

Data Capture and Planning for Fleet Electrification

PLANNING EV CHARGING INFRASTRUCTURE FOR YOUR FLEET: *Data Needs and Sources*

Washington Alt Fuel & Vehicle Technical Assistance Group
Wednesday, July 20, 2022

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DKS' ELECTROMOBILITY SERVICES



Fleet Electrification

Comprehensive vehicle and charging infrastructure planning to convert light, medium, and heavy-duty vehicles to electric propulsion.



Transit Electrification

Bus electrification planning including battery charging infrastructure alternatives, electrical substation feasibility, technology planning, operations and environmental review.



EV Charging Infrastructure Planning

Strategic selection of sites for fleet, workplace, residential, public right-of-way, destination, and shared mobility EV charging based on travel demand expertise.



EV Charging Infrastructure Installation Design

Infrastructure design for Level 2, DC Fast, and high-power chargers including cost estimation, construction documentation, coordination with local utilities and EV charging networks.

DKS' ELECTROMOBILITY CLIENTS: Fleet Electrification Projects In Washington

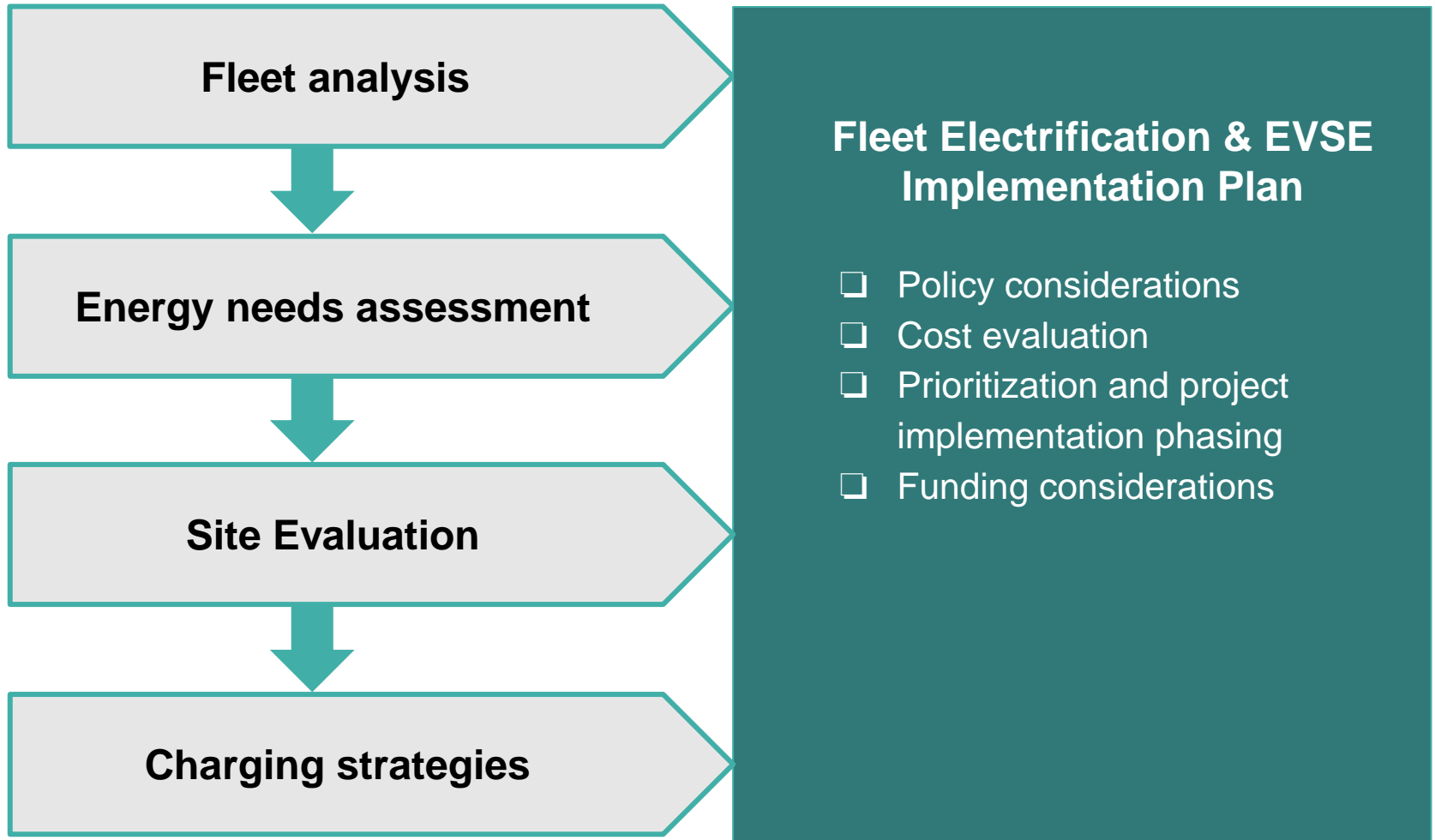
Completed Projects:

- **City of Seattle**
- **King County**
- **City of Spokane**
- **City of Bellevue**
- **Metro Transit Vanpool**
- **Walla Walla**

Active Projects:

- **City of Kirkland**
- **City of Tacoma**
- **Seattle Public Schools**
- **Port of Tacoma**
- **City of Bainbridge Island**
- **City of SeaTac**
- **City of Redmond**
- **Metro Transit Bus Fleet**
- **Snohomish County PUD**

EVSE INFRASTRUCTURE PLANNING PROCESS



CONCEPTUAL SCOPE OF WORK

Roadmap for planning electrified fleet and charging facilities:

Task 1 / Project Management

Task 2 / Evaluate Existing Fleet for Vehicle Electrification

Task 3 / Evaluate Facility Electrical Capacity

Task 4 / Charging Station Options and Budget Estimates

Task 5 / Compile Recommendations & Prepare Report

Task 3/ Evaluate Facility Electrical Capacity

Determine facility upgrades needed for fleet charging

3.1 Review fleet facility electrical drawings

3.2 Review inventory of existing charging stations

3.3 Interview Fleet and Facility staff for vehicle usage, needs and plans for fleet and facility changes

3.4 Review utility bills

3.5 Recommend process for isolating EV electrical consumption from building energy use

3.6 Calculate available electrical capacity and estimate costs to upgrade

3.7 Assess reliability of grid and need for backup power

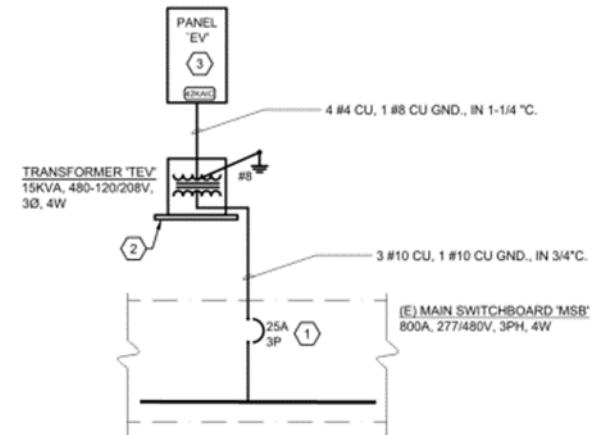
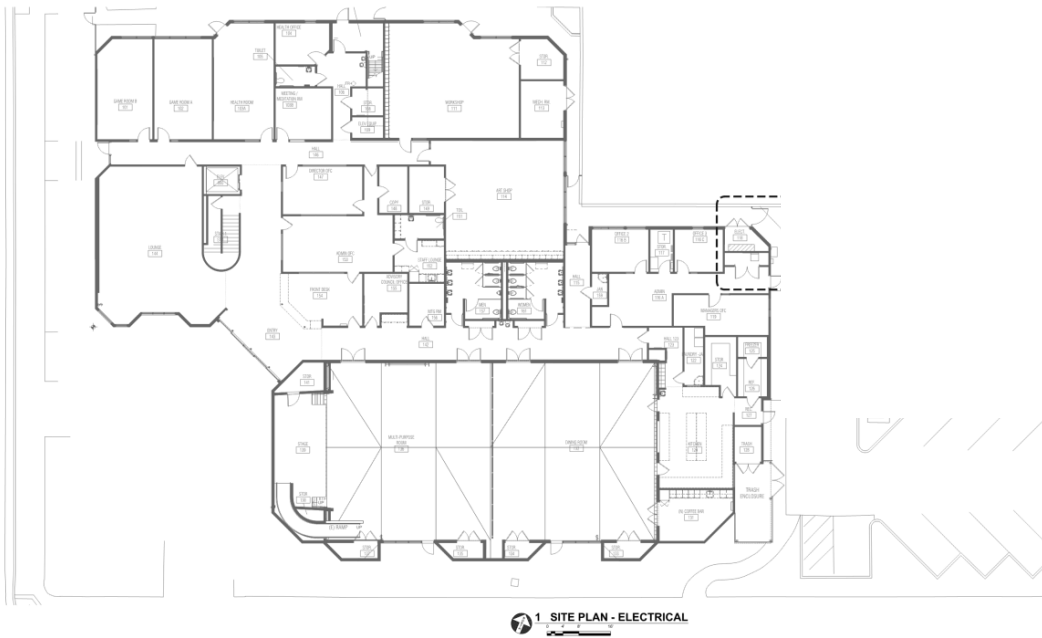
3.8 Identify potential alternative charging strategies

