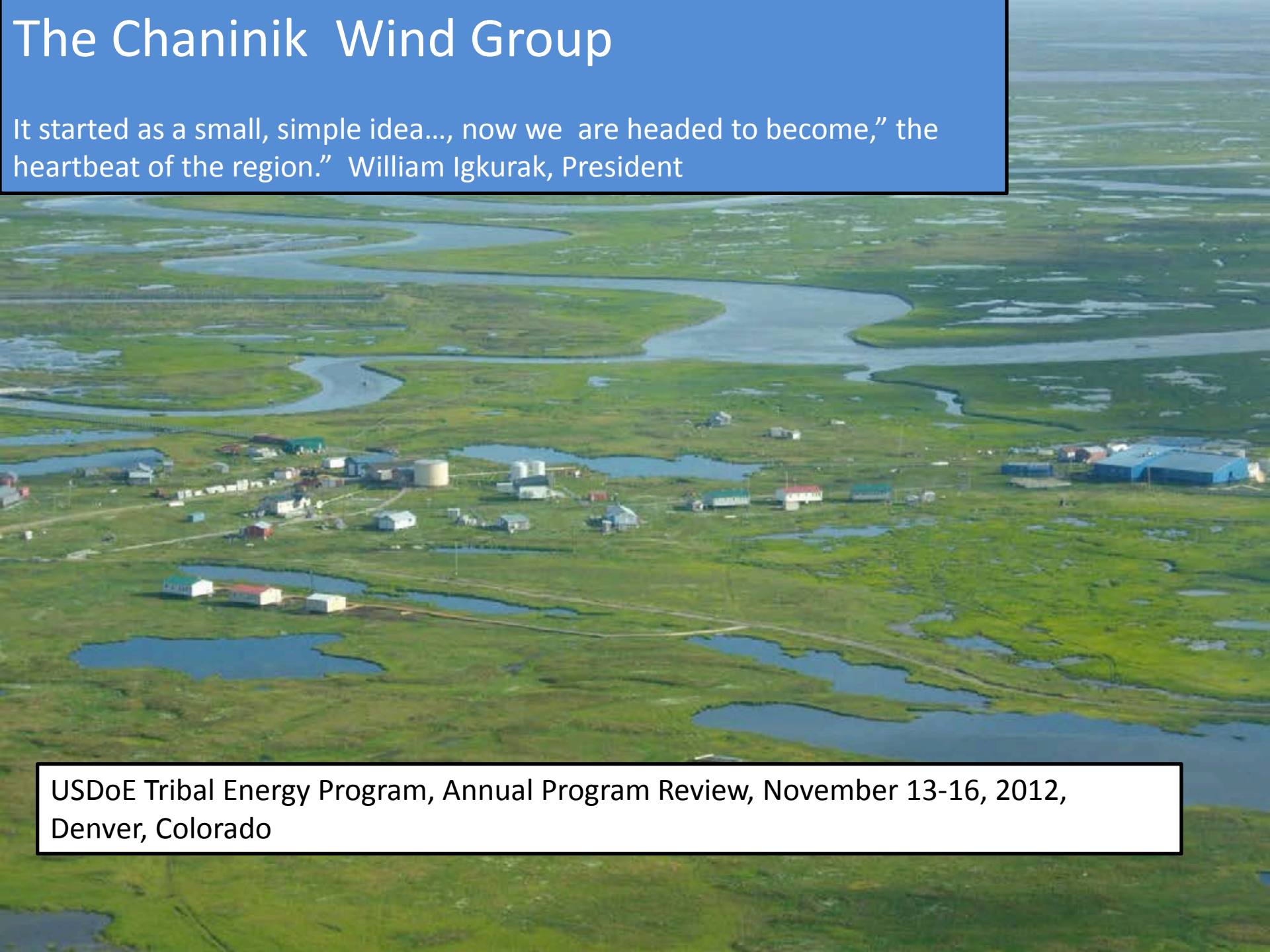


# The Chaninik Wind Group

It started as a small, simple idea..., now we are headed to become," the heartbeat of the region." William Igkurak, President

USDoE Tribal Energy Program, Annual Program Review, November 13-16, 2012,  
Denver, Colorado



## Chaninik Wind Group Villages

- Kongiganak pop.359
- Kwigillingok pop. 388
  - Kipnuk pop.644
- Tuntutuliak pop. 370

On average, 24% of families are below the poverty line.



