NARUC Electric Vehicles State Working Group

FEBRUARY MEETING - PLANNING FOR CURRENT AND FUTURE FLEET ELECTRIFICATION NEEDS

FEBRUARY 28, 2023

Welcome

EV SWG Vice-Chair

Chair Jason Stanek, Maryland Public Service Commission

NARUC Staff

• Jeff Loiter, Jessica Diaz

3:00 PM	Welcome and Agenda Review: Chairman Jason Stanek of the Maryland Public						
	Service Commission, EV SWG Vice-Chair						
	Agenda review						
	Reminder of resources						
	Welcome new members						
3:04 PM	Webinar: Planning for Current and Future Fleet Electrification Needs						
	Speaker introductions						
3:10 PM	Setting the Stage: Kara Podkaminer, DOE						
3:15 PM	Presentation: Dave Schaller, Industry Engagement Director, North American						
	Council for Freight Efficiency (NACFE)						
3:30 PM	Presentation: David Treichler, Director of Strategy and Technology, Oncor Electric						
	Delivery						
2.15 DM	084						
5.45 E WI	• Speakers will take questions from working group members						
	Speakers will take questions from working group members						
4:05 PM	Closed Door Discussion & Peer Sharing						
	• Working group members will discuss their own views and the actions their states						
	have taken to date. See discussion questions.						
1.20 DN/							
4:50 PW	Adjourn						

Feel free to enter questions into chat at any time

Agenda

Resources for Reference

- DOE's EV Grid Assist webinar series (June November) recordings are posted at: <u>www.energy.gov/eere/evgrid-assist-accelerating-transition</u>
- Presentations and recordings of past EVSWG events are available on the NARUC website: <u>www.naruc.org/cpi-1/energy-infrastructure-</u> <u>modernization/electric-vehicles/</u>
- EVSWG Listserv: <u>NARUC-EVSWG@lists.naruc.org</u>
- ICYMI 4 NARUC EV publications released late 2022:
 - Models for Incorporating Equity in Transportation Electrification
 - Electric Vehicle Interoperability: Considerations for Public Utility Regulators
 - Considering Interoperability for Electric Vehicle Charging: A Commission Case Study
 - <u>Transportation Electrification: State Level Roles and Collaboration among Public Utility Commissions,</u> <u>State Energy Offices, and Departments of Transportation</u>

Welcome

Moderator: Chair Jason Stanek, Maryland Public Service Commission

Panelists

- Kara Podkaminer, Senior Advisor, Sustainable Transportation and Fuels, DOE EERE
- Dave Schaller, Industry Engagement Director, North American Council for Freight Efficiency (NACFE)
- **David Treichler**, Director of Strategy and Technology, Oncor Electric Delivery



U.S. DEPARTMENT OF ENERGY **EVGrid Assist** ACCELERATING THE TRANSITION

Preparing for Fleets February 28, 2023



Decarbonizing Medium- & Heavy-Duty On-Road Vehicles

- ZEVs can reach total-cost-of-driving parity with conventional diesel vehicles by 2035 for all MD/HD vehicle classes (without incentives).
- ZEV sales could reach 42% of all MD/HD trucks by 2030 assuming economics drive adoption
 - ZEV sales reach >99% by 2045, and 80% of the MD/HD stock transitions to ZEVs by 2050
- Not all trucks are the same: different size classes and use cases lead to different vehicle requirement and costs, determining opportunity for ZEV adoption



*Study results are sensitive to assumed fuel prices, additional details at: <u>https://www.nrel.gov/docs/fy22osti/82081.pdf</u>



Planning for MHDV Decarbonization

EPRI's EVs2Scale2030

Bring together 3 sectors most critical to achieving large-scale electrification – OEMs, fleet operators and the utility industry

- Aim: Improve visibility into EV charging plans to inform proactive grid planning investments that can accelerate grid interconnects
- Result: Heightened confidence in electrification planning is also critical for informing utility regulators
- Approach: Requires transparency and collaboration

GridFAST: Grid interconnect online data exchange tool development





National Lab Data and Analysis Effort

Coordinated effort to identify tool, data and analysis that help answer stakeholder's most pressing questions

Initial questions:

- 1. What are projected charging load profiles and forecasted load growth?
- 2. How much of that load is flexible?
- 3. What are the system benefits associated with EV charging?
- 4. What data, commitments or other information is needed so utilities can build infrastructure proactively?
- 5. Are new regulatory approaches needed? What information is needed to inform this discussion?