CHARGING FACILITIES PLANNING: DATA SOURCES

- Main Data Sources
 - As-built drawings
 - Utility (electric) bills
 - Data logging
 - Interviews with facilities managers

2019-0684

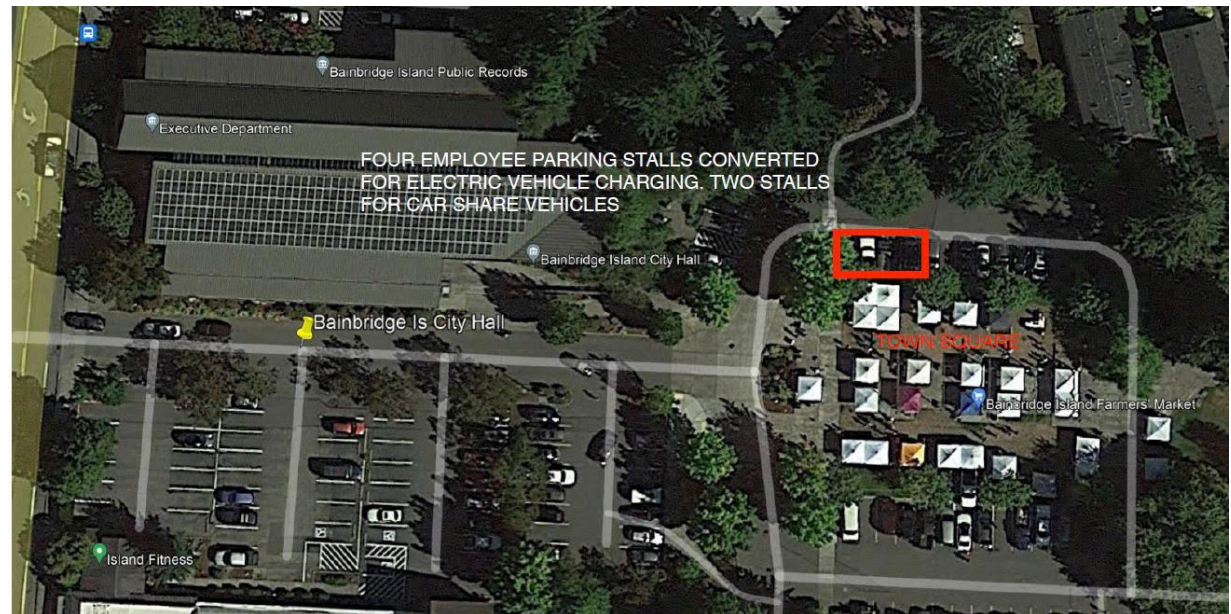
Panel 'EV'												
120/208V, 3 Ph., 4 W.; 100A Bus with 60A Main Circuit Breaker Surface Mounted Panelboard												
Ckt. No.	Description / Location	Load (VA)Type	C.B. A/Pole	Note	Ph.	Note	C.B. A/Pole	Load (VA)Type	Description / Location	Ckt. No.		
1	EVCS	3,328 G	40/2		A		40/2	3,328 G	EVCS	2		
3	-	3,328 G	-		B		-	3,328 G	-	4		
5	CHARGEPOINT GATEWAY	50 G	20/1		C		20/1		SPARE	6		
7	SPACE				A		20/1		SPARE	8		
9	SPACE				B				SPACE	10		
11	SPACE				C				SPACE	12		
13	SPACE				A				SPACE	14		
15	SPACE				B				SPACE	16		
Total Connected Load:		Ph. A	6,656 VA	55 Amps	Panel Connected Load:		13.4 KVA	37.1 Amps				
Total Connected Load:		Ph. B	6,656 VA	55 Amps	Sub-Fed Connected Load:		0.0 KVA	0.0 Amps				
Total Connected Load:		Ph. C	50 VA	0 Amps	Total Demand Load:		13.4 KVA	37.1 Amps				