Department of Energy

Tribal Energy

Program Review

Produced by Alaska Center for the Environment GIS  
for the Alaska Conservation Foundation





# Chaninik's Goal is to become “The heartbeat of the region”

## Objectives:

Lower Energy costs

Increased revenues

Jobs and economic  
opportunities



- Work Together
- Family of similar systems
- Keep building on efforts



We live off the land



08/14/2008



# 2012 Average Prices

- ✧ **Stove Oil: \$7.10 per gallon (Bulk)**
- ✧ **Gasoline: \$6.69 per gallon**
- ✧ **Propane: \$264 per 100 lbs**
- ✧ **Village to Anchorage RT: \$900**
- ✧ **Gallon of Milk: \$9.26**
- ✧ **Loaf of Bread: \$5.12**
- ✧ **1 lb of Coffee: \$10.28**
- ✧ **1 Dozen Eggs: \$5.36**
- ✧ **1 lb of Butter: \$6.00**









We don't have roads



# How we get around





Every village has its own diesel powerplant





## Willie

We would like anything to try to lower energy costs. Our gasoline is rising from \$5.35 to \$7.10 or something like that. Our heating fuel rise to \$8.10. I think we are going to have hardships for some people who don't have jobs this coming winter. Freight is increasing also.





## **Two Sisters putting up salmon for the winter**

“We try our best to keep up with costs of fuel and lights, in order to have transportation for survival.”

