

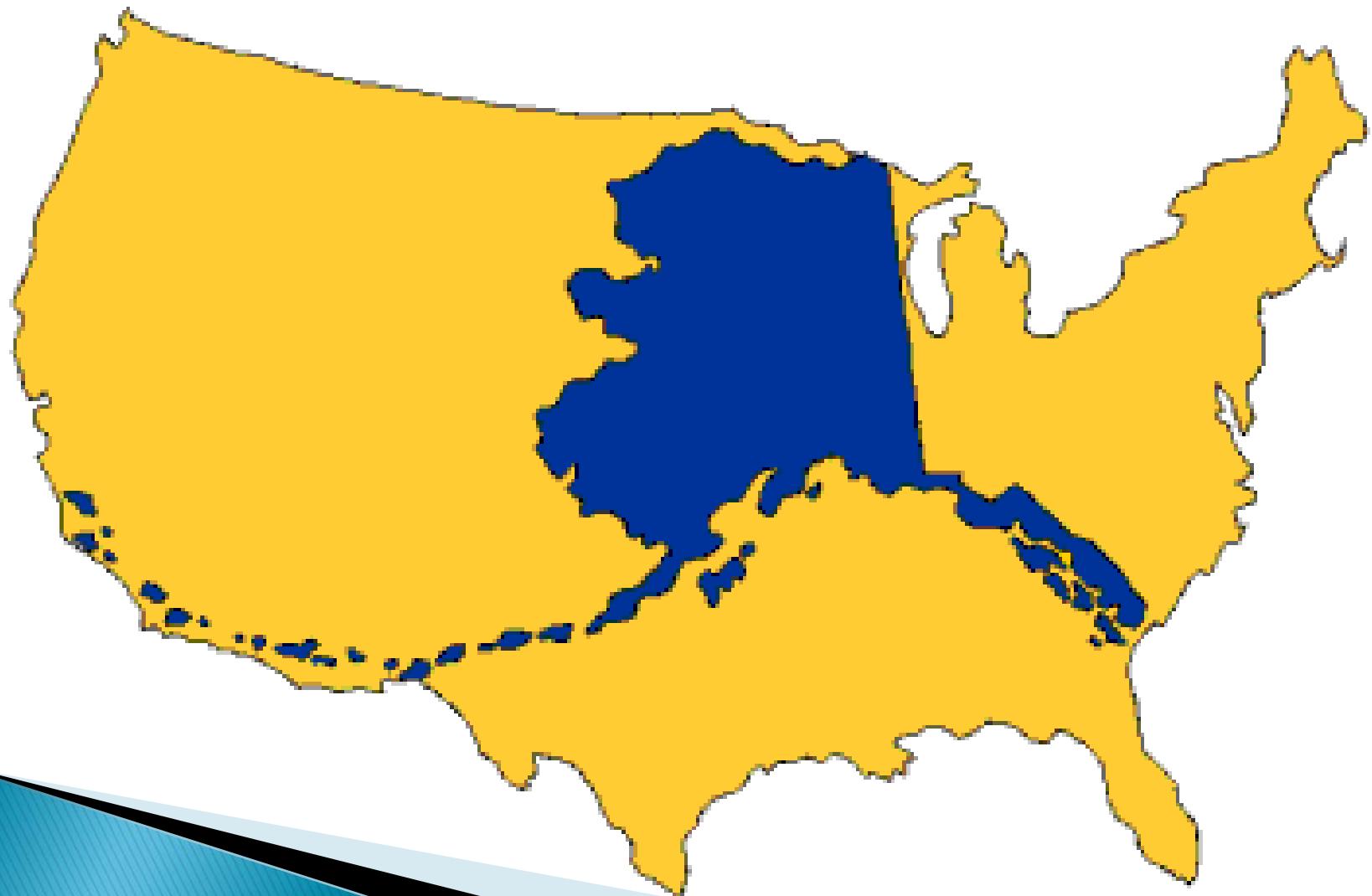
Bering Strait Energy Planning & Technical Assistance Providers Network



Kawerak, Inc.
November 2016



Alaska



Kawerak, Inc.



