Energy Efficiency for the Nunamiut People of Anaktuvuk Pass, Alaska
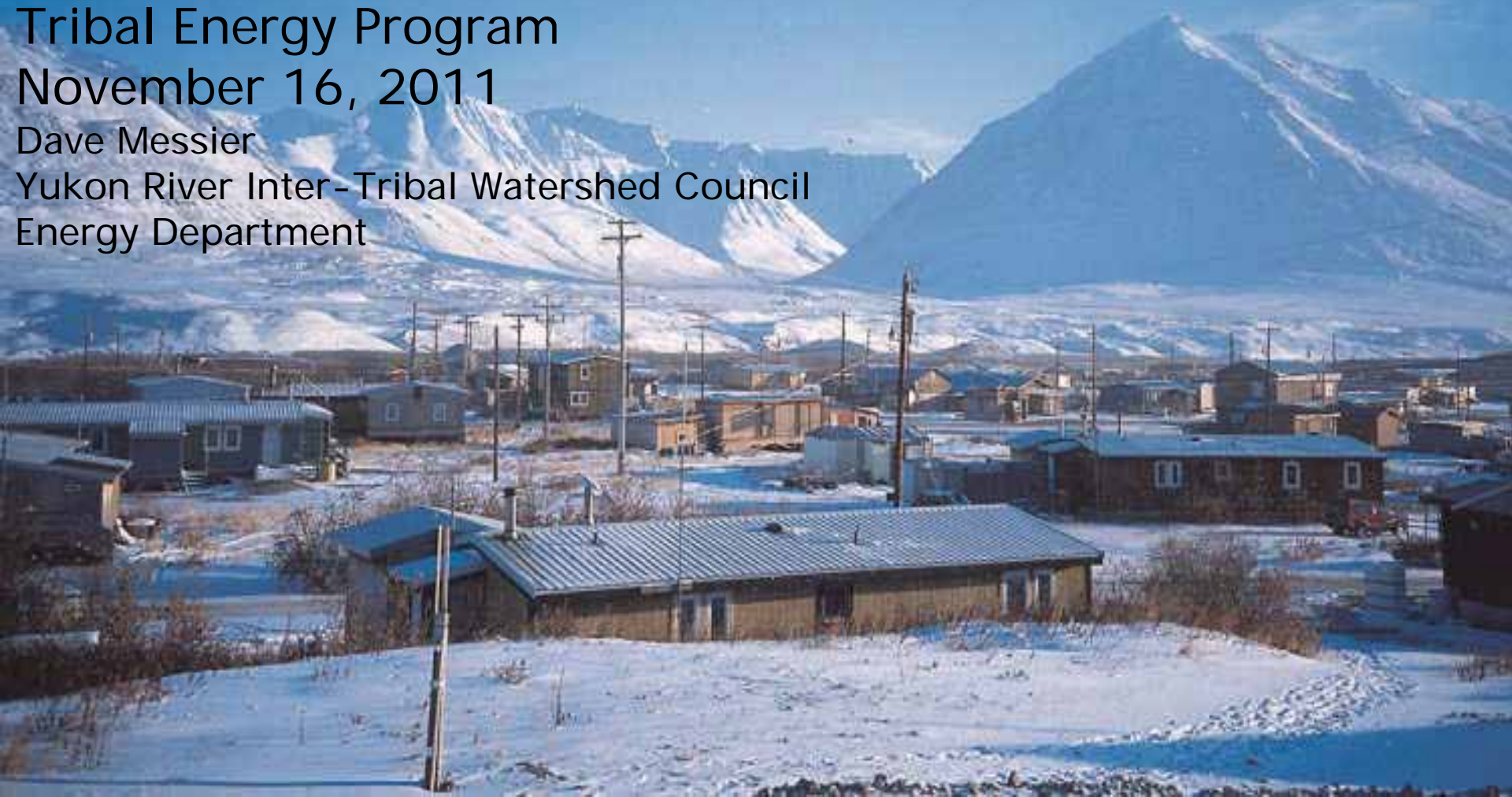
Tribal Energy Program
November 16, 2011
Dave Messier
Yukon River Inter-Tribal Watershed Council
Energy Department

The Yukon River Inter-Tribal Watershed Council

} Established in 1997

} Treaty Based

} 70 Tribes and First Nations

Yukon Watershed

NUNAMIUT CORPORATION

YRITWC Energy Department

} Directive – Clean Water Needs Clean Energy

} *Efficiency First*

} RE and Energy Efficiency Trainings and Capacity Building

Nunamiut Corporation
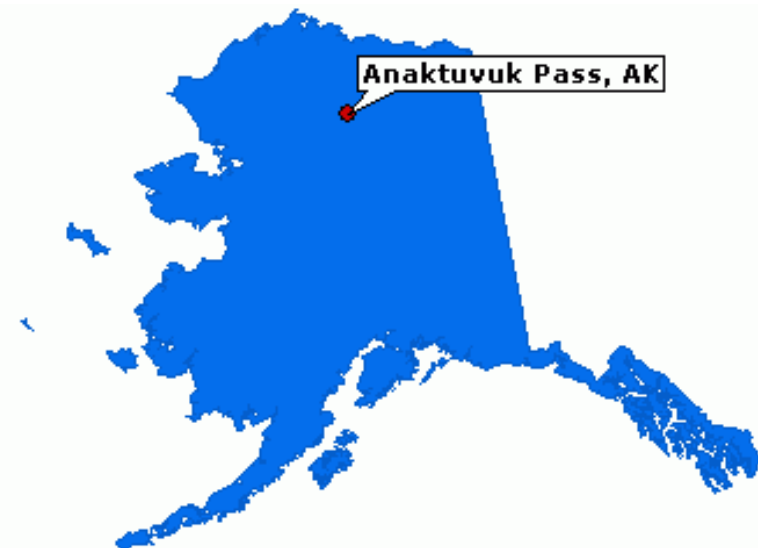
- Nunamiut People- Inland Eskimo of Alaska

