Coeur d'Alene Tribe
Energy Efficiency Feasibility Study
Department of Energy (DOE)
Tribal Energy Program Review
November 14, 2012

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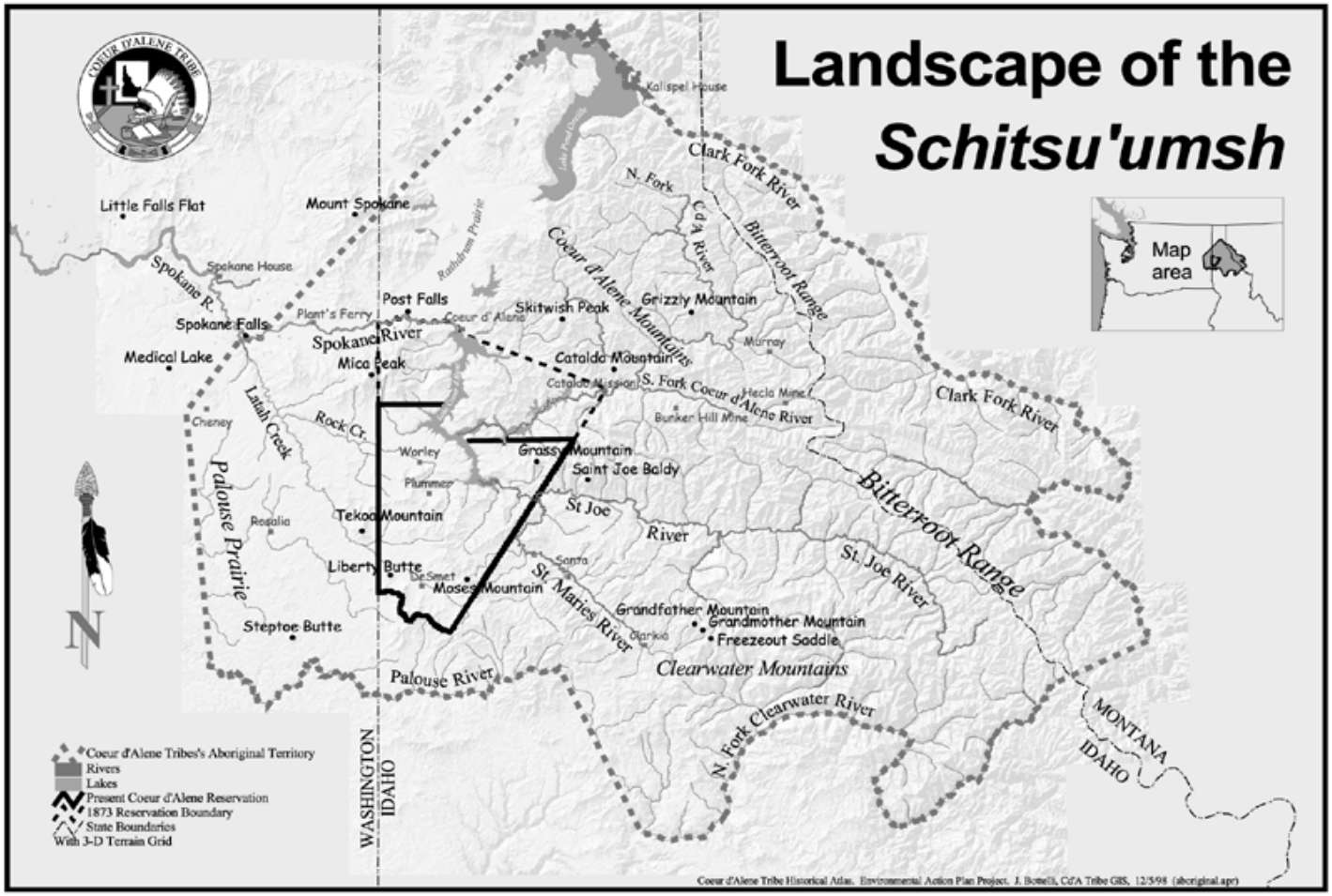
Presentation Outline

- Overview of the Coeur d'Alene Tribe
- Summary of Prior Work with Energy Efficiency & Conservation Block Grant
- Summary of the Current Project Objectives
- Progress-to-Date
- Activities to Come
- Lessons Learned
- Next Steps