- ▶ Non-profit, tribal consortium serving 20 federally recognized tribes in Nome and outlying area, established in 1972
- ▶ Annual budget is \$30 million
- ▶ Geographic area is ~23,000 mi², about the size of West Virginia (16 communities not connected by roads to the Alaska highway system)
- ▶ Regional population is 10,040 (2010 Census), with 76% Alaska Native tribal members

Kawerak's Service Area



The People We Serve

Three distinct Alaska Native cultures in the area: St. Lawrence Island Yupik, Inupiaq, and Central Yup'ik



15 of the 20 tribal communities are accessible by airplane only, and only 4 have direct access to interconnecting local road systems in the summer

All goods and services must be transported into the region by aircraft (year-round) or by barge during the ice-free summer months

Project Partners

- ▶ Bering Straits Development Company (BSDC)
- ▶ Alaska Center for Energy & Power (ACEP)
- ▶ Cold Climate Housing Research Center (CCHRC)
- ▶ Alaska Native Tribal Health Consortium (ANTHC)
- ▶ ADEC Village Safe Water
- ▶ US Department of Energy
- ▶ Office of Indian Energy



Project Goals

- ▶ Coordinate energy solutions throughout the Kawerak service area
- ▶ Deliver technical assistance
- ▶ Build human capacity
- ▶ Serve as a clearinghouse for energy info
- ▶ Facilitate networking between tribes and regional and national energy organizations
- ▶ Enhance the DOE's technical assistance to Alaska Native tribes



Project Activities

- ▶ Hire an **Energy Development Specialist/ Coordinator**
- ▶ Establish a **regional energy planning network**
- ▶ Form an **Energy Leadership Team** to report to the Bering Strait Development Council (ARDOR)
- ▶ Host an annual **Regional Energy Summit**



- ▶ Form an **Energy Leadership Team** made up of 3 village representatives to report energy issues to Bering Strait Development Council biennially (spring and fall meetings)



- ▶ Provide remote assistance to tribes via newsletters, emails, and faxes, including new funding opportunities for energy projects
- ▶ Coordinate technical assistance to tribes with energy partners





- ▶ Provide remote and on-site individualized energy planning or technical assistance to tribes
- ▶ Enable tribes to access energy experts needed for project planning and development
- ▶ Tribes that have identified energy projects in Local Economic Development Plans will be our first priority

- ▶ 6 site visits per year to facilitate meetings in villages
- ▶ Work one-on-one with project planners



- ▶ Gather information needed for baseline energy planning or shovel-ready project development
- ▶ Bring village project planners to Nome for individualized technical assistance on energy project development



- ▶ Host regional energy summit in Nome
- ▶ Collect and distribute relevant energy information to tribes
- ▶ Provide training needed for future energy projects to tribes
- ▶ Provide input and updates to our regional energy plan
- ▶ Generate ideas for improving local energy plans



- ▶ Provide individualized technical support for local energy planning and project development
- ▶ Promote networking with other communities working on similar projects or addressing similar energy-related challenges/problems
- ▶ Provide travel scholarships to 25 community members to attend annual energy summit in Nome

Koyuk, Alaska
– population
350



Kawerak's Regional Project Goals:

Leverage this funding and the expertise of the technical assistance partners for Tribes and communities to develop well-planned, implementable, impactful, and fundable energy projects for their villages

Capture regional funds available through NSEDC for shovel-ready energy projects valued up to \$1 million, to improve village energy infrastructure and/or energy delivery

Bering Strait Regional Energy Plan

- ▶ Dynamic, living document that is reviewed and updated as projects are completed, technology evolves, and knowledge of energy industry issues is acquired
- ▶ Developed by Kawerak and BSDC, building on the 2009 Bering Strait Energy Report
- ▶ Foundation of the Bering Strait Region's Energy Strategy
- ▶ Funded by the Alaska Energy Authority
- ▶ Completed in Fall 2015

Outreach in White Mountain



Kids and Energy in White Mountain



The Energy Avengers



Lessons Learned

- ▶ Collaboration is key
- ▶ Energy issues are a growing challenge for villages, in terms of cost, impact, and technological changes
- ▶ Tribes need more advanced technical assistance to address energy issues effectively
- ▶ Vendors and equipment need to be vetted for regional suitability (we're not a testing ground)
- ▶ Tribes rely on Kawerak to coordinate efforts in such complex and technical domains

Savoonga
on St.
Lawrence
Island



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EE and RE Stories in the Region