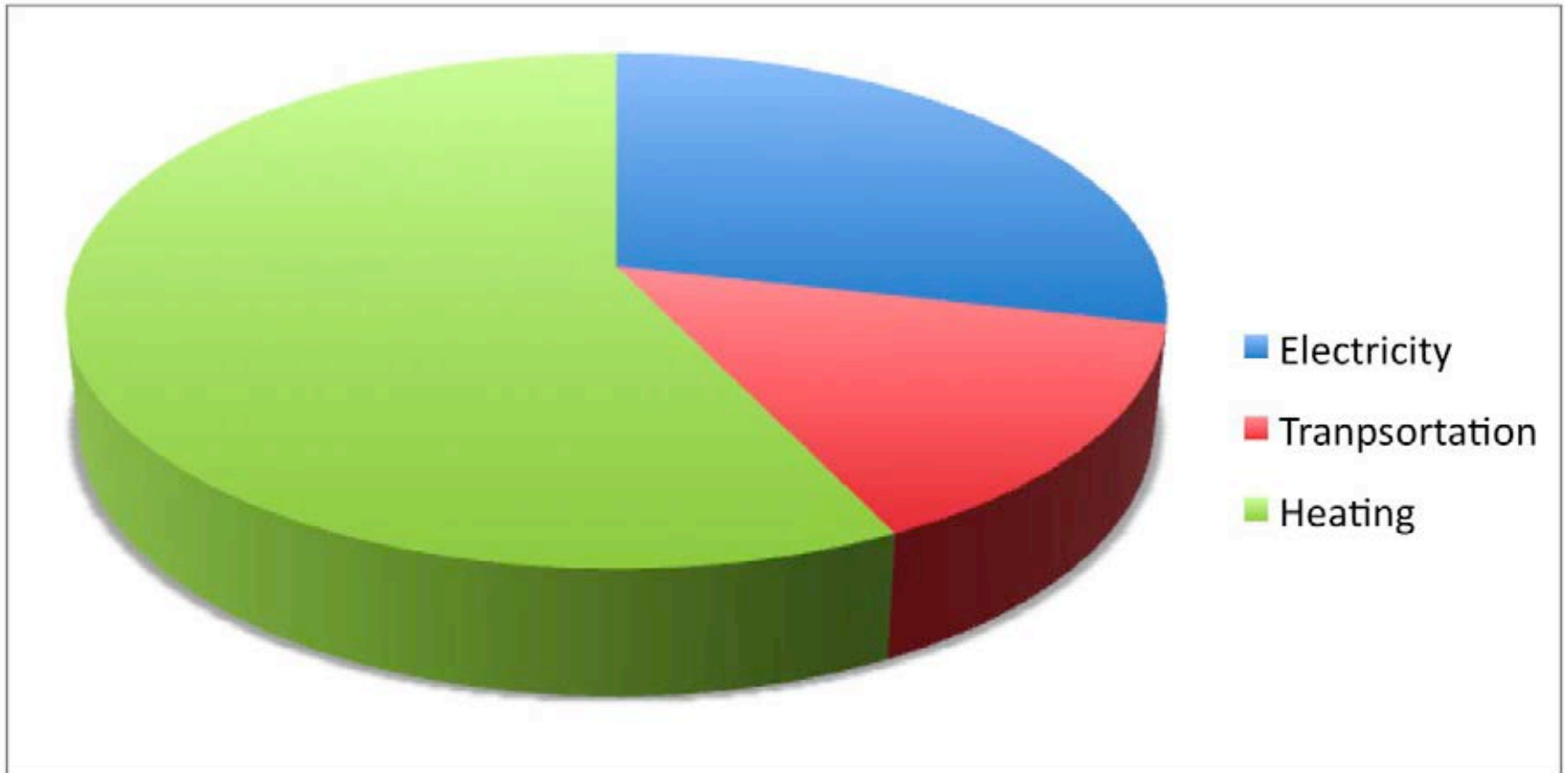


## Charles

My house uses electricity every day and night to run the heater, for cooking, for power tools, steam house, lights, freezer, and we use 150 gallons of stove oil per month. You have to use four wheelers to get fuel.... so money go little long before winter. I don't worry about fuel and electric money – they talk about wind power. I really go for it. That's good news to people in our village. I go for better living. We need help from the people that have the power to make these things better.