1 SINGLE LINE DIAGRAM
NO SCALE

CHARGING FACILITIES PLANNING: DATA SOURCES


- Supplementary Data Sources
 - Google Earth
 - Local utilities
 - Purchase records
 - Vendors



SOURCE: City of Bainbridge Island/DKS

CHARGING FACILITIES PLANNING: DATA SOURCES

- Utility (electric) bills



City Of Spokane Solid Waste

myavista.com
1 (800) 227-9187

Account Number: 7857740000
Statement Date: 07/07/2021

Master Account Bill Summary

Previous Balance Due	\$17,825.17
Payment Received on 06/16/2021 - Thank you.	9,317.72 CR
Payment Received on 06/24/2021 - Thank you.	8,507.45 CR
Subtotal	0.00
New Charge(s)	
Electric	9,351.88
Area Light	109.65
Natural Gas	205.21
Total Amount Due This Month	\$9,666.74
Due Date (Applies to new charges only):	Jul 27, 2021

\$9666.74 <

Page 1 of 6

Monthly Statement

Total Amount Due	Due Date
\$9,666.74	Jul 27, 2021 <small>(Applies to new charges only)</small>

Your Message Center

We're here to help. These can be challenging times, so if you're facing financial difficulties, please reach out to us by calling (800) 227-9187 or email ask@myavista.com

Emergency Payment Plans. You can now login to make emergency payment arrangements online and choose the plan that works best for you. Go to myavista.com/assistance

SOURCE: City of Spokane/DKS

CHARGING FACILITIES PLANNING: DATA SOURCES

Stakeholder Questionnaires, Surveys & Interviews

Fleet facilities inventory questions:

- Number of parking stalls by fleet domicile parking lot or garage?
- Existing electrical service: load data (data logging) and/or electric bills to determine available electrical capacity and peak load demand?
- Relevant parking facility as-built drawings (electrical, civil, signing and architectural)?
- Status of facility ownership: owned or leased (and duration of lease)?
- List of Electric Vehicle Supply Equipment (EVSE) installed or planned for near-term installation at each site. Include itemization of connector types, and user interfaces for payment?
- Any preferred charger Vendors? (Eg. ChargePoint, Shell Recharge Services, Siemens, etc.)?
- Preferred purchasing contract for charger pricing (State contract, Mayor's Climate Collaborative or Sourcewell)?

SOURCE: City of Kirkland/DKS

CHARGING FACILITIES PLANNING: DATA SOURCES

Stakeholder Questionnaires, Surveys & Interviews

More fleet facilities inventory questions:

- Utility bills that show both kWh and kW consumption for both facilities?
- Insurance (eg. Does fleet have or need insurance policy that covers the potential vandalism of the charging equipment)?
- Quantity, makes and models of existing and/or planned EV chargers?
- Parking/charging access (limited to fleet vehicles, employers, members of the public)?
- Fee structure of expanding electrical service per kWh?
- Known fixed costs in supplying additional electrical service if projected loads from new chargers exceed capacity?
- Contacts, phone, and email for local utility contacts?
- Plans for major facility upgrades, closures or replacement that would impact electrical service?