Bering Strait Regional Energy Plan Phase III
Rob Bensin

Aurora Inn Lighting Project

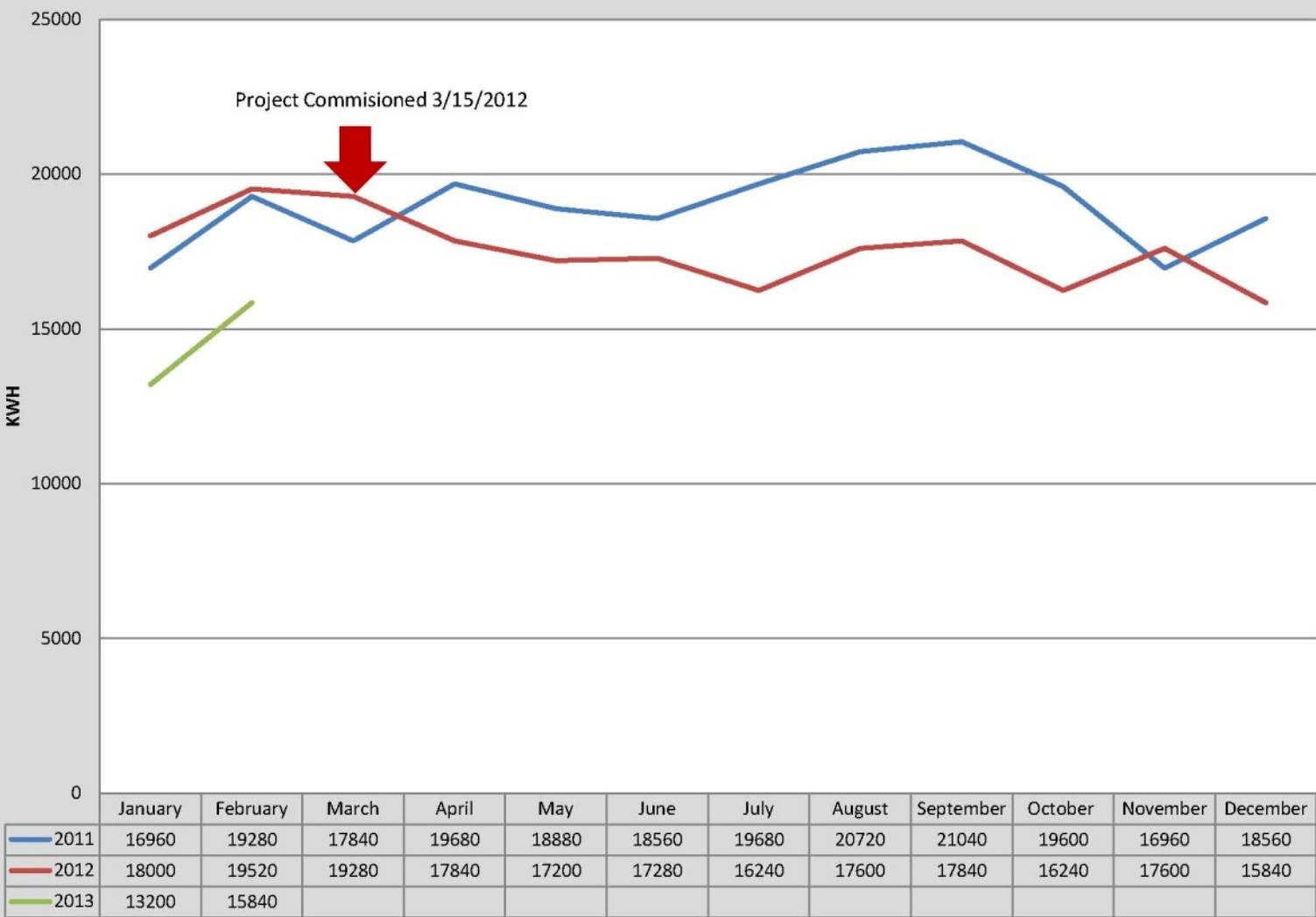
- ▶ One for one replacement from 97 watt FLO to 45 watt LED
- ▶ \$1,500.00 monthly savings
- ▶ \$18,000.00 Annual savings
- ▶ 2 year Return on Investment (ROI)

