

EVSE & ZEV FAST Reporting

EVSE Empowerment Week

Plug Into the Future: Energize Your Skills!

Overview

1. **FAST:** What is it? Why should you care?
2. **Reporting ZEVs and EVSE:** What data? When is it reported?
3. **Tying it Together:** How is it all related?
4. **ZEV Charging Electricity Use:** Best practices for reporting on ZEV electricity use
5. **EVSE Electricity Use:** Best practices for reporting on EVSE electricity use
6. **Home-to-Work ZEV and EVSE:** Best practices for this unique use-case

FAST

What is it? Why should you care?

FAST: What and Why?

Federal Automotive Statistical Tool (FAST)

- **50 Federal Agency Vehicle Fleets**
- 700,000+ Federal Fleet Vehicles
- Annual Operational Data (costs, miles, fuel)
- EVSE & Fueling Infrastructure
- Future-year Planned Budget, Acquisitions, Disposals
- Fleet Management Plans
- Vehicle Allocation Methodology Summaries

Underlying Requirements

- EPACT 1992 / 2005
- EISA 2007
- FAST Act of 2015
- 41 CFR 102-34
- OMB Circular A-11
- E.O. 14057

Additional Stakeholders

- Office of Management & Budget
- Council on Environmental Quality
- U.S. Environmental Protection Agency

Partners

- U.S. DOE Federal Energy Management Program
- U.S. GSA Office of Government-wide Policy
- Idaho National Laboratory

Reporting ZEVs

Reporting ZEVs in FAST

- **What ZEVs are in your fleet?**
- **... and what fuel(s) did they consume?**

- **What ZEVs do you plan to add and retire?**
- **... and what will they cost to acquire and to operate?**

ZEVs in your fleet

- **Federal fleet data call**
 - **All vehicles in agency fleet during prior FY**
 - **... and their costs**
 - **... and miles**
 - **... and fuel consumption**
- **Due 15-December**
- **Vehicles**
 - **Basic vehicle attributes: year, make, model, type, location**
 - **Special characteristics and compliance designations**
 - **Ownership, acquisition, disposal information (when relevant)**
 - **Costs: acquisition cost, annual operating costs**
 - **Annual miles**
- **Fuel Consumption**
 - **Fuel type, location, volume, cost**

ZEVs in your fleet: Fuel

- **Example 1: Owned BEV**
 - **Electricity, DC, 520 kWh, \$78**
 - **Electricity, Maryland, 745 kWh, \$97**
 - **Electricity, Virginia, 293 kWh, \$33**
- **Example 2: GSA wet-leased PHEV**
 - **Gasoline, DC, 63 gal, \$0 (on fuel card)**
 - **Electricity, DC, 518 kWh, \$56**
 - **Electricity, Virginia, 287 kWh, \$31**

ZEVs you plan to add & retire

- **OMB A-11 Annual Fleet Budget Summary**
- **Forward-looking plans for 3 fiscal years:**
 - **Acquisitions**
 - **Disposals**
 - **Fleet costs**
- **Fleet management plan & budget narrative**

- **Due late August**

- **Should be consistent with EO 14057 plan**

ZEV you plan to add & retire

- Planned acquisitions
 - Fiscal year
 - Vehicle type
 - Fuel type/configuration
 - # vehicles
 - Ownership
 - Acquisition cost
- Planned disposals
 - Fiscal year
 - Vehicle type
 - Fuel type/configuration
 - # vehicles
 - Ownership
 - + age of owned disposals
 - Disposal proceeds
- Should be driven by VAM optimal fleet profile

Reporting EVSE

Reporting FAST

- **Current EVSE inventory**
 - **What EVSE do you currently have?**
- **EVSE deployment plans**
 - **What EVSE are you planning / working on?**
- **Should align with EO 14057 plan**

Reporting EVSE in FAST

- Current EVSE inventory
 - Annual fueling center & EVSE inventory
 - Two groups of EVSE inventory: EVSE inventory for GOV / POV and EVSE for home-to-work GOV
- Due mid-November
- Current EVSE inventory for GOV / POV
 - Site name, detailed location, POC
 - Indications of who can charge
 - #'s and types of charging ports
 - Total kWh electricity distributed
 - Mobile vs grid-connected EVSE
 - Network provider(s)
 - Summary cost data (hardware, installation, network)
 - Payment method and fee basis (e.g., \$/kWh)
- Current EVSE inventory for HTW GOV
 - ZIP code
 - Agency POC
 - #'s and types of ports

Quarterly Reporting EVSE in FAST-

- **EVSE planning & installation**
- **Quarterly EVSE deployment submission**
- **Organized by EVSE site project**
- **Name and location**
- **# and types of EVSE, # of ZEVs to be supported**
- **Planned completion date**
- **Current status (planning through completion)**

- **Completed projects become part of annual EVSE inventory**

- **Due end of each FY quarter**

Tying It Together

They're all related...