SOURCE: City of Spokane/DKS

Task 4/ Charging Station Options and Budget Estimates

Finalize analysis and prepare recommendations

4.1 Prepare recommendations addressing the most suitable alternative charging strategies

4.2 Identify quantity of EV chargers

4.3 Determine the most optimum locations for installing charging stations

4.4 Conduct field visits to inspect fleet facilities and vet conceptual recommendations

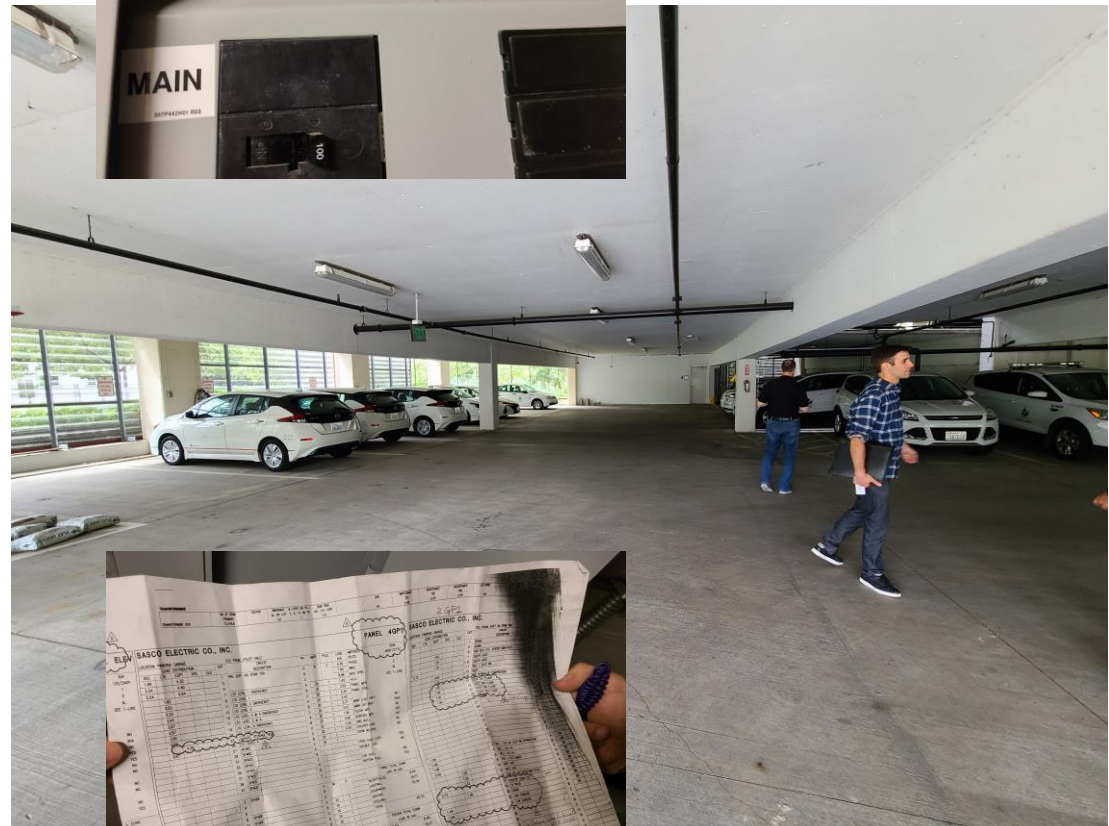
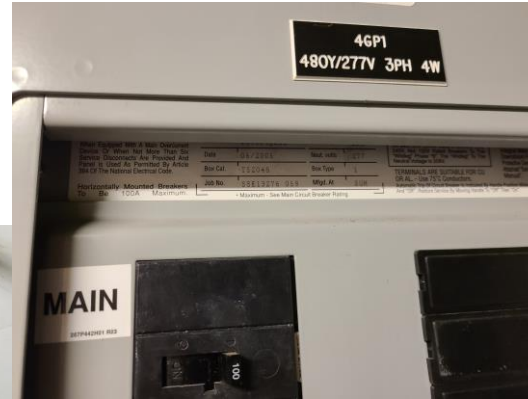
4.5 Estimate costs for multiple EV charging project components