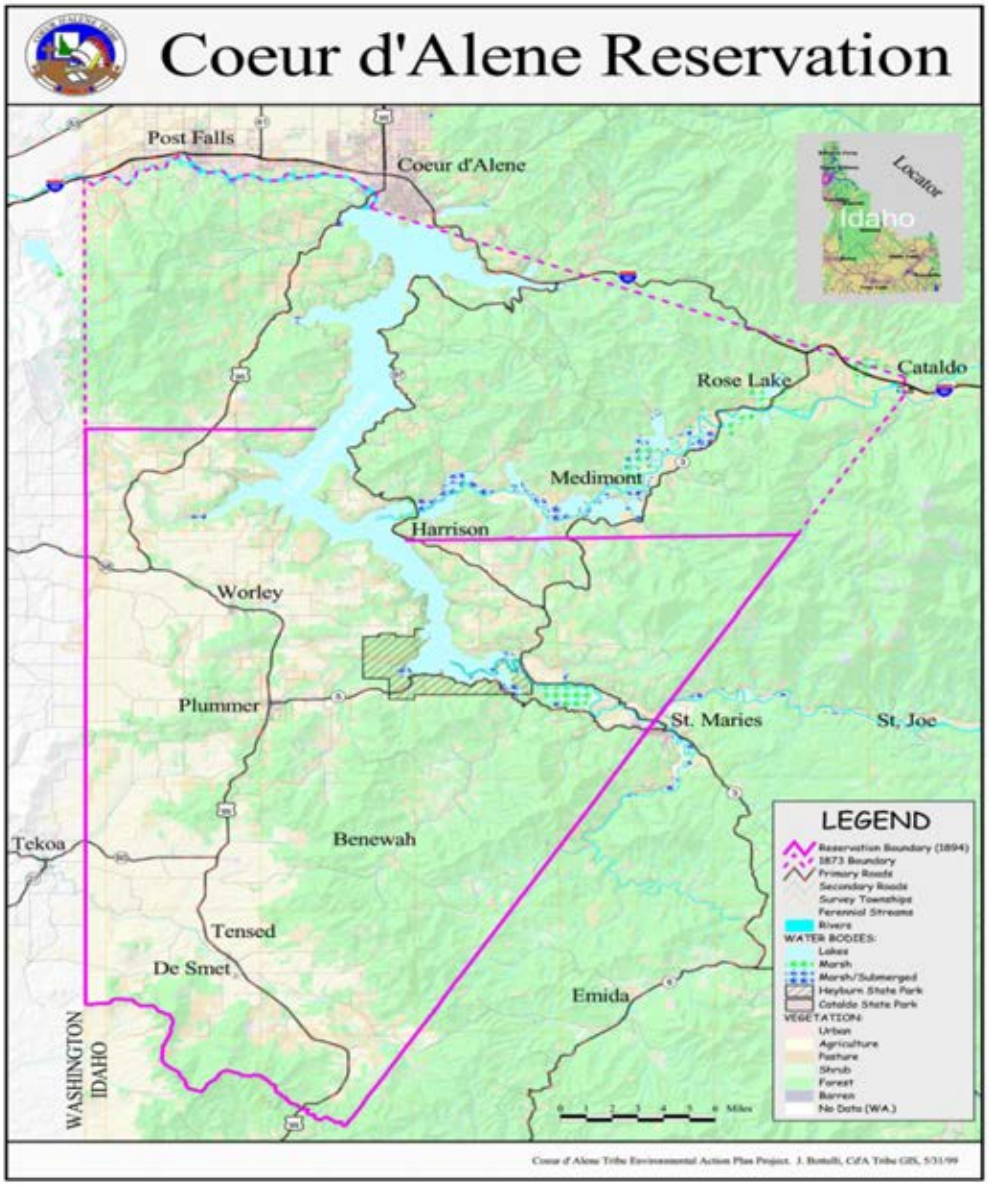
Overview of the Coeur d'Alene Tribe

- The Coeur d'Alene Reservation is approximately 334,000 acres, not including Tribal submerged lands.
- Aboriginal territory = more than 5 million acres.
- 6,451 residents according to the 2000 Census.
- Tribal enrollment is ~2,299 and growing.
- Tribe relies on forestry, agriculture, gaming, etc. in the current economy.
- Tribe continues traditional subsistence activities such as fishing, hunting and gathering foods and medicine.