Better understanding of the questions allows for better, more refined tool development



US DEPARTMENT OF ENERGY **EVGrid Assist** ACCELERATING THE TRANSITION





Trucking: Transitioning To Cleaner Fuel

Dave Schaller February 2023



North American Council for Freight Efficiency



- Unbiased, fuel agnostic, non-profit
- Mission to double freight efficiency
- All stakeholders
- Scale available technologies, guide future change and Run on Less demonstrations.

www.NACFE.org www.RunOnLess.com



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No Membership Fees: Thanks to Sponsors





Run on Less – Electric Participants



RoL–E Reports



January 12, 2022 Review Of Complete Demonstration: Electric Trucks Have Arrived



March 6, 2022 The Use Case For <u>TERMINAL TRACTORS</u>



April 11, 2022 The Use Case For VANS & STEP VANS



May 5, 2022 The Use Case For <u>REGIONAL HAUL</u> <u>TRACTORS</u>



June 28, 2022 The Use Case For <u>MEDIUM DUTY</u> BOX TRUCKS

Other NACFE Whitepapers on Truck EVs: https://nacfe.org/research/electric-trucks/



Driver Shortage & Electric Trucks

Drivers love EV trucks because:

- Acceleration rate is better
- Quieter
- No diesel and DEF to fill
- No fuel smell on their clothes and shoes

Driver Video: https://vimeo.com/746996242





























Complexity In Both Industries

Truck Fleets

Utilities

Trucks Tractors Trailers	Drivers: Company Independent Contractors Owner-Operators				Serv Gener Transn Distrik	ices: ration nission pution		Ownership: Independent Municipal Cooperatives
Vehicles: Owned Leased	Facilities: Owned Leased	Dozens of different applications			Rate Tim Dema	Structures: ne Of Use and Charges		Regulated & Unregulated
Fuels: diesel, biodiesel, CNG, LNG, LP, DME, electric, hydrogen, renewable diesel, RNG, RLP, hybrids & more			"If you've seen one, you have only seen one."		Fuels: NG, coal, hydroelectric, solar, wind, nuclear, and more			

Annual Fleet Fuel Study

New Release: December 2022

Adoption takes time

Hard things take longer





Adoption Timing: 5 Year Trade Cycle



- Year 3 = Half of the annual order
- Year 4 = Full adoption in order





Adoption Timing: 12 Year Life Cycle



Assumptions:

- Truck considered "dead" at 12 years
- 12 Year Life equates to 8% new trucks every year
- Years 1 & 2 validating a few trucks
- Year 3 = Half of the annual order
- Year 4 = Full adoption in order



Adoption Timing: Other Influences

- Timing will vary from fleet to fleet.
- Location will have a HUGE impact on timing.
- Fleets with multiple locations are likely to start in the most favorable locations.
- The fleet headquarters won't necessarily be the starting point for electrification.
- Fleets with 100% electrification goals won't necessarily put an EV in every location during phase in. They are more likely to focus their training, service and parts in strategic locations first.
- It is not unusual for a fleet to have multiple divisions that operate <u>very</u> differently from each other.
- Build where there is access to power





Run On Less – Electric Depots



Get Involved As A Depot or Sponsor

2023 Concept:

- Scaling MD & HD Electric Trucks
- USA, Canada & Mexico
- 8 Depots
- At least 15 EV trucks at each depot
- Focus on Infrastructure & Charging Systems
- Second EV Truck Bootcamp Series
- Analyzing 100+ possible locations



20

DEPOTS Electric Truck Bootcamp

- 1. Best Practices for Utility-Fleet Relationships
- 2. Grants and Incentives for the Trucks and Infrastructure
- **3.** Electric Truck Developments



- 5. Opportunities to Extend BEV Range (via charging technologies)
- 6. Electricity Resiliency and Availability (microgrids, renewable energy...)
- 7. Current and Future Regulations for Zero Emission Trucks
- 8. Managed Charging to Improve Availability, Cost and Range
- 9. Scaling Charging Infrastructure Equipment
- **10. Electric Depot Site Planning and Construction**

Register here





4.