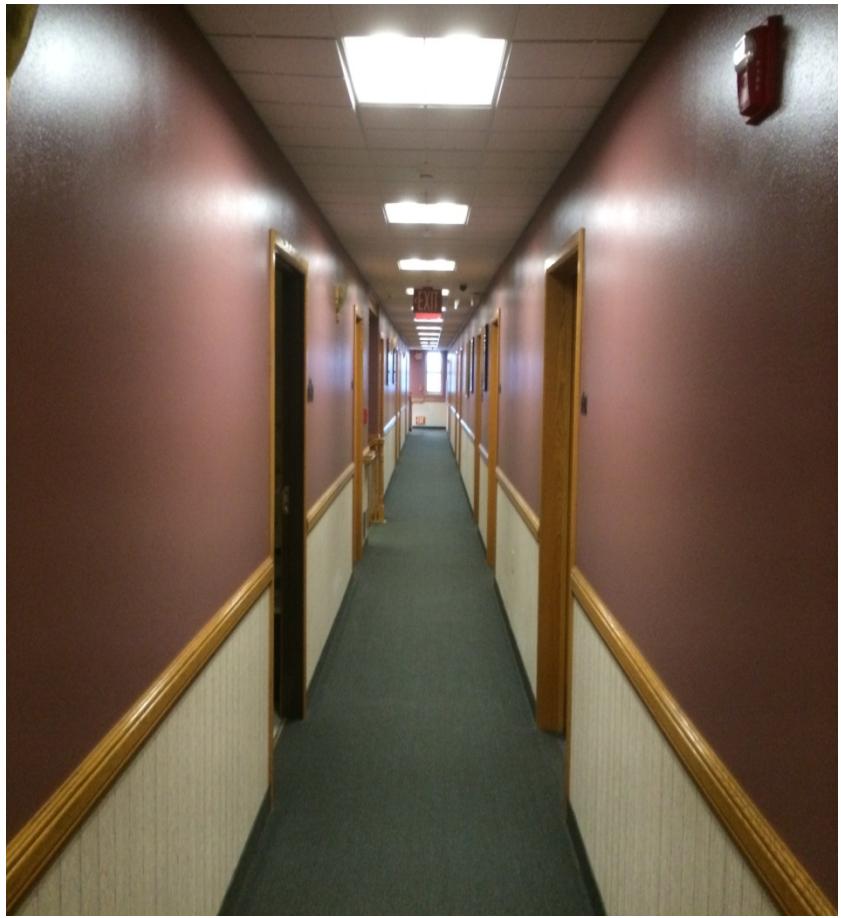
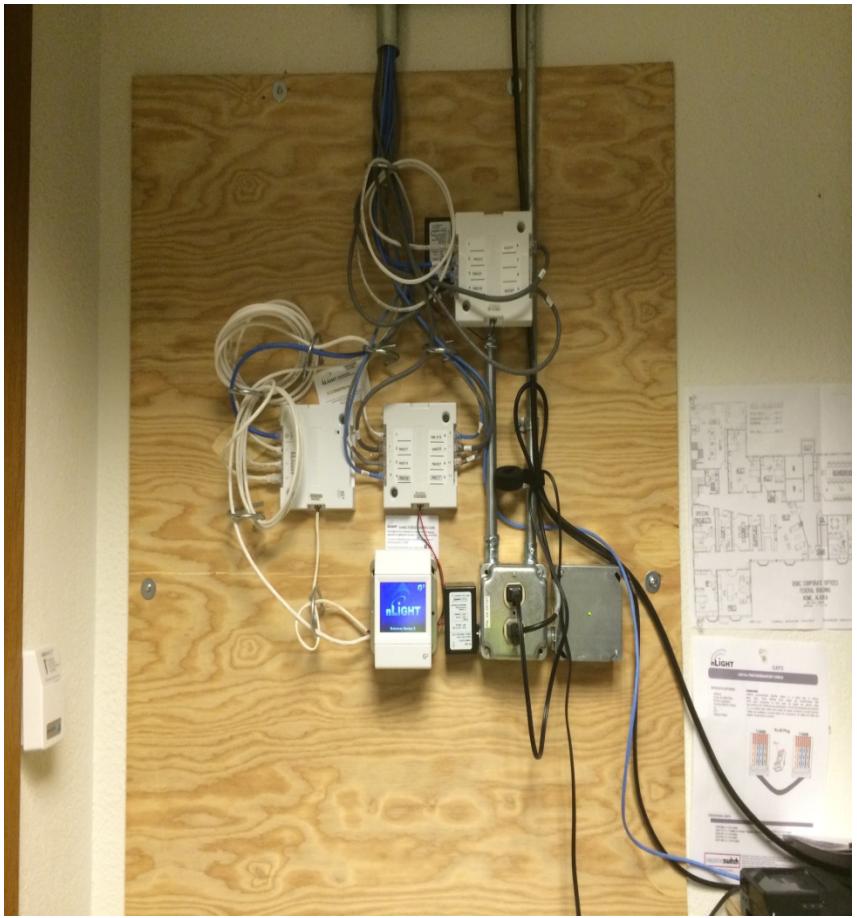
We Didn't Stop There!