# The Biggest Enemy is cost of Fuel



# The First Idea,

Lower Energy costs  
by installing a  
community scale  
wind turbine



- Very simple, but doesn't really accomplish much,
- No body would help



Second idea,  
Communities working together  
a greater voice, a greater impact

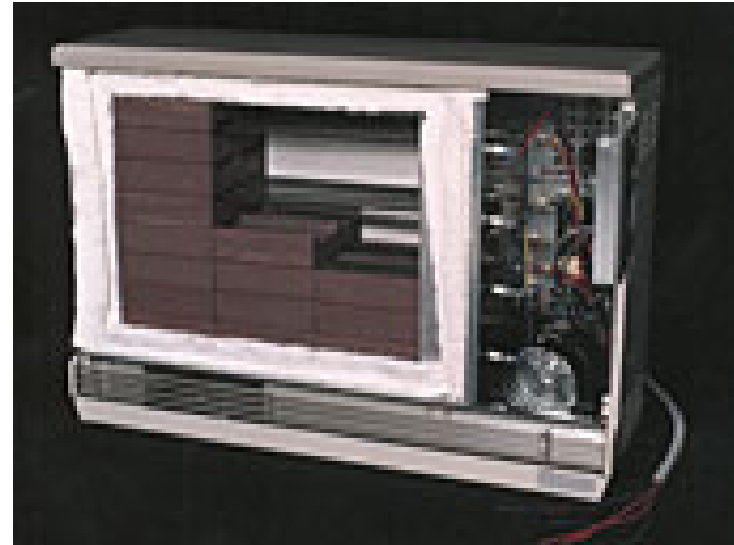


# THIRD IDEA HEAT WITH WIND !

Front View

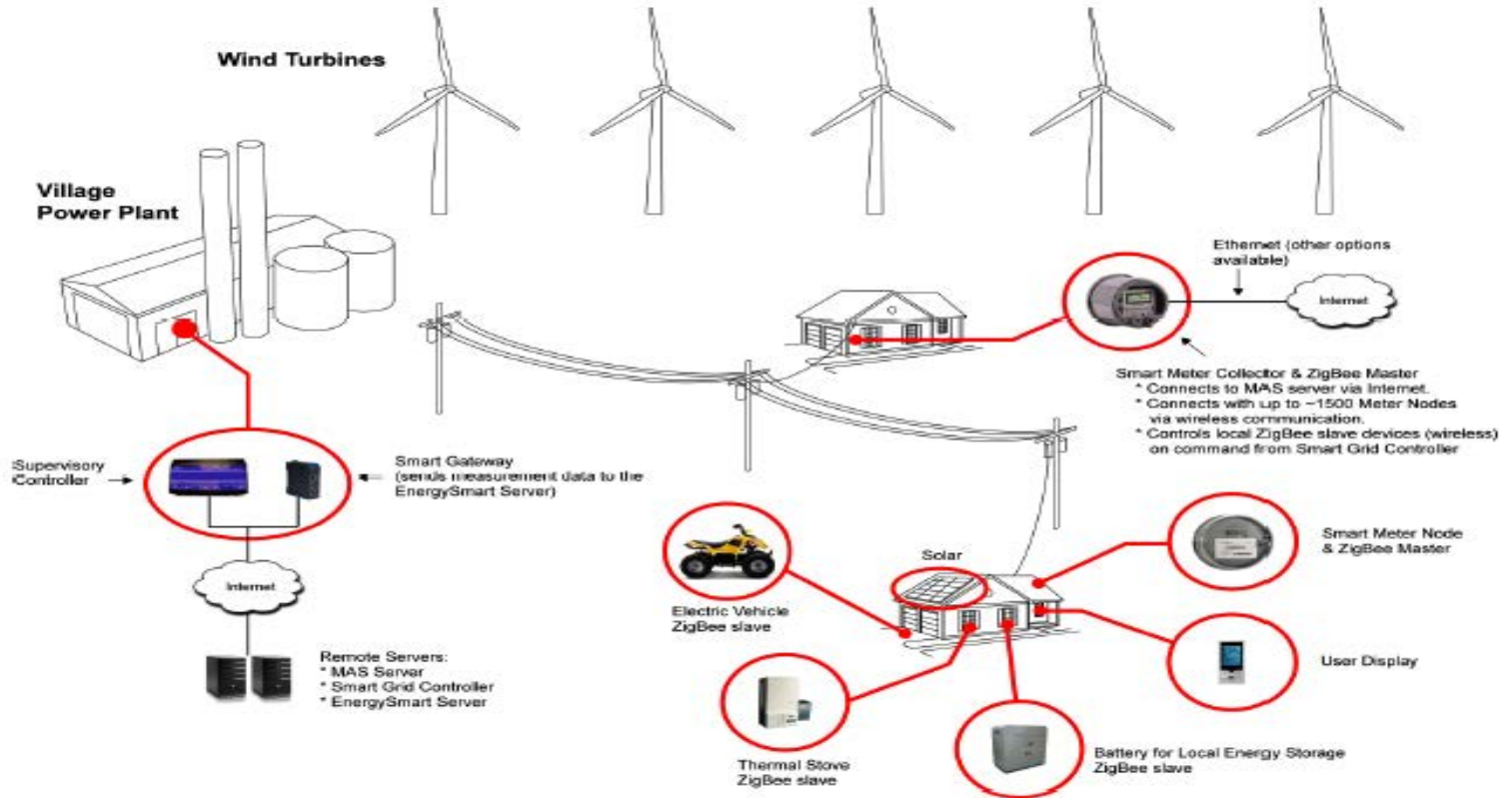


Interior View





# Where Tribal Energy Came in: The Answer: Village Wind Diesel Smart Grids



This meant we needed to figure out the wind turbines and Educate our power systems



Oh yeah!, And a way get to the jobsite





It meant we needed to figure out how to build wind turbines.



What it really means is that we needed to build local capacity







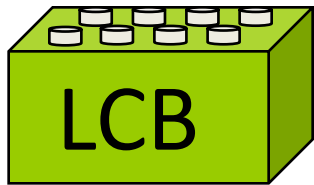
# What it means to Educate our power systems!



