Coeur d'Alene Tribe
Benewah Market
Energy Efficiency Project
U.S. Department of Energy (DOE)
Tribal Energy Program Review
May 7, 2015

Tiffany Allgood, Environmental Action Plan (EAP) Coordinator

Coeur d'Alene Tribe, Plummer, Idaho

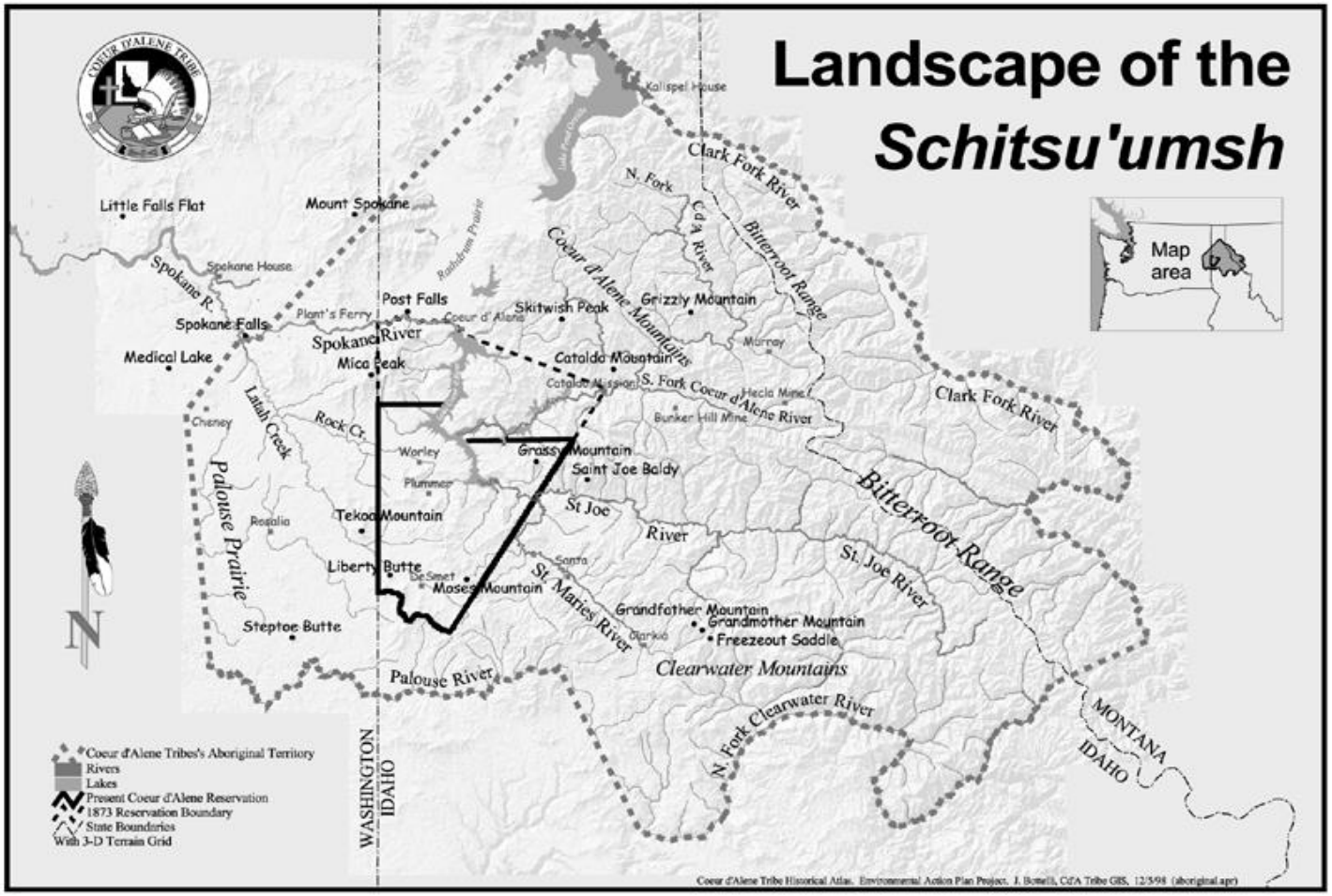
Presentation Outline

- Overview of the Coeur d’Alene Tribe
- Summary of Prior Energy Efficiency Work
- Benewah Market Energy Efficiency Project Overview
- Progress to Date
- Next Steps
- Lessons Learned
- Contact information