- ▶ Installed Occupancy Sensors
- ▶ Daylight Harvesting
- ▶ Web Based Software for Scheduling

Currently Additional Savings Unknown

Aurora Inn LED Retrofit Usage Chart





BSNC Lighting Project

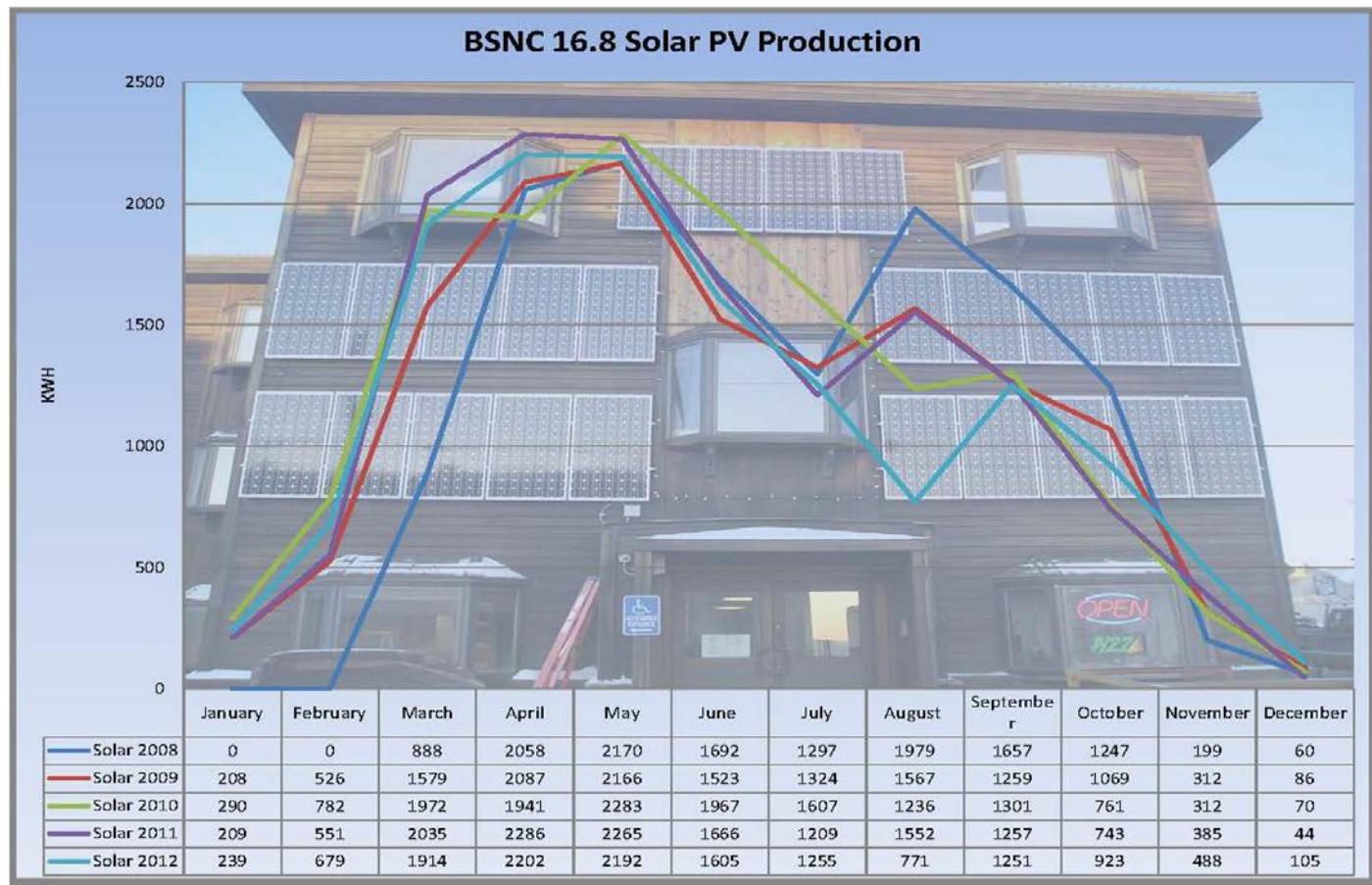
- ▶ Direct replacement one for one in 2008
- ▶ 145 watt T-12 Fluorescent Fixtures
- ▶ Replaced with 54 watt T-5 FLO
- ▶ Ballast is 50% Stepping
- ▶ Never used at 100%
- ▶ \$8,500.00 - \$9,000.00 Annual Savings
- ▶ Five year ROI