- Anaktuvuk – *place of caribou droppings*

- Corp = The Local Wal-Mart
    Hardware Store, Bank, Grocery Store, Restaurant, Hotel, Gas Station, radio station

- Electric Rate:
  $.35/kWh, $9.25/gal oil

Anaktuvuk Pass, AK

Project Goals:

} Reduce Electrical/Heating Fuel Consumption

} Save Nunamiut $

} Involve the Community in Energy Efficiency-
quantify and report results from the project

If a Tree Falls in the Forest and Nobody is there to
hear it, does it make a Sound?

Buildings

} Village Store – 3,200 sq ft (plus 3,000sq ft store room) $60k

} Village Restaurant (4,200 sq ft) $45k

} Corporation Office/Hotel: $30k

} Managers House (732 sq ft) $4k

Insulate and Seal
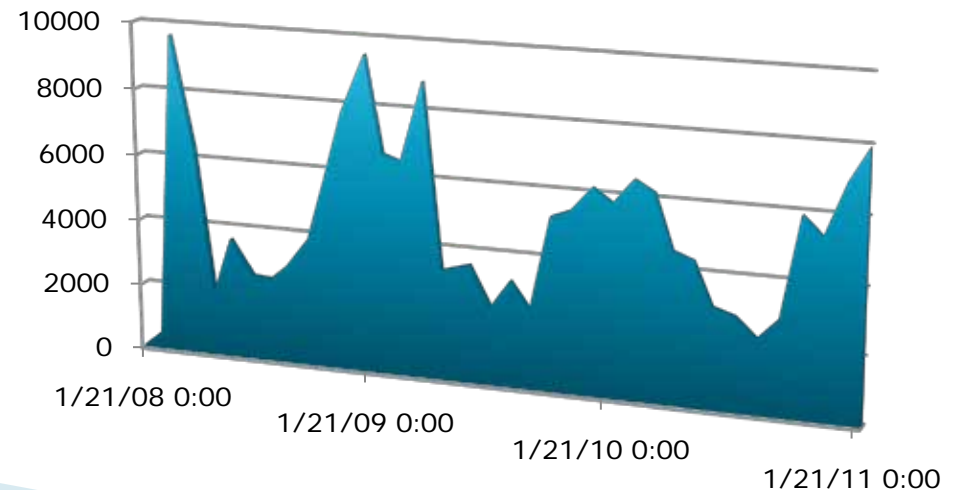
} What's a building code?

} Windows, Air Leaks

} INSULATE

Analyze the Load

} When BTUs from Electricity is at $.30/kWh the BTU parity for heating fuel is $10.60 (based on 90% AFUE)

} Somebody should do something about that…

kWh use per month Hotel/Office

Chart axis values: 0, 2000, 4000, 6000, 8000, 10000

Dates: 1/21/08 0:00, 1/21/09 0:00, 1/21/10 0:00, 1/21/11 0:00

The Village Store

} Yearly Utility Cost to operate 3,200 sq ft store: $60k

Can anybody guess what the majority of that$ is being spent on?

The Village Restaurant

} Yearly Utility Cost to operate 4,200 sq ft restaurant – $45K

◦ Insulation
◦ Heat Trace
◦ Windows/Doors

Corporation Office

} Yearly Utility Cost to operate Corp Office/Hotel building – $30K

◦ Insulation
◦ Sealant
◦ Minimizing Load
◦ Efficient Use of Space

Economics and Energy Education

Payback on Lights:

T-12 Electromagnetic:

# of Bulbs:	X	kW (consumed during use)	X	Hrs/Day	X	Days/yr	=	kWh/yr	X	kWh Rate	=	Cost/yr	/	# Units	=	Operating cost- per bulb for 1yr
132	X	.04	X	10	X	350	=	18,480	X	$.35/kWh	=	$6,468	/	132	=	$49.00

LED Bulbs:

# of bulbs:	X	kW (consumed during use)	X	Hrs/Day	X	Days/yr	=	kWh/yr	X	kWh Rate	=	Cost/yr	/	# Units	=	Operating cost- per bulb for 1yr
132	X	.015	X	10	X	350	=	6,930	X	$.35/kWh	=	$2,425.5	/	132	=	$18.375

Expected Bulb Lifespan= 50,000 hrs
@ 10hrs/day ; 14 years

Estimated SAVINGS by switching from t-12 to LED ; $4,043/yr

Savings per bulb $30.62/yr
Payback per bulb (labor not included) = 1.6 yrs

Estimated Savings per bulb over 14 yr lifetime = $428.68/bulb x 132bulbs = **$56,585.76**

Thank you

QUESTIONS?