4.6 Develop phasing strategy(s) for implementation of charging infrastructure

4.7 Estimate cost of infrastructure maintenance, replacement costs, and management of stations

CHARGING FACILITIES PLANNING: DATA SOURCES

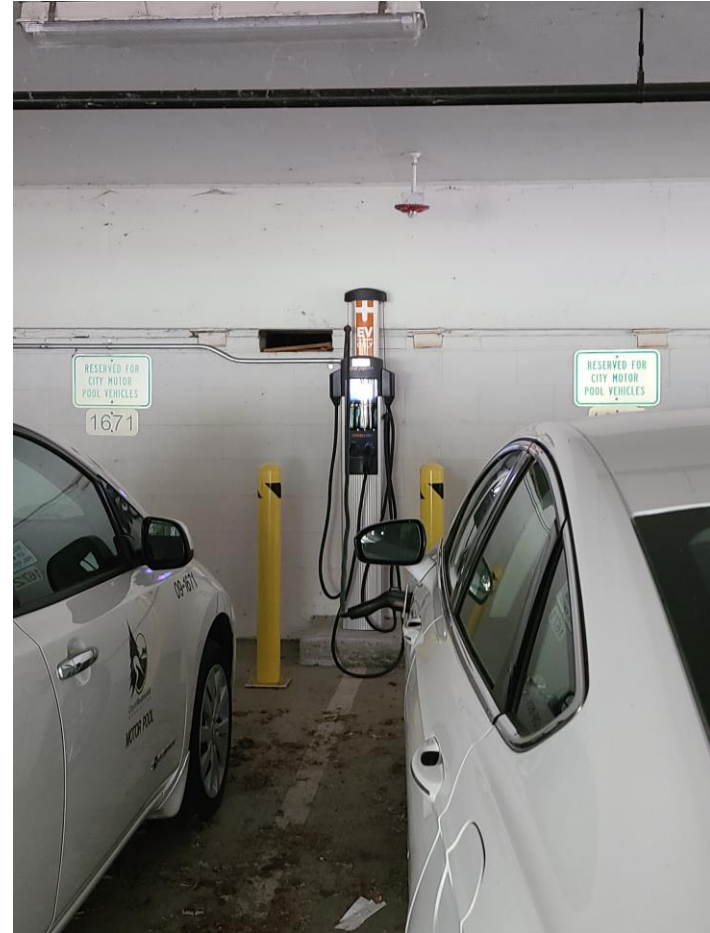
Site Visits



SOURCE: City of Redmond/DKS

CHARGING FACILITIES PLANNING: DATA SOURCES

Inventory existing EV
chargers



SOURCE: City of Redmond/DKS

GTSE: August 16 1:00-3:00 Tacoma

Planning for EV Transition: A Two-Hour Workshop for Fleet and Facility Managers

Frontier Energy and DKS Associates have helped dozens of fleets plan the transition to electric and zero-emission vehicles. No matter the size of the fleet, it is a big project, and many factors can make it complicated.

During this workshop, Chris White and Mike Usen will help you identify data and create a transition plan using our checklist approach. You'll leave the workshop with specific advice and tools that you can use to create your own transition plan for light-, medium-, and heavy-duty vehicles.

Understand the Goals

- Articulate the motivations to transition the fleet
- List the benefits and challenges
- Set a timeline for implementation

Assess Fleet Vehicles

- Identify vehicles' duty cycles and operating requirements
- Associate each vehicle with a home base facility
- Look for opportunities to right-size vehicles
- Identify suitable EV/ZEV replacements

Assess Charging Station Needs

- Determine the charging strategy
- Identify the ideal ratio of chargers to EVs
- Estimate the energy needed to charge EVs
- Evaluate each facility's electrical capacity
- Engage with the utility

Develop a Procurement Strategy

- Create a phased plan for vehicles and charging stations
- Estimate procurement and construction costs for each phase
- Seek grants and incentives
- Determine a budget and financial strategy

Train Staff and Create Policies

- Train drivers about using the EVs and charging stations
- Train maintenance staff about routine EV and charging station maintenance
- Train fleet and facilities staff on EV and charging station data and reporting tools
- Create policies about charging station use and "charging for charging"

Evaluate EV Performance and Use

- Establish metrics to measure that EVs are used as expected
- Reevaluate the EV transition plan as needed

Moderator:

- TBD

Speakers:

- Chris White | Business Development Director | Frontier Energy
- Mike Usen | Electromobility and Resiliency Lead | DKS Associates



Green Transportation
Summit & Expo

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QUESTIONS?

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