Smart Grid Controller



Wind Turbine Manager



Load balancing methods

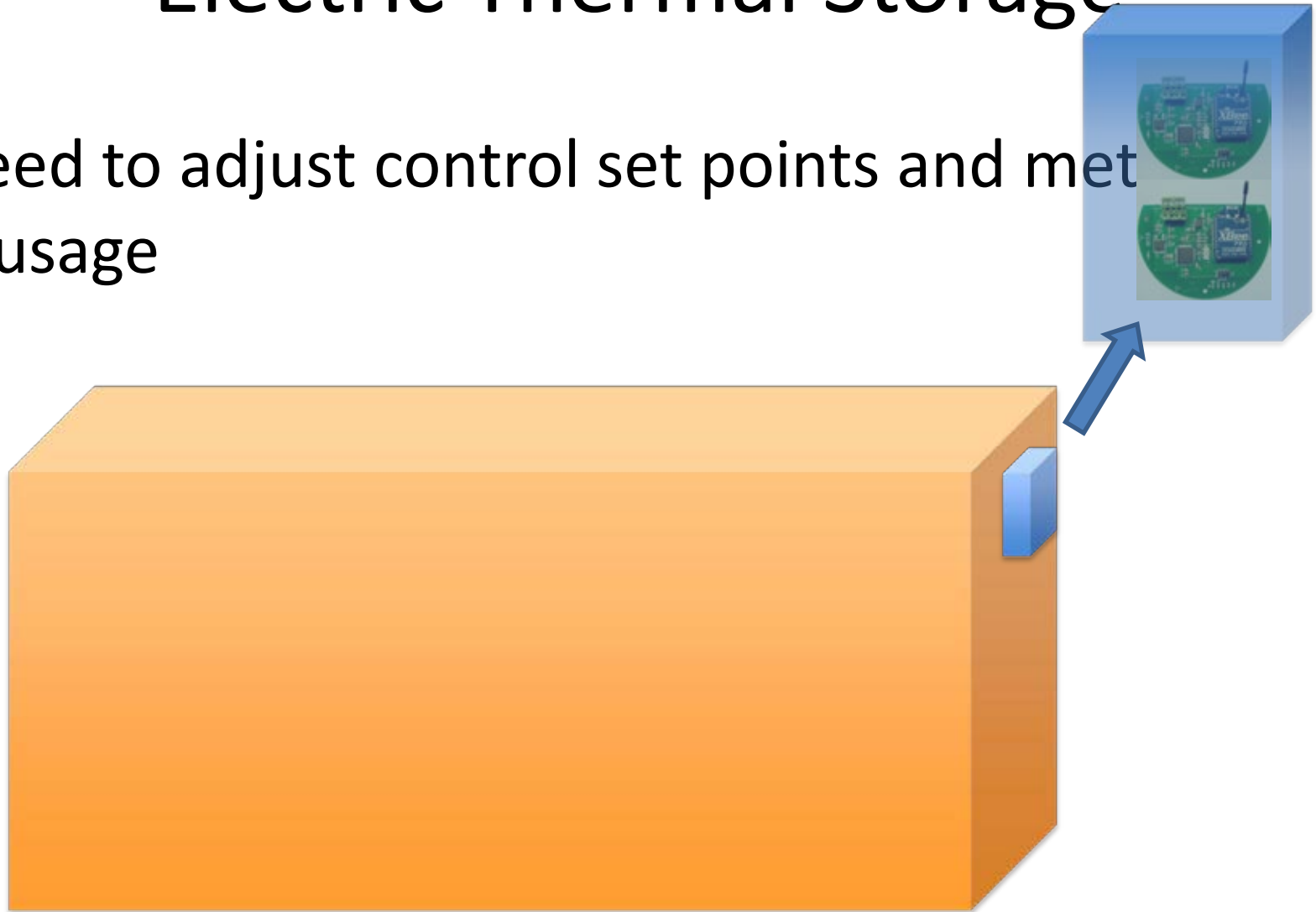


Thermal storage device control

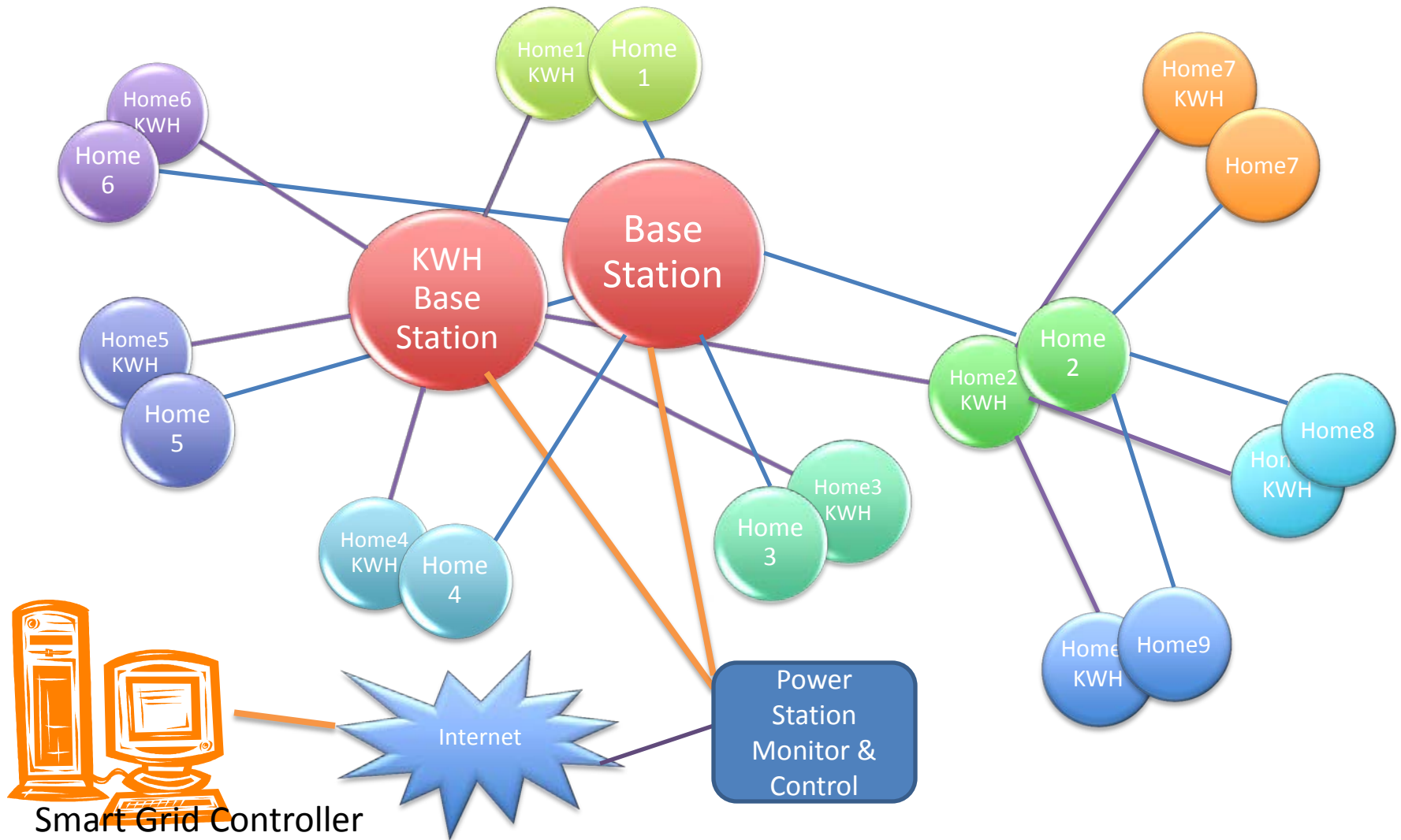


# Electric Thermal Storage

Need to adjust control set points and met usage

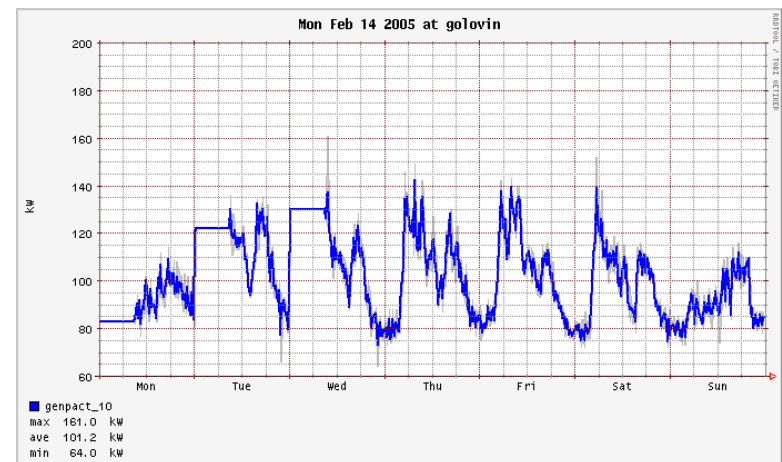


# Control and Communications Network



# Need Smart metering

- FINANCIAL MANAGEMENT (remote disconnect)
- CONSERVATION
- SELL WIND FOR LESS





# Where is Chaninik Now?

- ✧ Tuntutuliak, Kongiganak, just finishing up, commissioning 3 to 4 weeks.
- ✧ Kwigillingok, finish January/February.
- ✧ Kipnuk, new power house with wind 2014
  
- ✧ What's next?,,, well
  
- ✧ Building capacity and adapting technology...