- ZEVs and fuel
- EVSE & Energy
- EVSE Plans
- Fleet Management Plan
- Fleet Budget
- ZEV Plans
- VAM & OFP

FAST Resources

- **Your agency HQ FAST contact**
- **<https://fastweb.inl.gov/help/index.cfm/resources/agency-pocs>**

- **FAST's Help Site**
- **<https://fastweb.inl.gov/help/>**

- **FAST Support Team**
- **FASTsupport@inl.gov**

ZEV Charging Electricity Use

**Best Practices for reporting on
ZEV electricity use**

Reporting on ZEV Charging Electricity Use

Fleet Vehicle Level Fueling Electricity Use

Federal Fleet Data Call Federal Automotive Statistical Tool FAST Vehicle-Level Data, Fueling Data

Fueling data reported for all fleet vehicles, including kilowatt-hours (kWh) added to the zero-emission vehicle ZEV during charging for the previous fiscal year. The following vehicle-level data is required:

- Vehicle identification
- Date of charging session
- Location of charging session
- Type and volume of fuel added to the vehicle (i.e., kWh)
- Fuel cost (if any)

Best Practice: Vehicle Telematics Data

Telematics track charging sessions for a vehicle including the location, charging time, the beginning and ending state of charge, and **total kilowatt-hours added during the session** (e.g. referred to as “Energy Added” in Geotab).

<https://www.gsa.gov/buy-through-us/products-services/transportation-logistics-services/fleet-management/vehicle-leasing/telematics>

Alternative 1: Networked EVSE

- Sum up charging sessions from:
 - Agency-owned networked EVSE charging events (either on-site or at an employee's home) +
 - Public charging events
- If the ZEV uses non-networked EVSEs (either agency owned or public) for charging events, Alternative Option 2 or 3 should also be used

Alternative 2: Charging Session Logs

- To use this option, fleets should create a log for drivers to track necessary data for each charging session, including:
 - Vehicle identification
 - Date of charging event
 - Location of charging event
 - Total kWh added during charging session (found through the vehicle's on-board computer or app), alternatively track the vehicle State of Charge or "miles added" before and after the charging session
 - Charging session cost
- Recommend drivers submit electronic logs directly to FMIS

Alternative 3: Estimate Charging Data

Estimate the electricity used to charge each fleet vehicle using a calibrated vendor-provided vehicle efficiency factor and the vehicle miles traveled for the FY. For example,

- A 2022 Ford 150 Lightning AWD has an efficiency factor of 49 kWh per 100 miles traveled.
- To calculate the kWh added if the vehicle drove 12,000 miles last fiscal year, use the calculation below:

$$12,000 * 49 \text{ kWh}/100 \text{ miles} = 5,880 \text{ kWh}$$

Tracking EV Charging Station Costs

FAST Annual Vehicle-Level Data Submission requires that the cost to charge be tracked by vehicle and by state.

- For EVSEs where there is a cost to charge (e.g., public charging stations), fleets must track these costs to report to FAST at the end of the year.
- For charging stations that accept the fleet fueling card (i.e. WEX), charging session data – including costs – are tracked and can be accessed through GSAFleet.GOV for leased vehicles. For owned vehicles, similarly the charging transaction information can typically be tracked through your fueling card provider.
 - **Note that not all public stations accept fleet fueling cards**

Best Practices to Track ZEV Electricity Use

Fleet Vehicle Level Fueling Electricity Use

1. Install telematics devices on fleet vehicles, where feasible.
2. When public charging is needed, use EV charging stations that accept your fleet fuel card or RFID token. Log receipts for public charging sessions where your fleet fuel card is not accepted.
3. Develop a process to track charging session data for vehicles that do not have telematics, including:
 - a) How to track and sum charging sessions completed on-site at networked EVSEs
 - b) Reporting and logging charging session data at non-networked EVSEs

EVSE

Electricity Use

Best Practices for reporting
on EVSE electricity use

Why track EVSE electricity use at buildings?

Compliance with EO 14057: The Implementing Instructions state “Agencies must separately track energy used for vehicle charging and overall facility energy consumption.”

Benchmarking: Facilities are required to benchmark building energy performance. Installation of EVSE units can affect a building's electricity use, making separate tracking essential to avoid impacting energy performance ratings

Reporting Requirements: Agencies are required to report EVSE electricity usage in their Annual Energy Management Data Report and the FAST Fueling Center and EVSE Inventory submission.