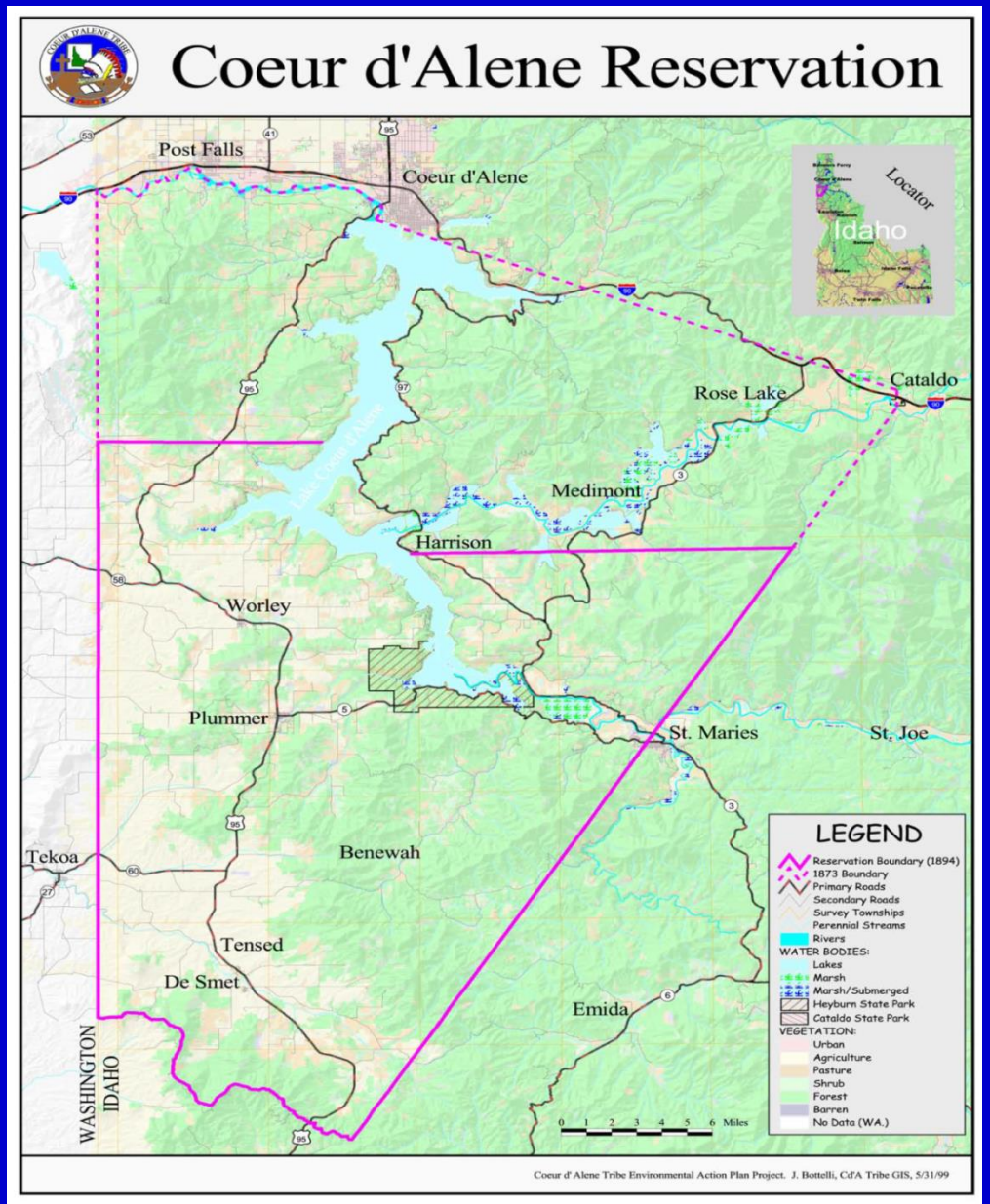
Overview of the Coeur d'Alene Tribe

- The Coeur d'Alene Reservation is approximately 334,000 acres, not including Tribal submerged lands.
- Aboriginal territory = more than 5 million acres.
- 6,760 residents according to the 2010 Census.
- Tribal enrollment is ~2,361 and growing (June 2013).
- 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 Reservation