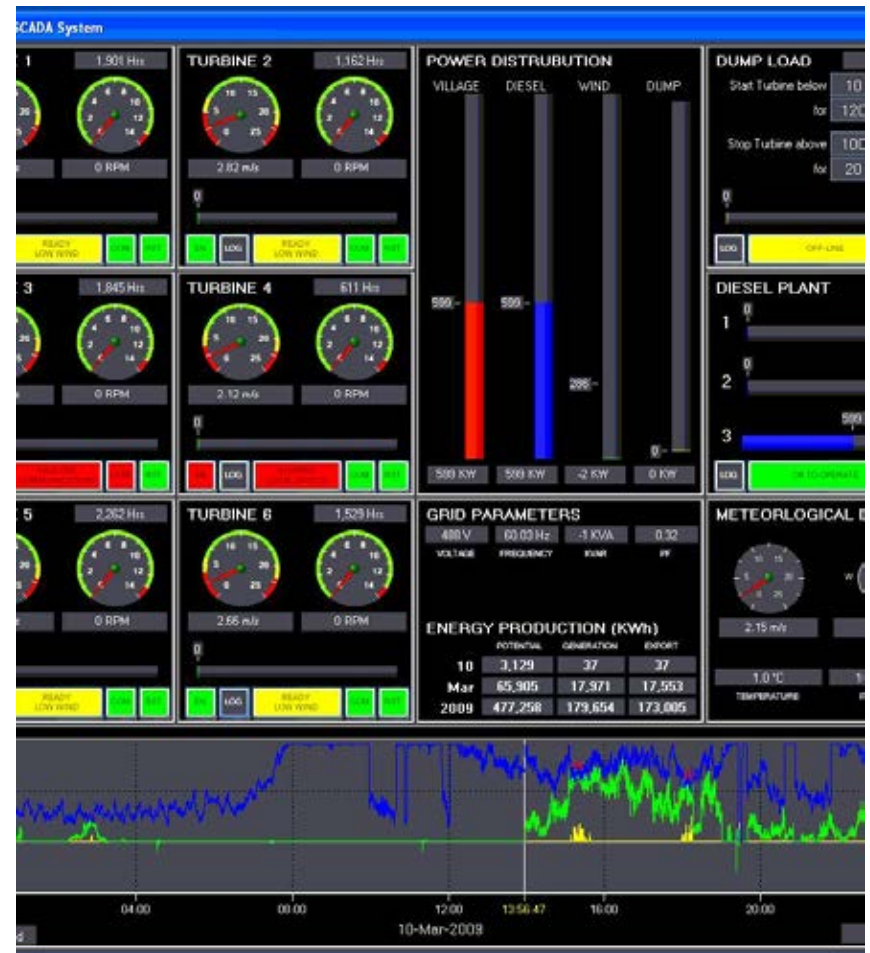
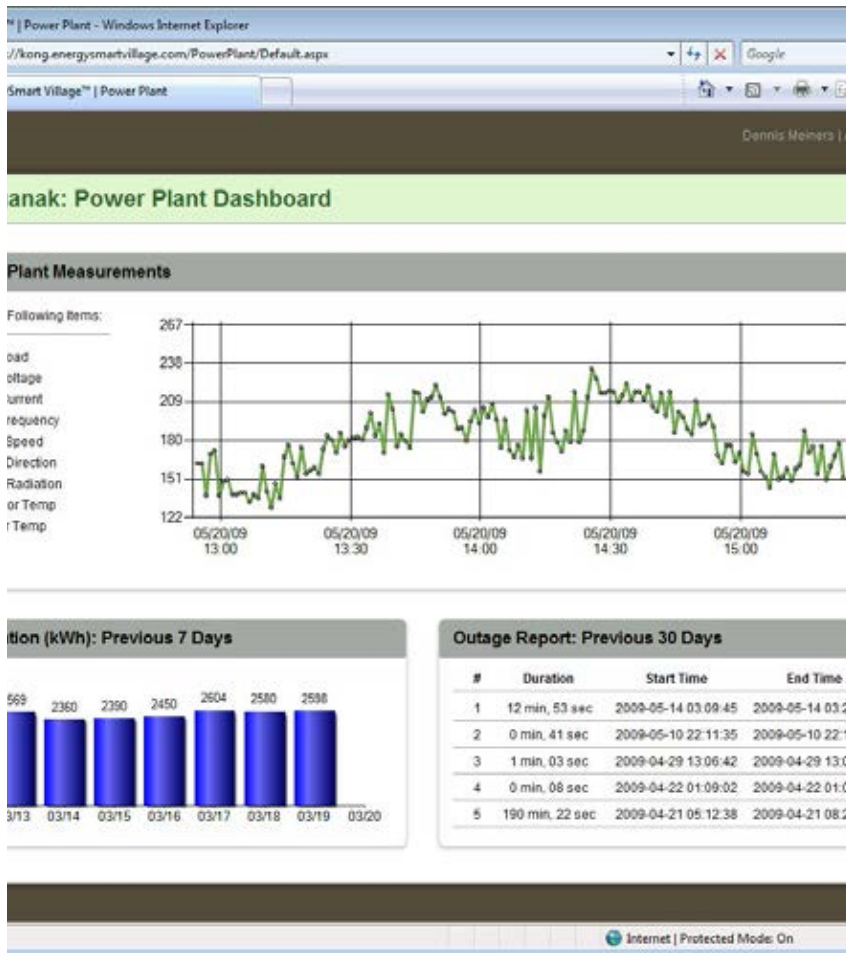
WHAT ARE WE WORKING ON NOW?

