Planning & Execution at U.S. Coast Guard Sites

EVSE Empowerment Week

Plug Into the Future: Energize Your Skills!

Introduction

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Fleet Requirement Development

- Number of EV Vehicles in the Fleet
- Garage Location
- Turnover cycle
- Type of Vehicle...LD/MD
- Vehicle Usage impacts level of chargers needed.

Goals

- EO 14057 Goal: 100% ZEV Fleet Acquisitions by 2035
- DHS Goal: Achieve 50% ZEV by 2030
- Coast Guard Execution:: 9% conversion of ZEV’s

  177 operational EVSE ports

  20 ports being mobile EV ARCs

  Ability to support 443 ZEV’s

ZEV Conversion Status

- Total Vehicle = 3633
- Total Converted to ZEV = 309
- ZEV Pending Delivery = 22
- 9% Converted
- Enough operational ports to support 443 vehicles.
- Design ready to support additional 384 vehicles.

EVSE Planning

- Study & Quantify # of GV’s present and typical usage
- Only execute EVSE Projects at a site once
- Work with on-site personnel to identify install location(s)
- Evaluate electrical distribution system and perform a load study
- Design emergency power source into system
- Evaluate if site is a good candidate for PV or BESS to offset energy consumption
- Scope the remaining engineering elements of the project (Environmental, Civil, Mechanical, etc.)
- Develop a rough order of magnitude (ROM) Cost
- Documentation is key

EVSE Planning – Economics

- Negotiating relocation of GVs to minimize project costs
- Future Proofing:

1. Determine quantity of charger's vs make ready charging stations
2. Upsize transformer
3. Install larger conduit
4. Install larger conductors

Execution Mechanism

- Self-Help Projects
- Design-Bid-Build Projects
- GSA IDIQ DB Projects
- Design-Build Projects

Real Property types

- U.S. Coast Guard Owned
- Other Government Agency Owned
- GSA Leased
- GSA Owned
  - Occupancy agreement
- Direct Leased

EVSE Management

- Centrally managing EVSE as a Product Line rather than decentralized local management
- Requested Billet for Dedicated EVSE Manager
- Charging Fee Structure
- U.S. Coast Guard allows POV charging.
- Number of charging stations installed is based on GVs only (2.5 GV to 1 charging port)
- POV charging allowed as space available
- Reimbursable Account– token renewals, recaps, repairs

Sustainment

- Recap of non-network chargers to improve visibility on network system and billing of POV EV owners.
- Preventative Maintenance requirements
- Troubleshooting/Repair - identification of faults, power cycling, trouble tickets, etc.

EVI-LOCATE

EVSE Planning Tool and Cost Estimator

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Federal Fleet Tools

Where do I Start?

- **ZEV Ready Center**- 15-step process to help sites get ZEV-ready
- **U-Finder**- Utility contact information and available incentives
- **Fleet Requirements Resource Center**- Addresses key requirements for agencies

Zero-emission vehicle (ZEV) candidates

- **FleetDASH**- Identify ZEV opportunities and fueling locations
- **ZPAC**- Identify ZEV opportunities based on fueling data (tied to FleetDASH)

How many electric vehicle (EV) charging stations and types are needed?

- **ZPAC**- Estimate charging needs from fleet inputs and fueling data
- **EVI-Fleet** *forthcoming*- Identify precise charging needs with telematics and fueling data

EVI-LOCATE- Site assessment and estimate site-specific costs for an EV supply equipment (EVSE) project

Who should take the lead on using the tool?
EV Champion + FleAet Manager , **EV Champion + Fleet Manager + Facilities, EV Champion + Facilities**

Source: https://www.energy.gov/femp/overview-zev-ready-federal-fleet-electrification-process