History of the Natural Resource Department

- In 1992, the Tribal Natural Resource Department was established as a stand-alone Department
- Currently, there are 10 programs in the NR Department: Air Quality, *Environmental Programs Office*, Culture, Fisheries, Forestry/Fire, Land Services, Language, Pesticides Circuit Rider, Tribal Historic Properties Office 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 an Energy Efficiency & Conservation Strategy (EE&CS)

- McKinstry's energy audits were generally at ASHRAE Level 1
  - (ASHRAE: American Society of Heating, Refrigerating and Air-Conditioning Engineers)

Prior Work:
Energy Efficiency Feasibility Study (EEFS)

- The Tribe applied for and was awarded a U.S. Department of Energy, Energy Efficiency and Deployment in Indian Country grant in 2011 to conduct an EE Feasibility Study on all Tribal buildings
- Procured an energy consultant firm to perform in depth energy assessments:

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Partnerships

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

Prior Work:
Energy Efficiency Feasibility Study (EEFS)

- Completed Energy Assessment Field Work
  - 36 Tribal Buildings Evaluated (October 29 – November 9, 2012)
  - Level 3 ASHRAE energy audits (investment grade)

- Completed Energy Assessment Feasibility Study
  - Completed draft for review in November 2013
  - Completed final draft report in November 2014
  - Closed out the DOE grant in December 2014

Energy Efficiency Feasibility Study

- Report Format
  - 6 Main Sections
    - Executive Summary
    - Field Energy Assessment Initial Findings Report
    - Utility Billing Analyses Report
    - Energy Conservation Measures Prioritization Report
    - Potential Funding Sources and Strategies for ECM Implementation
    - Appendices

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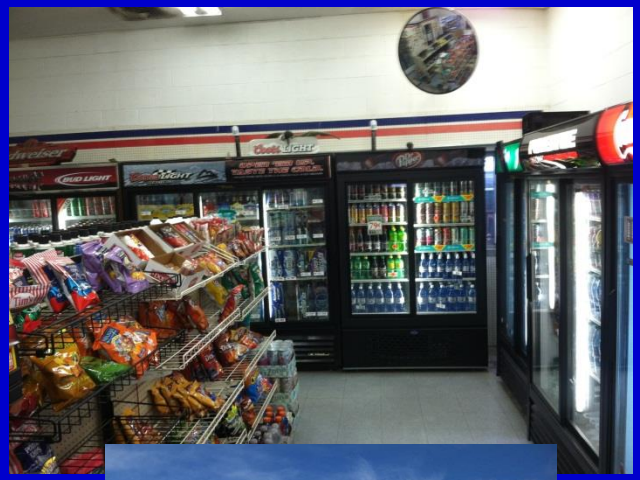
Building Characterization

- Building Type
- Orientation
- Size
- Age
- Occupancy
- Usage
- Energy Providers
- Meters
- Tanks



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Envelope

- Siding
- Roof Drainage
- Windows and Doors
- Roofing
- Insulation
- General Conditions
- Attics
- Crawlspaces

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Heating, Ventilation and Air Conditioning

- System Types

Split Systems vs. Packaged Systems

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Domestic Hot Water (DHW)

- Type
- Nameplate Information
- Configuration
  - Pumps
  - Timers
  - Flue Gas Venting
    - CO
    - Spillage
    - Backdrafting
- Distribution
- General Conditions

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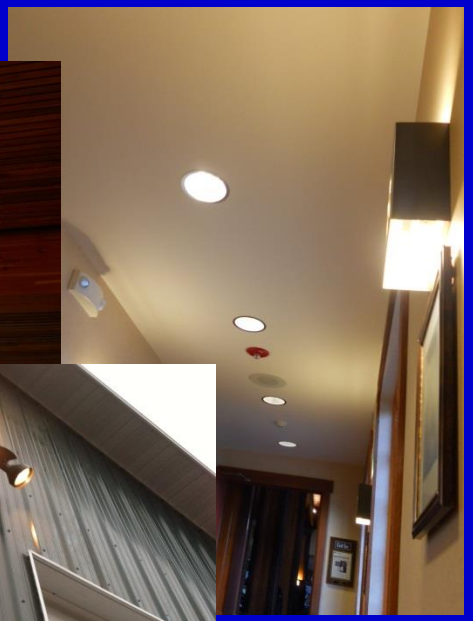
Lighting

