Eastern Band of Cherokee Indians

EBCI Facility Retrofit Project
Project Overview

- Energy efficient implementations
- Seven Tribally owned/leased facilities
- Modified to cover 9 Buildings
- Reduction of energy consumption by at least 30%
- Reduction of air pollutants and GHG emissions
Cherokee Fairgrounds & Exhibit Building
545 Tsali Boulevard  Cherokee, NC
Implementations

• Replacement of HVAC units
• Routine HVAC maintenance schedule
• Install programmable thermostats
• Adjust insulation
• Replace fluorescent lighting
• Insulate hot water heater pipes
Reductions

• Savings of at least $7,460 per year
• Energy savings of 236 million BTU’s per year

• 3615 lbs reduction in nitrous oxides
  \((\text{NO}_x\text{-precursor to ozone pollution})\)
• 1,707,000 lbs reduction in carbon dioxide
  \((\text{CO}_2\text{-greenhouse gas})\)
Implementations

• Replace/mechanical overhaul of HVAC units
• Install programmable thermostats
• Replace fluorescent lighting
• Occupancy sensors
• Flush valve replacements
• Replace faucet aerators
Reductions

• Savings of at least $5,978 per year
• Energy savings of 237 million BTU’s per year
• 306 lbs reduction in nitrous oxides
  (NOx-precursor to ozone pollution)
• 144,400 lbs reduction in carbon dioxide
  (CO2-greenhouse gas)
Implementations

• Routine HVAC maintenance schedule
• Programmable thermostats
• Replace HVAC system
• Attic insulation replacement
• Seal building leaks and ceiling penetrations
• Replace fluorescent lighting
• Keep restroom exhaust fans from running nonstop
Reductions

- Savings of at least $3,902 per year
- Energy savings of 190 million BTU’s per year
- 222 lbs reduction in nitrous oxides (NO\textsubscript{x}-precursor to ozone pollution)
- 105,107 lbs reduction in carbon dioxide (CO\textsubscript{2}-greenhouse gas)
- 45 lbs reduction in sulfur dioxide (SO\textsubscript{2}-forms acid rain)
NC Cooperative Extension
876 Acquoni Rd    Cherokee, NC
Implementations

• Adjust doors allowing air leaks
• Reinforce building envelope
• Replace single pane windows
• Routine maintenance of HVAC system

Replace fluorescent lighting with T-8 system
Provide insulation on copper hot water heater lines
Reductions

- Savings of at least $2,195 per year
- Energy savings of 87 million BTU’s per year
- 112 lbs reduction in nitrous oxides (NO\textsubscript{x}-precursor to ozone pollution)
- 53,040 lbs reduction in carbon dioxide (CO\textsubscript{2}-greenhouse gas)
- 41 lbs reduction in sulfur dioxide (SO\textsubscript{2}-forms acid rain)
Fire Station #2
2305 Old Mission Rd    Cherokee, NC
Implementations

• Routine HVAC maintenance
  Replace garage MHH’s with T5O’s
• Replace T-12’s and magnetic ballasts
• Hot water piping
Reductions

• Savings of at least $3,324 per year
• Energy savings of 149.2 million BTU’s per year
• 192 lbs reduction in nitrous oxides (NO\textsubscript{x}-precursor to ozone pollution)
• 90,890 lbs reduction in carbon dioxide (CO\textsubscript{2}-greenhouse gas)
• 71 lbs reduction in sulfur dioxide (SO\textsubscript{2}-forms acid rain)
Qualla Arts and Crafts
645 Tsali Boulevard    Cherokee, NC
Implementations

• Routine maintenance schedule for HVAC
• Replace single plane windows
• Insulate/Seal attic access cover
Weather strip doors
• Caulk window and door frames
• Replace lighting fixtures
• Replace bathroom fixtures with low flush models
Reductions

• Savings of at least $3,819 per year
• Energy savings of 142 million BTU’s per year
• 108 lbs reduction in nitrous oxides
  (NO\textsubscript{x}-precursor to ozone pollution)
• 48,354 lbs reduction in carbon dioxide
  (CO\textsubscript{2}-greenhouse gas)
Council House
Sequoyah Trail Cherokee, NC
Ginger Lynn Welch
810 Acquoni Rd  Cherokee, NC
Implementations

• Routine HVAC maintenance
• Repair leaking conditioned air fiber distribution ducts
• Programmable thermostats
• Replace lighting with T-8’s and electronic ballasts Occupancy sensors
• Delamping
• Pool covers
• Solar heating systems

Efficient lighting
Reductions

• Savings of at least $37,330 per year

• 2,138 lbs reduction in nitrous oxides
  (NO\textsubscript{x}-precursor to ozone pollution)

• 1,010,000 lbs reduction in carbon dioxide
  (CO\textsubscript{2}-greenhouse gas)

• 787 lbs reduction in sulfur dioxide
  (SO\textsubscript{2}-forms acid rain)
Questions