Federal Fleet Email: federal.fleets@nrel.gov

Problem and Objective

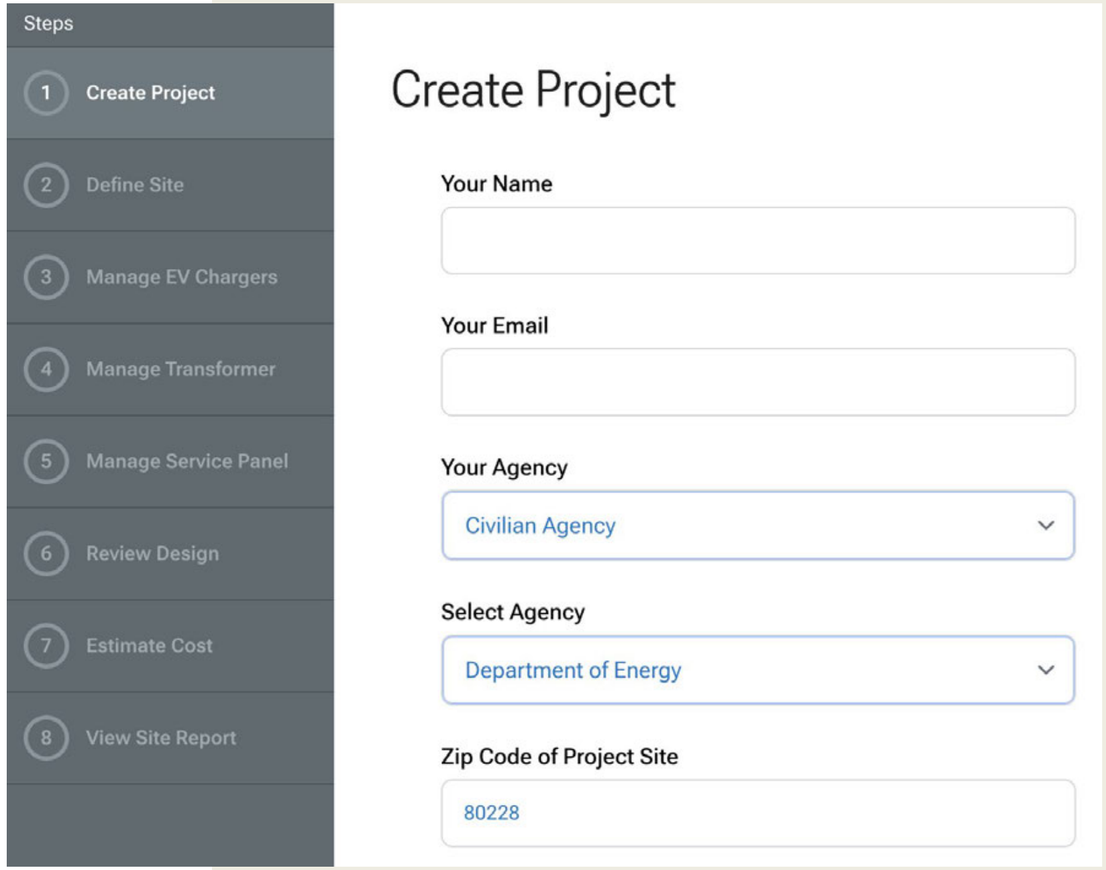
Problem Statement: Design costs and timelines add significantly to EVSE installation scope.

Objective: Simplify the EVSE design and cost estimation process with a web tool.

EVI-LOCATE (Electric Vehicle Infrastructure –Locally Optimized Charging Assessment Tool and Estimator)