- Type
- Power Rating
- Controls
  - Occupancy Sensors
  - Photocells
  - Timers
- Efficacy



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Plug Loads

- Office Equipment
- Personal Computers
- Coffee Makers
- Refrigerators
- Personal Space Heaters
- Vending Machines

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Process Loads

- Commercial Refrigeration
- Pumps
- Compressors
- Computer Network Servers

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Summary of Findings – Building Performance

- The interaction of all of the building systems integrated into a “building as a system”.
- Often Health & Safety issues are indications of poor building performance.

- Addressing building performance issues will have positive affects on both energy efficiency and work productivity.

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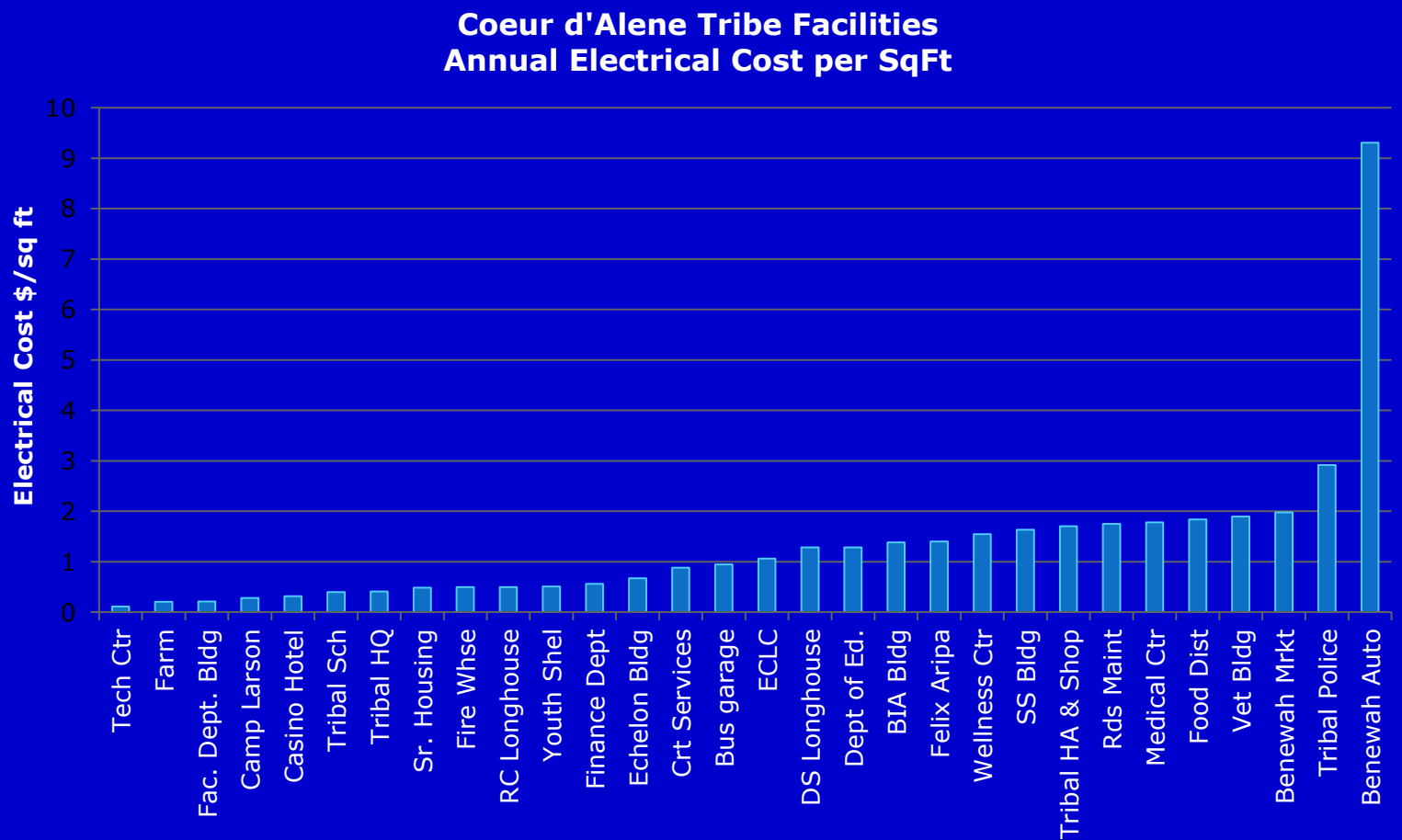
Energy Use Analysis Summary