Coeur d'Alene Tribal Map of Aboriginal Territory and Present Reservation Boundary



Coeur d'Alene Tribe
Present Reservation Boundary



History of the Tribal Natural Resource Department

- In 1992, the Tribal Natural Resource Department was established as a stand-alone Department
- Currently, there are 7 programs in the NR Department: Air Quality, Environmental Programs Office, Fisheries, Forestry/Fire, Land Services, Pesticides Circuit Rider and Wildlife
- The Environmental Programs Office in the NR Department is administering the energy efficiency work

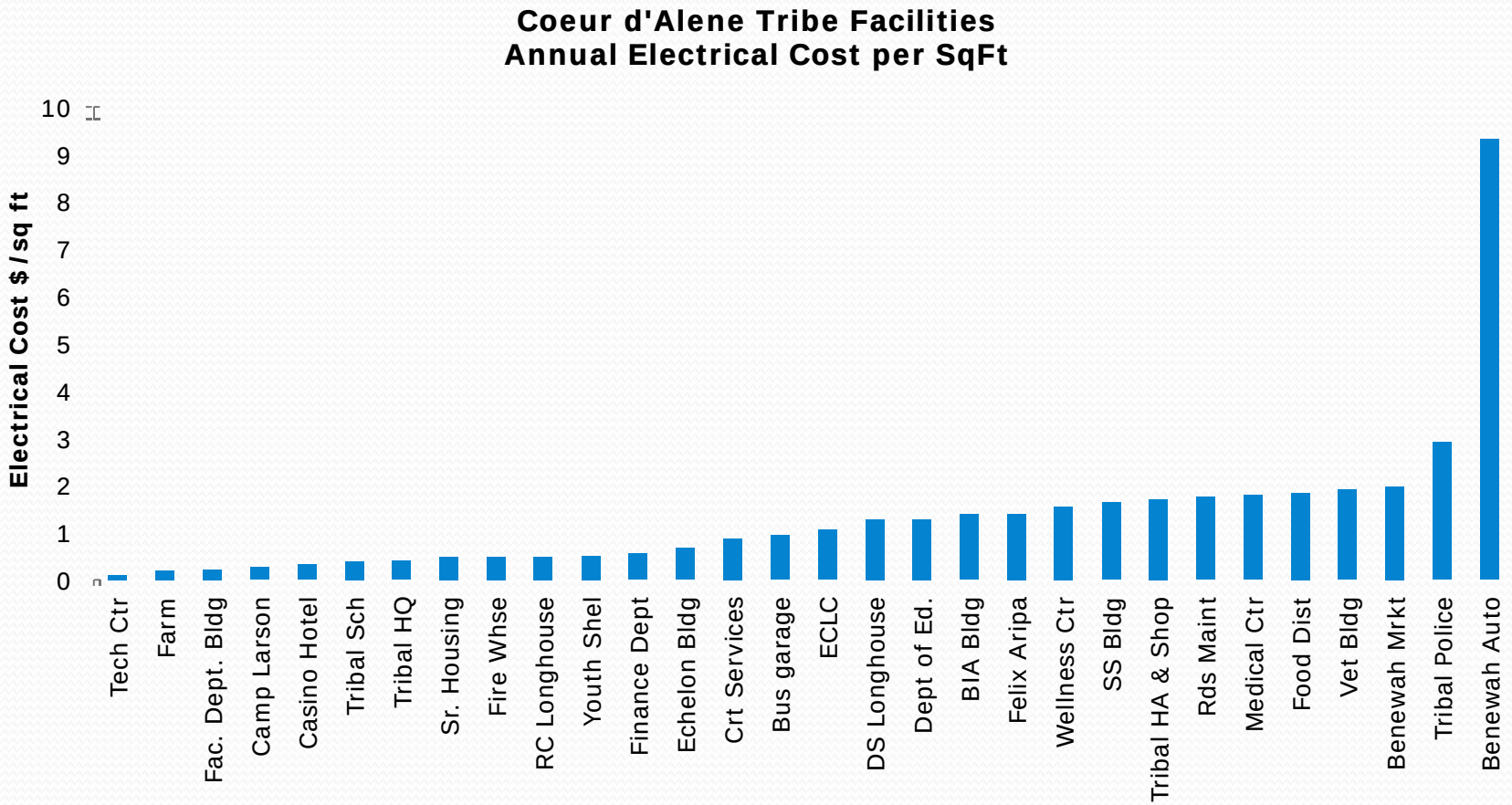
Prior Work: Energy Efficiency & Conservation Block Grant Funding