Options for Tracking EVSE Electricity Use

1. Metering at the Panel

Consider for larger EVSE installations where the EVSE circuits have a dedicated panel or subpanel.

Network meter requires connectivity

2. Submetering at the Panel

Consider for smaller installations where the panel is used for more than just EVSE.

Network submeter requires connectivity

3. Networked EVSE

Ideal for workplace charging with payment collection.

Requires connectivity.

Higher purchase/ operating costs.

4. Telematics

Fleet charging only.

Only collects data on vehicles with telematics installed

Alternative Option: ENERGY STAR Score – EV Charging Estimates

EPA ENERGY STAR published adjustments to estimate EVSE use. While other methods provide more accurate reporting, when EVSE electricity use data is not available, the adjustments below can be used.

Source: <https://www.energystar.gov/buildings/benchmark/understand-metrics/score-details/ev-charging>

For more information visit:

<https://energystar.my.site.com/PortfolioManager/s/article/How-do-I-benchmark-my-EV-Charging-Stations-1600088526427>

Charger Type	Average Energy Dispensed per Session (kWh)	Average Utilization (Sessions per week)	EV Charging Site Energy Usage (U.S.) (kBtu/year/station)
Level One	10.55	4.63	8,663
Level Two	10.55	4.63	8,663
DC Fast	9.60	15.00	25,549

Reporting on EVSE Electricity Use

EVSE Electricity Use at Federal Buildings

FEMP Annual Energy Management Data Report

- Remove government vehicles (GOV) and privately owned vehicles (POV) EVSE electricity use from facility electricity use in the “Electric Goal” tab
- Report on GOV charging electricity use at on-site grid-connected EVSE units as “Electric Excluded”
- Report on GOV charging electricity use at off-grid EVSE units powered by renewable energy sources as “Renewable Energy Data”

FAST Fueling Center and EVSE Inventory Submission

- Includes field for total energy dispensed by the EVSE
- Do not need to separate GOV and POV electricity use

Tracking GOV vs. POV at a Shared EVSE

FEMP Annual Energy Management Data Report requires separation of government vehicles (GOV) vs. privately owned vehicles (POV) electricity use.

When selecting a method to track EVSE electricity use at a building, consider how charging events between GOV and POV will be separated if the EVSE is shared.

Options to track at shared EVSEs:

- Networked EVSE tracks session data by user
- Telematics

Best Practices to Track EVSE Electricity Use

EVSE Electricity Use at Federal Buildings

1. Determine early on in your project how to track the EVSE electricity usage at the facility.
2. Select the best method to track the EVSE electricity use for each facility (panel or subpanel metering, networked EVSE, or telematics).
3. Determine the importance of having the ability to automatically upload the EVSE electricity use to your Energy Management Information System and confirm compatibility, if needed.
4. Ensure there is a way to separate electricity used to charge GOV vs. POV (note metering and submetering alone are not sufficient at shared EVSE).

FEMP Best Practices on ZEV Charging

Fleet Vehicle Level Fueling Electricity Use:

Best Practices for Federal Fleet Measurement and Reporting Electricity Use in Electric Vehicles

<https://www.energy.gov/femp/best-practices-federal-fleet-measurement-and-reporting-electricity-use-electric-vehicles>

EVSE Electricity Use at Federal Buildings:

Best Practices for Federal Facility Measurement and Reporting Electricity Use from Electric Vehicle Supply Equipment

<https://www.energy.gov/femp/best-practices-federal-facility-measurement-and-reporting-electricity-electric-vehicle-supply>

Home-to-Work ZEV and EVSE

Best practices for tracking electricity use for this
unique use case

Home-to-Work (HTW) – FAST EVSE Reporting

FAST EVSE Inventory Submission

- Include HTW EVSE in the “Data-HTW EVSE” tab

FAST Quarterly EVSE Deployment Submission

- Do not include HTW EVSE plans in this submission

HTW ZEVs – Reimbursement Metering

Below are metering options to track the electricity used for charging a GOV at an employee's home. This data is needed to calculate the reimbursement amount for electricity used. Electricity dispensed at HTW EVSEs is not a data field in the FAST EVSE Inventory Submission.

- Telematics
- Networked EVSE
- Networked Submeter
- Driver Logs

When determining which option is best suited to track HTW electricity use, consider the following:

- Data must be sufficient for FAST reporting.
- Data must be accurate.
- The process should be automated (if feasible).
- You must be able to distinguish between GOV charging sessions and employee's personal use.
- You must address privacy or operational security concerns.