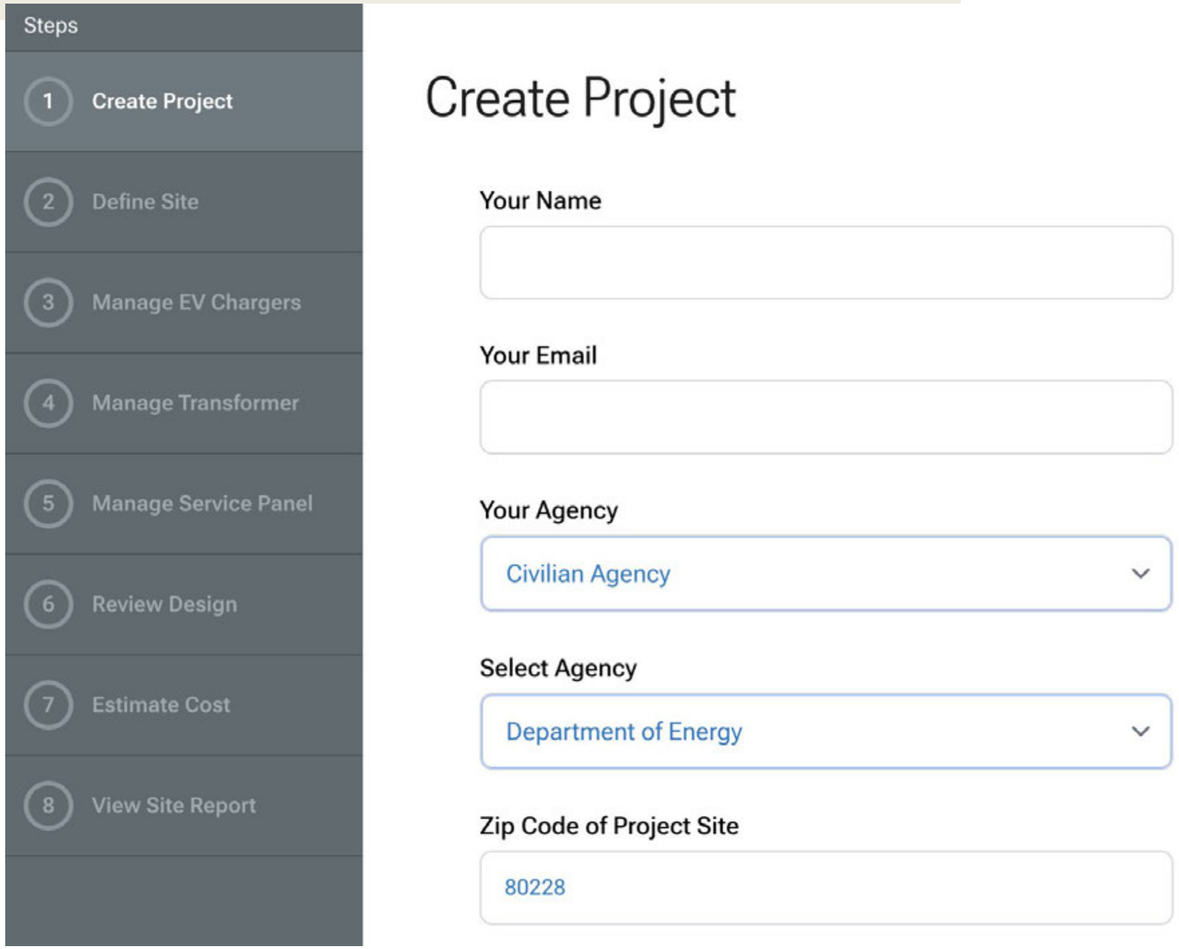
- Plan charging station deployments
- Assess site-specific electrical needs
- Calculate local project costs

- Website: https://evi-locate.nrel.gov.
- Email: evi-locate@nrel.gov.
- Federal employees can sign up for accounts directly.
- Federal contractors need to email evi-locate@nrel.gov with federal EVI-LOCATE users CCed.



Site Selection

1. Select agency,
2. select state,
3. then select base if DOD customer.



Define Site Boundary

Define Site

- Draw a polygon around EV parking area
- Name your site
- Make sure the polygon is large enough to include service transformer, panel, and charging stations.

Select EVSE Type

Select EVSE Charger Template

- Users can filter to their preferred charger or select generic charger option.

Locate Chargers

Drop Chargers on Map

- Currently, users can only select AC Level 1 and Level 2 unidirectional chargers.
- Working on DC fast chargers and bidirectional chargers.

Panel Questions

Determine Service Panel Needs

- Voltage rating?
- Unused circuit breaker spaces?
- Main breaker current rating?
- Existing peak load?