- June 2012 – The Tribe completed an Energy Efficiency Assessment Report working with McKinstry, Inc. for Coeur d'Alene Tribal government buildings. Energy conservation measures identified in 34 buildings evaluated included:
  - HVAC – Economizers, Programmable Thermostats, Heat Recovery, Heat Pump
  - Lighting Retrofits – Fluorescent, LED
  - Envelope Sealing and Insulation

Prior Work: Energy Efficiency & Conservation Block Grant Funding

- June 2012 – The Tribe also completed a revised Energy Efficiency & Conservation Strategy (EE&CS)
- The Tribe had completed a *preliminary* EE&CS by the grant deadline of 180 days after the award but then revised it for the final deliverable
- McKinstry's energy audits were generally at ASHRAE Level 1
  - (ASHRAE: American Society of Heating, Refrigerating and Air-Conditioning Engineers)

Prior Work: Annual Electrical Cost Per Square Foot



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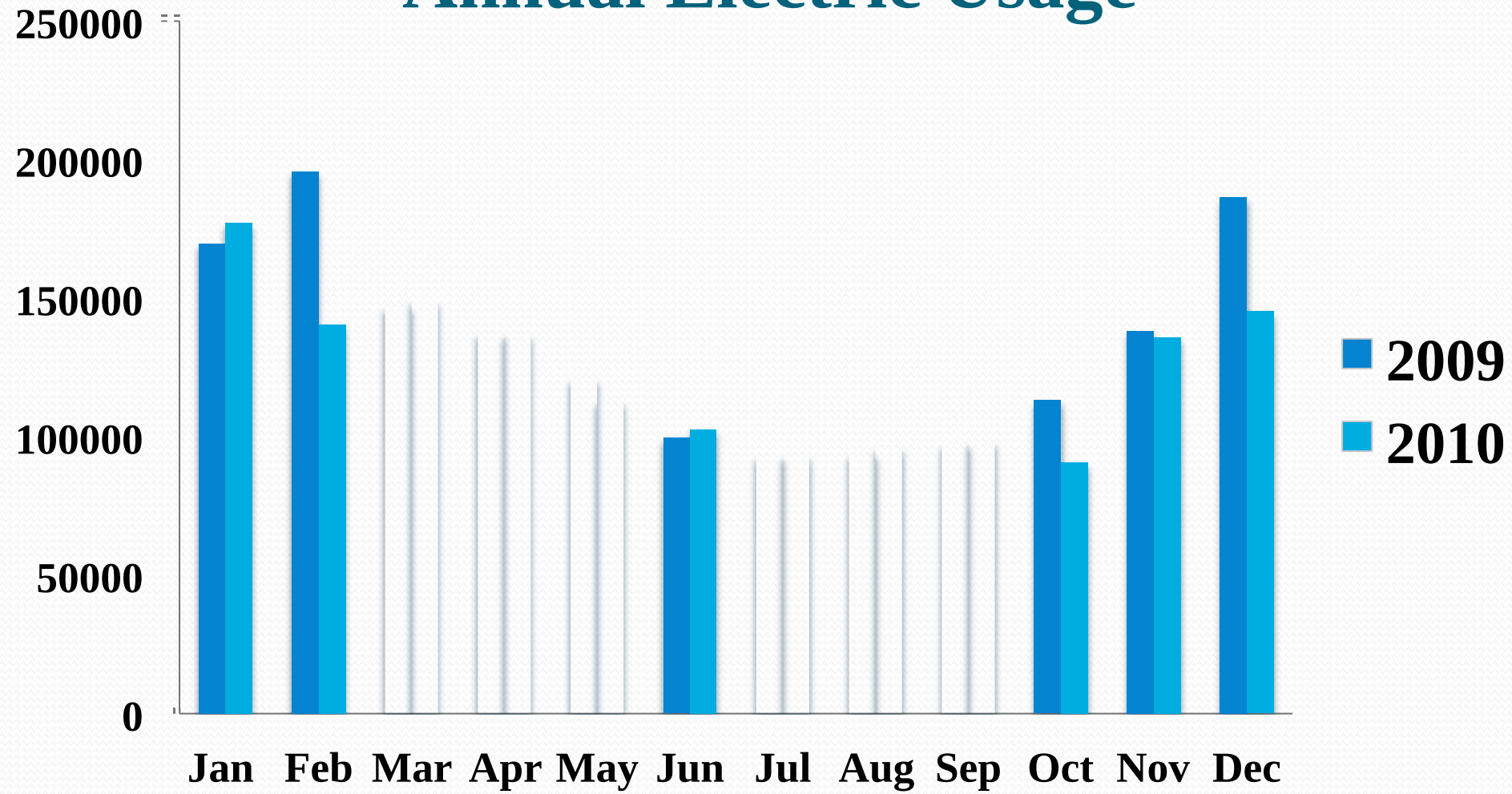
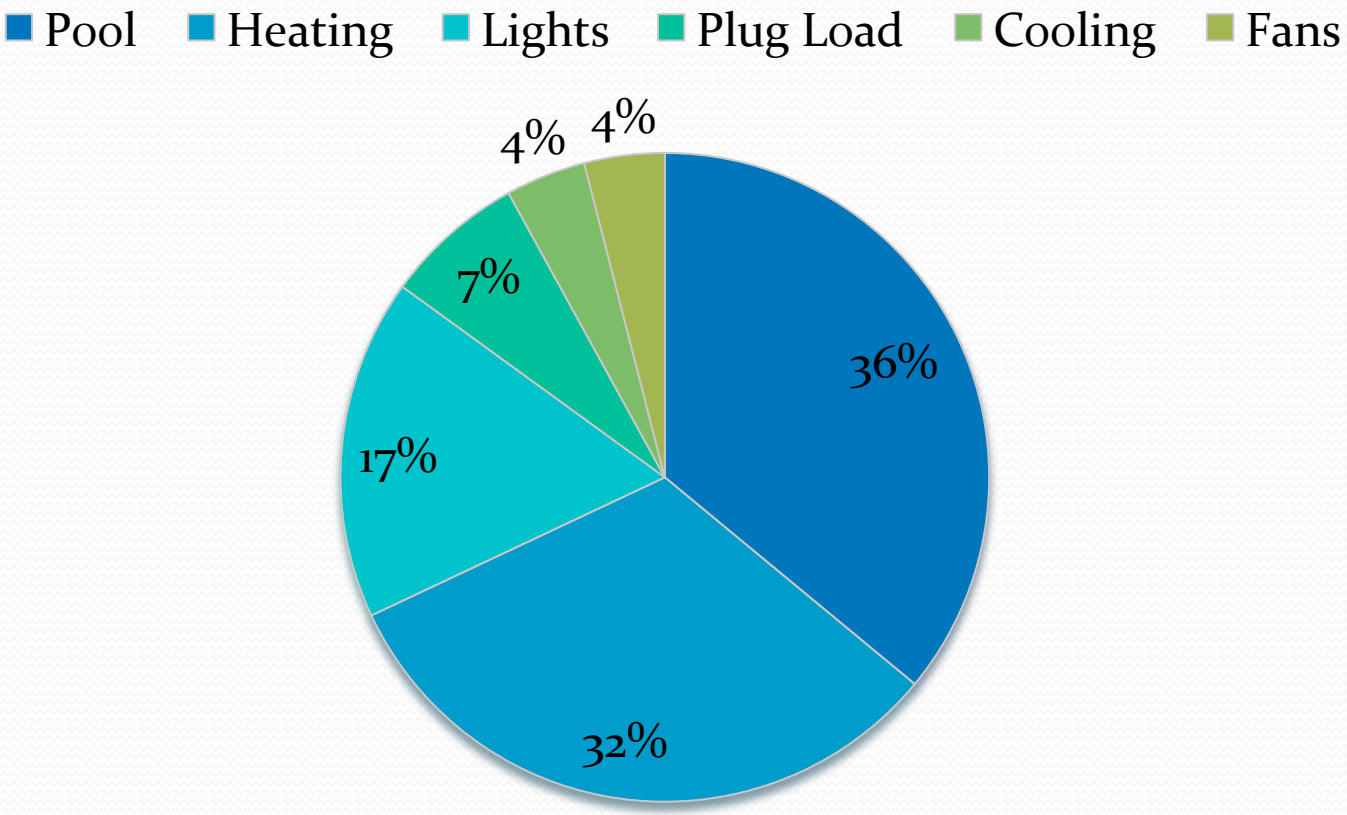
Prior Work: Tribal Wellness Center

- The Tribal Wellness Center (TWC) is a 42,200 square foot single story building which includes a swimming pool, basketball and racquet ball courts, yoga exercise area, weight lifting and cardio fitness equipment.
- The facility is used 7 days per week from 5:30am – 8:30pm, but runs in occupied mode 24x7.
- The TWC uses approximately 1,500,000 kWh annually in electricity at a cost of approximately $65,000.