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McKinstry For The Life Of Your Building

Energy Conservation Measures

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Renewable Energy Opportunities

- Solar Energy
  - 5.1 Peak Sun Hours per day
  - Current economics are difficult
  - Use as backup or emergency power
- Biomass
  - Existing studies inadequate to assess
  - Recommend further inventory of both wood and agricultural residues
- Wind Power
  - Must be evaluated in a site specific manner
  - CDA contacted by TWN Wind Power, a Tribally-owned wind power development company

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Solar 4R Schools Project

- Bonneville Environmental Foundation
  - Natural Resource Building solar PV array
  - Most likely roof-mounted
  - Small system; will offset about $1,000 per year energy cost
  - Educational purpose
  - Teacher Training
  - Teaching Kits – targeting middle school initially
  - Install this summer; teacher training in fall

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Benewah Market Energy Efficiency Project

- The Environmental Programs Office in the Tribe's Natural Resource Department and the Tribal Development Corporation teamed up in 2013 to apply for the U.S. Department of Energy, Tribal Renewable Energy and Energy Efficiency Deployment Assistance grant opportunity to increase energy efficiency in the Tribe's Benewah Market in Plummer, Idaho

Coeur d'Alene Tribe Benewah Market

Plummer, ID

Approximately 16,000 square feet

Market building addition completed in the 1980's

Benewah Market Energy Efficiency Project

- The energy audits that the Tribe completed in the EECBG and the EEFS reports provided important information for the Benewah Market EE Project grant application

Benewah Market Energy Efficiency Project

- Benewah Market EE Project Goals:
  - Goal 1: Increase energy efficiency and reduce energy costs in the Benewah Market.
  - Goal 2: Increase health and safety of the food that is sold in the Benewah Market.
  - Goal 3: Decrease operations and maintenance costs in the Benewah Market.
  - Goal 4: Increase the economic viability of the Benewah Market.

Benewah Market Energy Efficiency Project

- The Benewah Market EE Project will:
  - Reduce the total volume and thermal capacity of refrigeration and freezer cases on the sales floor
  - Replace the existing aging floor cases with high efficiency cases with doors (where applicable) and integrated controls
  - Replace the existing 16 individual compressors for the refrigeration cases and walk-ins

Benewah Market Energy Efficiency Project

- The Benewah Market EE Project will:
  - Replace the existing roof top condensers
  - Replace 15 evaporators in the walk-in coolers and freezers with high efficiency units equipped with electronically commutated motors and integrated control features
  - Replace and reconfigure refrigerant lines

Benewah Market Energy Efficiency Project

- The Benewah Market EE Project is projected to:
  - Save at least 30.8% of the total energy used at the Market
  - Save at least $16,065 per year in energy costs to the Market

New Cases & Freezers

- Difficult to quantify what new cases and freezers will do for sales
- Perception of the overall store
- Improvement in Food Quality
- Tribal Pride in Store
- Community Support & Appreciation

Creating the “New” Benewah Market

•The new energy efficient refrigeration and freezer cases are a part of a larger strategy to improve the overall function and appearance of the Benewah Market

•Store Remodel
- Deli Remodel & Added Services
- Produce Remodel
- Repaint & Brand the Benewah Market
- New Outdoor Sign with Digital Reader board
- Landscaping & Native Artwork

