lake, Craig, and other Alaska communities.
- Proposed for Anvik, Takotna, Ruby, Fort Yukon, McGrath, Koyukuk, and others.
- TCC and ACEP can help locate funding sources and provide technical assistance.





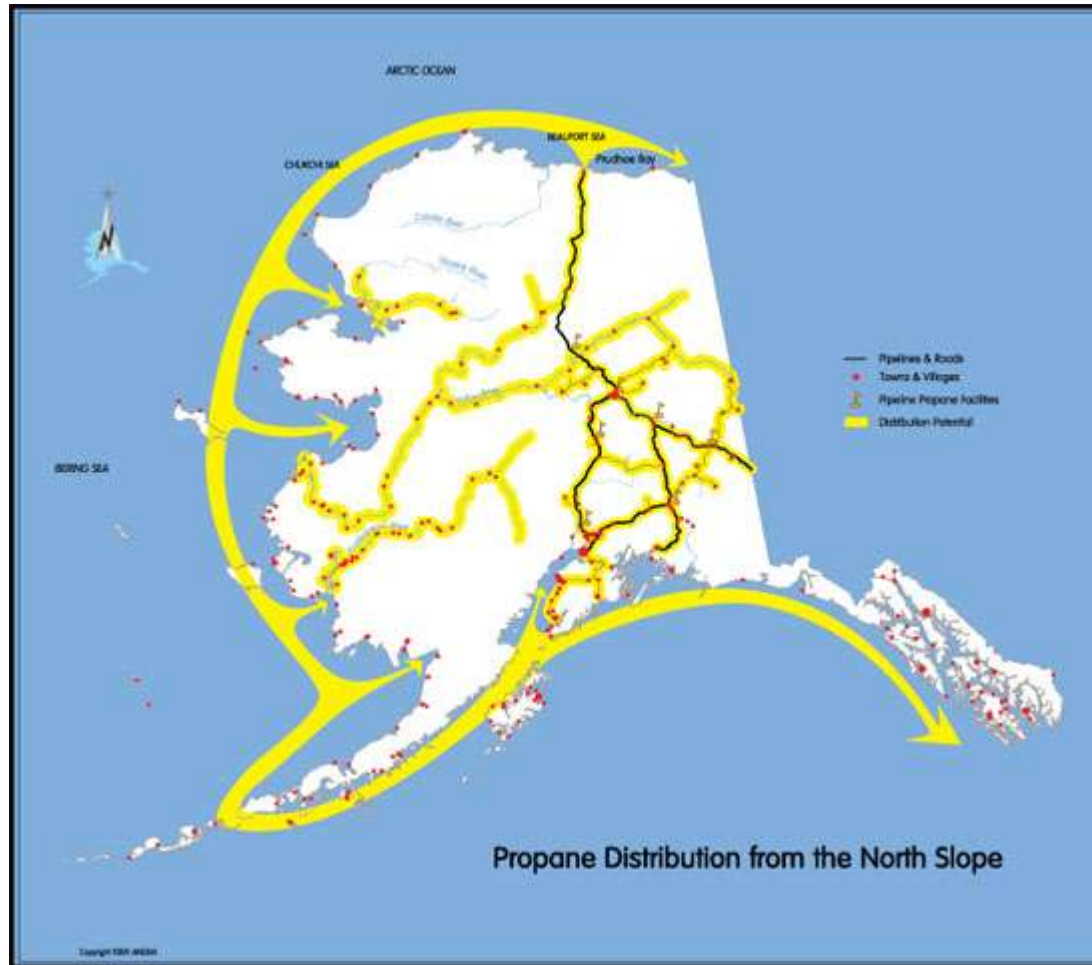
Organic Rankine Cycle (ORC) Projects

ORC engines use recovered heat from diesel generator to produce additional power.





Alaska North Slope Propane





State of Alaska

- State will generate 50% of electricity from renewable sources by 2025.
- Emerging Energy Technology Fund
- Renewable Energy Fund
- Energy Efficiency Loan Fund
- Energy efficient public buildings
- State will achieve 15% increase in energy efficiency per capita by 2020.



For more information:

Ross Coen

ross.coen@tananachiefs.org
(907) 347-1365

www.uaf.edu/acep