Muscogee Nation
Electric Vehicle Charging Station

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2021 Tribal Energy Webinar Series
Electric Vehicles: Opportunities and Challenges
Overview

Installed in Okmulgee, Oklahoma the Capital of the Muscogee Reservation

Funded by the VW Settlement

Designed by Muscogee Nation Tribal Construction

Total Project Cost: $169,742.00
Planning and Design

Site Selection Considerations:
- Existing Infrastructure (Concrete, Electrical)
- Purpose (General Public, Employees, Fleet)
- Existing Charging Locations (Plugshare.com)
Supporting EV Infrastructure
Construction Process

Start Date: Sept. 2020

Ribbon Cutting: April 2021
EV Charging Station

Five (5) Level 2 Chargers
- Three Dual Arm, Two Single Arm

Considerations
- How long will people use chargers
- Available electrical
- Cost of Electricity
- Operation and Maintenance
- Cost of Charging Station
Costs

Costs Associated With Non-Residential Electric Vehicle Supply Equipment
Factors to consider in the implementation of electric vehicle charging stations

November 2015

Level 2, Single Port Scenarios | Annual Electricity Consumption & Cost | Installation Cost Amortized Over 10yrs/kWh & cost/yr.* | Assumptions
---|---|---|---
Workplace charging
• 2 light-duty vehicles
• Each charging 5hrs/day
• 5 days/week | 10,296 kWh/yr | $0.006-$0.123/kWh $60-$1,270/yr | EVSE: Type 2 240 VAC
• EVSE: Amparage: (50A)
• Vehicle Power Acceptance Rate: 6.6kW
• 20 miles added range/yr of charging
• Electricity Cost: $0.10/kWh
• Installation Cost: $600-$1,700

Public charging
• 1 light-duty vehicles
• Each charging 5hrs/day
• 4 days/week | 6,664 kWh/yr | $0.009-$0.185/kWh $60-$1,270/yr |

Fleet charging
• 2 medium-duty vehicles
• Each charging 5hrs/night
• 5 days/week | 17,160 kWh/yr | $0.008-$0.074/kWh $60-$1,270/yr |

Costs

Electrical- $24,970
Structure-$107,184
Charging Stations- $36,078
Sod- $1,510
Total- $169,742
Health Benefits

These benefits include the reduction of premature mortality, chronic bronchitis, asthma attacks, non-fatal heart attacks, and other health problems.

Adoption and Support

The MCN chargers have dispensed 709.6 kWh YTD. The Alternative Fuels Database uses .32 kWh per mile for their estimates which would be 3.125 miles per kWh. Using that as a reference you could conservatively say that the charging station has provided 2,217 miles of electric driving so far this year. (709.6 kWh x 3.125 miles/kWh = 2,217 miles driven)

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Thank you!

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