Deli Remodel

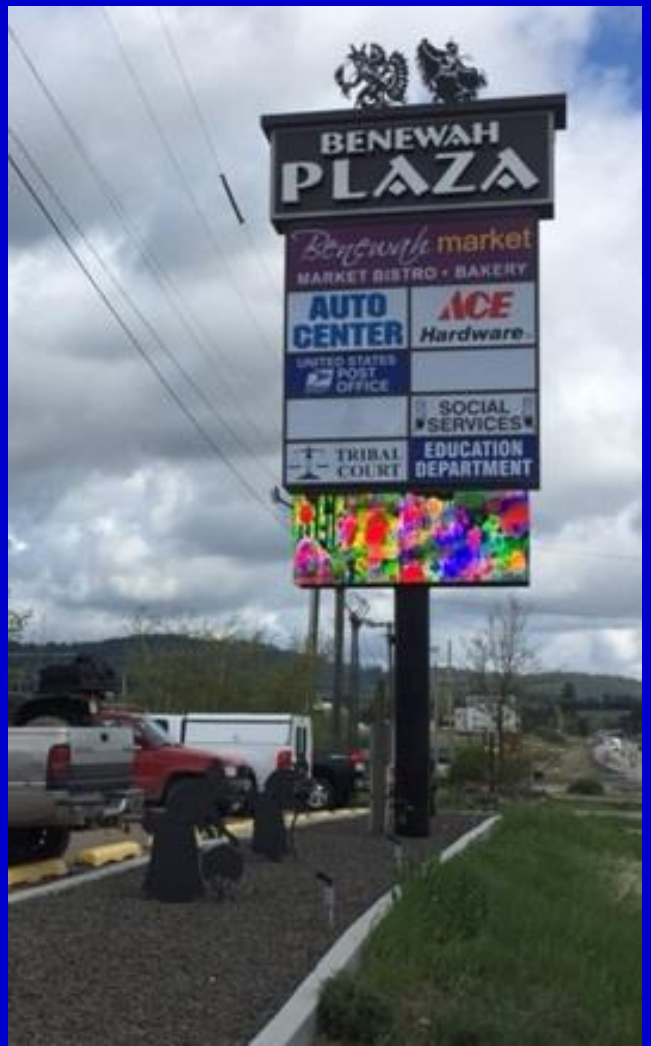
- New Counters, Repaint w/ laminate paneling & Flooring

Produce Department Remodel

- New Product Signs & Mirrors for Produce Cases
- Moved Isles and Products to open up Produce Dept
- New Flooring & Dry Tables

Outdoor Digital Sign & Artwork

- Native American Artist – Smoker Marchand



Beverage Department Remodel

- We had to shut down these cases
- Currently we are using self-contained units

Progress to Date on the Benewah Market EE Project

- Completed DOE grant award process
- Advertised a request for proposals for energy engineering assistance (to assist with verifying installation contractor specifications, construction oversight, and equipment commissioning)
- Completed National Environmental Policy Act requirements
- Completed a limited hazardous materials inspection on the Benewah Market (no asbestos or lead paint identified)

Progress to Date on the Benewah Market EE Project

- Recently executed a contract with an energy engineering firm to assist with the project
- Initiated project review by the Tribal Historic Properties Office
- Managing ongoing coordination with Bonneville Power Administration (assisting with energy efficiency rebates process with utility)
- Conducting research on all aspects of the project from types of refrigerant available to equipment manufacturers

Next Steps for Benewah Market EE Project

- Apply for Technical Assistance from DOE
- Draft a request for proposals for the equipment installation (including project specifications)
- Ensure equipment and design specifications meet energy efficiency standards desired by the Tribe that meet DOE requirements (considering a second engineering contract)
- Review, score and select installation contractor
- Obtain Tribal Historic Properties Office clearance for project
- Set schedule for construction/installation of new equipment

Next Steps for Benewah Market EE Project

- Obtain approval from Bonneville Power Administration for custom project plan for energy incentives rebates prior to installation
- Install new equipment
- Commission new equipment
- Work with Plummer Power and BPA to obtain rebates after new equipment installation
- Determine energy use savings for one year after commissioning of new equipment
- Complete final report for DOE

Lessons Learned

- Securing the commitment for energy incentives from utilities can be challenging due to timing of a project not aligning with incentives schedules, competition for incentive funding and other complications

- Projects can be complex when they involve:
  - Specialized technologies such as refrigeration and heating,
  - Aspects of construction such as plumbing and electricity, and
  - Renovation issues such as lead, asbestos, etc.

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, tallgood@cdatribe-nsn.gov or
- Thank you for your time today.