Aurora INN Water Conservation



- ▶ Old Showerheads Used 2.5/4 GPM
- ▶ New Showerheads Use 1.5 GPM
- ▶ Total Savings of Water Used – BTU's Used to Temper Water – Down the Drain Charges
\$5,000.00 Average Annually
.27944 Years ROI
Very Environmentally Friendly

BSNC Solar Photovoltaics



- ▶ Commissioned in 2008
- ▶ 96 Monocrystalline Modules
- ▶ Offsets about 15% of Energy
- ▶ 15 Year ROI



Executive Suites Solar DHW Collectors



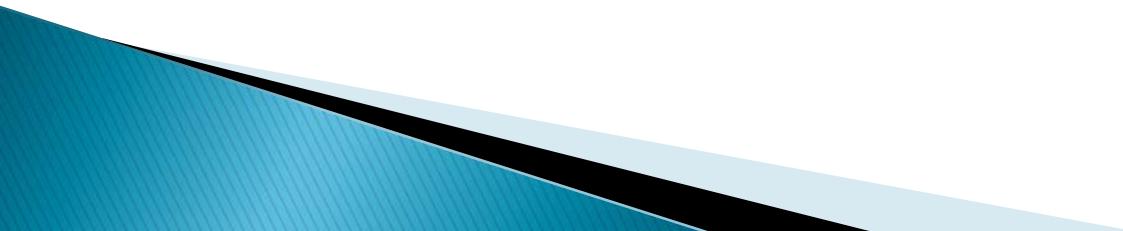
- ▶ 150 Evacuated Tubes
- ▶ Commissioned 2010
- ▶ Used for DHW Tempering Only
- ▶ Reach 238 gallons of 140°F on many days
- ▶ Could do complicated heating or just add more storage
- ▶ Seven Year ROI

BSRHA Brevig Mission Housing Project



- ▶ Five Homes Constructed Using Intergrated Truss System Designed by Cold Climate Housing Research Center
- ▶ Floor, Wall and Ceilings are Pre Manufactured
- ▶ Assembled like Dominos
- ▶ Wrapped in Vapor Paper and Spray Foamed from the Inside
- ▶ Meets the New Six Star Rating
- ▶ Uses Integrated Heating and Ventilation System
- ▶ Estimated \$1,500.00 - \$2,000.00 Annual Fuel Cost





Banner Wind Farm



Pilgrim Hot Springs



NSEDC Community Energy Fund

- ▶ Grant Funding To Replace Meter Base's with Stainless Steel
- ▶ Started Three Years Ago
- ▶ Gambell, Savoonga, Wales and Elim
- ▶ Wales and Elim added TED Meters to Their Grant Request

Gambell Meter Base Replacement



Wales Meter Base replacement



The energy detective



Allowable cogeneration allowed

▶ <u>Brevig Mission</u>	11.8kW
▶ <u>Elim</u>	11.8kW
▶ <u>Gambell</u>	13.6kW
▶ <u>Koyuk</u>	11.8kW
▶ <u>St.Michael</u>	11.5kW
▶ <u>Savoonga</u>	18.2kW
▶ <u>Shaktoolik</u>	10.4kW
▶ <u>Shishmaref</u>	17.5kW
▶ <u>Stebbins</u>	12.5kW
▶ <u>Teller</u>	4.4kW
▶ <u>Wales</u>	8.4kW

Projects outside the region



Ambler



Deering



Kobuk



Shungnak



Noorvik



Noatak



Kotzebue



Buckland



Selawik



Kiana



Bethel



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