Prior Work: Tribal Wellness Center Annual Electric Usage



Prior Work: Tribal Wellness Center Energy Use Break Down



McKinstry's comments on the Wind and Biomass Feasibility Study (McNeil Technologies Inc. 2008)

- McKinstry reviewed existing Tribal information.
- According to McKinstry's Assessment:
  - Biomass has potential but needs more feasibility analysis.
  - Ground source heat pumps are good options in general.
  - Wind Energy – Maybe. More study needed.
  - Solar Energy – Probably not in the present unless start up costs lessen.
  - Waste Energy – Possibly. More study needed.

Current Project Work

- Procured an energy consultant firm to perform in depth energy assessments: ourevolution energy & engineering
- Conducted Energy Efficiency Work Group meeting with Tribal Members and Utility Partners (October 29, 2012)
  - Current Issues and Planning with Target Structures
  - Energy Efficiency Project Criteria Development
  - Goals and Objectives
  - Utility Incentives
- Completed Energy Assessment Field Work
  - 36 Tribal Buildings Evaluated (October 29 – November 9, 2012)
  - Level 3 ASHRAE energy audits (investment grade)

Current Project Objectives

- Supplement Existing Information with In Depth Field Assessments and Analyses
  - Health and Safety

Mold on exterior walls

Backdrafting Propane Water Heater

Current Project Objectives

- HVAC
  - Equipment Inventories
  - Ventilation
  - Operation and Maintenance
  - Distribution

Inspection and Inventory HVAC Systems

State of the art boiler system

Current Project Objectives

- Loads Analyses
  - Lighting
  - HVAC
  - Process/Plug Load

Refrigeration Assessment

T-12 fluorescent lighting is low hanging fruit

Thermos limits the need for a burner system

Current Project Objectives

- Envelope Evaluation
  - Insulation
  - Roofing
  - Air Leakage

Well sealed metal roofing

Damaged ceiling and duct insulation

Inadequate venting of crawlspaces

Current Project Objectives: Activities To Come

- Utility Billing Analyses (Plummer Power, Kootenai Electric Cooperative and Clearwater Power)
  - Meter identification and cataloguing
- Energy Use Indexing (Benchmarking)
  - Compare Tribal building energy use per square foot of comparable building types in similar climate
  - EPA Portfolio Manager
- EPA Portfolio Manager Database Development
  - Tribe will update this annually

Current Project Objectives: Activities To Come

- Energy Modeling
  - Developing energy usage models to calculate costs and savings of energy conservation measures
  - Project Prioritization
  - Use energy modeling and analyses to make sense and prioritize energy efficiency projects based on:
    - Economic Benefits
    - Building Health
    - Repurposing and Planning
    - Environmental Benefits

Current Project Objectives: Activities To Come

- Planning for Implementation
  - Retrofit specifications and designs
- Complete a facility-specific energy resource assessment that includes:
  - Renewable Energy Site Assessment for Solar, Wind, Micro Hydro
  - Energy Production where feasible (cogeneration)

Current Project Objectives: Activities To Come

- Research Funding Opportunities for Retrofits
  - Grants
  - Utility company incentives
  - Tribal funding
  - Loans
  - Other?
- Training Tribal Staff
  - EPA Portfolio Manager
- Complete Energy Efficiency Feasibility Study document

Project Lessons Learned

- Environmental health and safety is tied to energy efficiency and conservation
- Tribal staff need to feel comfortable in their office environment to be productive
- Limit access to thermostats (occupant education) and program them well
- It is good to work with multiple specialists and/or consultants for different perspectives and expertise
- Involving and educating the building occupants on why we are making these recommendations and changes is a must (get buy-in)

Partnerships

- Coeur d' Alene Tribe, Plummer, ID.
- OurEvolution Energy & Engineering, Arcata, CA
- Bonneville Power Administration (BPA), Spokane, WA
- Clearwater Power, Plummer, ID.
- Kootenai Electric, Plummer, ID.
- City of Plummer, ID.

Next Steps

- The Tribe intends to pursue implementation of the Energy Efficiency Feasibility Study (EE&FS) findings
- The next steps are:
  - To follow-up on the findings of the EE&FS within the Tribe as much as possible now, and
  - To identify funding sources and carry out Tribal government building retrofits

Contact Information

- If you would like more information or to discuss anything further, please contact Tiffany Allgood, Environmental Action Plan Coordinator, at (208) 686-8802 or tallgood@cdatribe-nsn.gov
- Thank you for your time today.