PEOPLE WORK:

Operations, Management and Organization, and creating jobs



# Mastering the Technology: Learning how to make the most of the wind

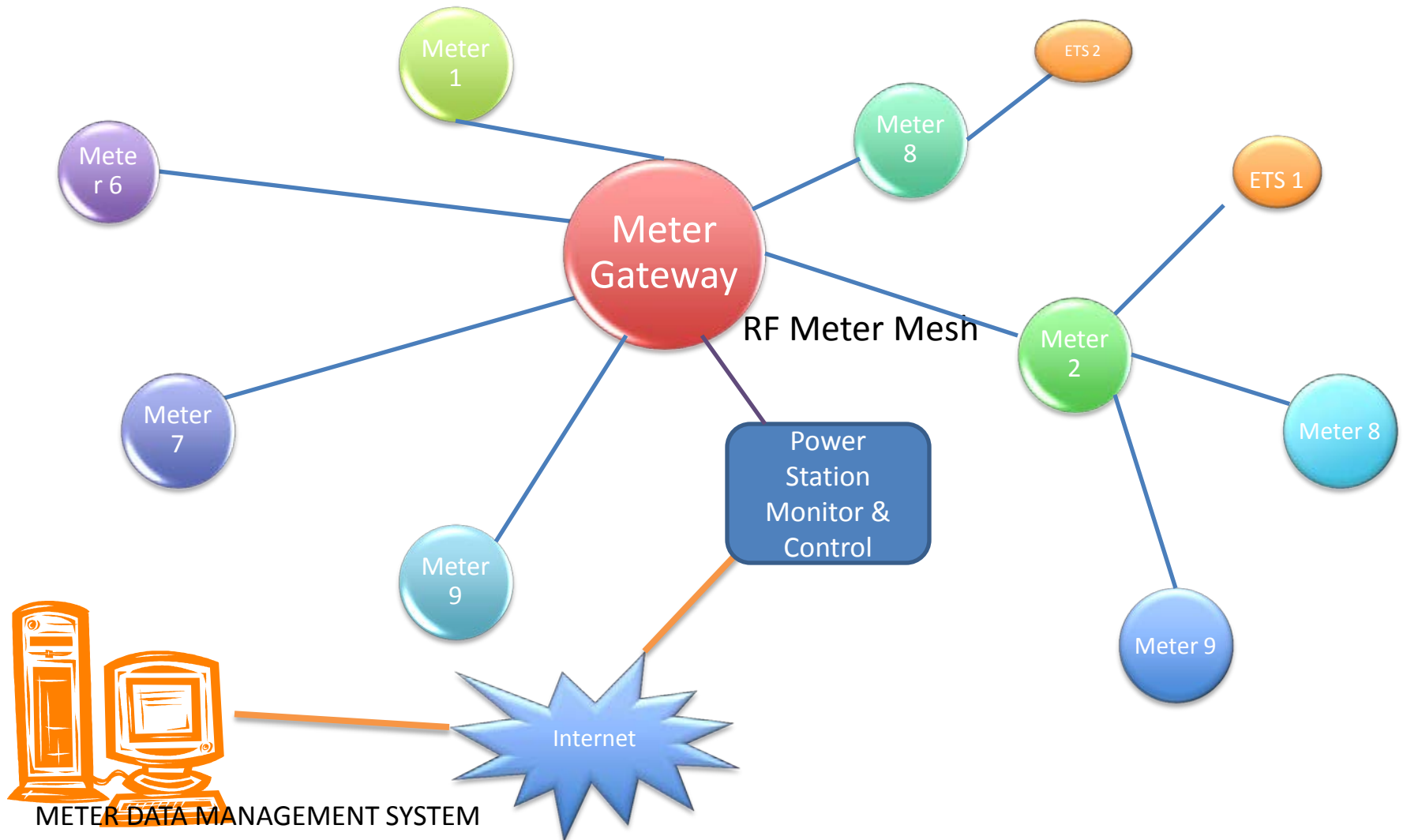




# Building a connected view of all the systems



# Improving and Simplifying Thermal Storage: self regulated control



# Working for Energy Storage

- Use vehicle batteries to use less fuel
- Widen operating range
- Turn Diesels off wind only operating mode





# Bigger Fuel Savings, For Bigger Benefits!

- Utility Fuel Savings = \$ 375,000
- 125,000 in residential at \$ 8.00 = \$ 1,000,000
- 18,000 gallons in public facility recovered heat = \$ 90,000
- Increased local employment = \$ 139,000
- Increased Revenues to Utility = \$ 439,000
- Home Owner reduced heating fuel costs = \$ 563,000
- 
- 
- Estimated Project Savings = \$ 2,628,500
- Less Increased operations = - \$ 148,000
- **Estimate Total Annual Benefits over = \$ 2,000,000/ per vilage**

# Partners



- Access to resources, equipment/experts
- Training and business development
- Technical support

# Chaninik Wind Group on our way to becoming “The Heartbeat of the Region”

Not the End,,, Just the beginning!



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