Wiring: Connecting the Equipment

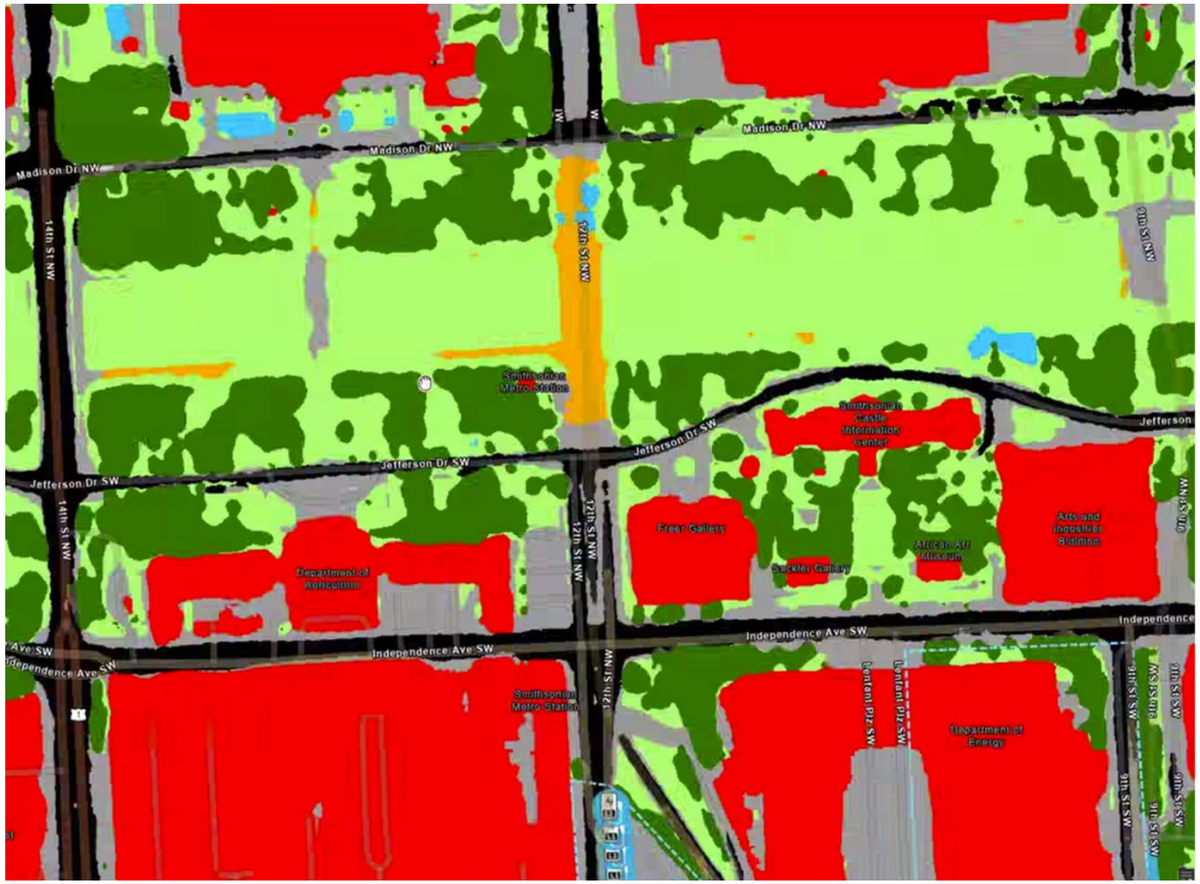
Wiring Run

- Tool identifies low-cost line from transformer to panel to chargers.
- Identifies hardscape and softscape.

Wiring: Behind the Scenes

Wiring Run

- Siting algorithm uses near-infrared imagery to distinguish surface type and buildings.
- Identifies least-cost path to run conductors and conduit.



Cost Calculations

Cost Adjustment

- Slider bars for project costs (e.g., feds may not need to pay taxes).