Getting to Know Each Other



ICE & Electric Truck OEMs

























VOLTA ZERO











February 2023















NORTH AMERICAN COUNCIL FOR FREIGHT EFFICIENCY

NACFE.org



NACFE (& Spanish: NACFE LATAM)



RunOnLess.com

NACFE

Linked in

<u>@NACFE_Freight & @RunOnLess</u>





Dave Schaller

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Green Fleet Transition Planning

David Treichler | Director Strategy and Technology Presentation to NARUC EVSWG February 2023

UNLOC

FODAY'S MOS

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The Problem Through My Eyes



Fleet Electrification

- North Texas has over 24,000 commercial fleets.
- With over 305,000 vehicles
- Serving approximately 12.9% of all US freight
 - more than next two states combined

Fleet Breakout:

- Light Duty: 153,774
- Medium Duty: 50,274
- S&T Buses: 14,508
- Heavy Duty: 86,470







Logistics Clusters in DFW Area

D/FW has four pockets of high concentrations of logistics and distribution centers, All are proximate to the interstates and/ or DFW or Alliance airports.







Simple Math

Actual Inquiry:

Logistics Center 435 Class 8 Trucks 600 kWh batteries in each truck

Overnight Charging = 40MW

Current site load = 100kWh

The Tesla Semi has a 1MWh battery

Automotive technology innovation is rapidly changing charging requirements





Fastest Movers: National Delivery Fleets



- Vehicles are available now
- Major OEMs: GM Brightdrop, Ford eTransit, Rivian
- Most charge overnight at depots
- Chargers up to 14 kW but many 7.2 kW
- May install one or more DCFC system for operational flexibility
- Require high reliability and resilience solutions
- Larger fleets may take primary service, smaller are more likely to use secondary.

Key Drivers

sustainability commitments

strong TCO

aligned use cases customer expectation

ONCOR.

Electric Fleet Operation Affects Charge Times & Charge Load Intensity

Best electric fleet use cases in **2021**:

- Ranges within 200 miles
- Return to the charging hub
- Delivery, service, transit

Load: 1 customer site, 100 trucks: - 1 to 50 MW peak load

Daily operation cycle dictates charging time and power intensity.

2031: technology enables all use cases

- range > 1,000 miles
- costs at parity





Oncor Efforts to Improve Transition Effectiveness

EFFORT

- Development of Oncor's Green Fleets tool
- Adding data layers to tool for fleets/locations
- EV section of Oncor Website
- WJ Bradley & Associates Study
- PUCT Docket 49125 filing
- Analysis of Feeder Impacts from EV Adoption
- West Monroe Partners Study
- Video Clips for Fleet Dealers and Customers
- Propensity modeling for Fleet Adoption tool
- Portal for fleet owners

EFFECT

- Early review of feasible approaches to serve
- Identify clusters and service options
- Personal and Fleet outreach and education
- Forecast personal vehicle growth and trends
- Identify the shape of impacts on Oncor
- Identify CAPEX impacts from cluster adoption
- Forecast Fleet adoption and impacts
- Provide Why, When and How to contact Oncor
- Identify possible adopters and conduct outreach
- Register interest to start conversations

Other Transportation Electrification

Air-e-mobility -

Fast charge loads between flights Capacity to top of building landing sites

Package delivery

Short range, burst charging

Regional Passenger e-jets Fast charge loads at airport gates System protection challenges

Electric Locomotives:

Currently 2.5MWh battery Project 16MWh battery systems ©2023 Oncor Electric Delivery Company LLC. All rights reserved



QUESTIONS:

David Treichler Director Strategy and Technology Oncor Electric Delivery 817-240-8823 david.treichler@oncor.com



Tackling the challenges of providing enough capacity to support initial fleet transition as well as in 3-4 years (when excess capacity is used up)

How to plan for growing electrification potential, so grid upgrades can be future-proofed or potentially proactively done; is that feasible?

What do utilities need to demonstrate to seek approval for pro-active investments?

Think about both today& near future needs for early adopter fleet electrification and project out/map where early adopters will likely be looking to connect in the next coming years

What information / evidence / action is needed by fleets and utilities related to managed charging to support adoption and reduce grid infrastructure needs?

Questions?

Raise your hand to ask a question or type a question into the question box

Commission-Only Peer Sharing Discussion Questions

1. How involved is your commission in planning for or dealing with the influx of federal funding for transportation electrification?

Illinois:

- ICC wants utilities to make impactful reductions of costs utilizing federal funds to help reduce costs that otherwise would have led to rate increases.
- Illinois passed the Climate and Equitable Jobs Act (CEJA) which calls for an equitable climate and clean energy transition, with the responsibility being on state agencies.
- 3 proposals are currently in front of the ICC:
 - PBR proposal to align with CEJA goals.
 - Beneficial Electrification Plan via CEJA
 - NEVI Plan and its alternative fuel corridors (AFCs)
- The ICC released a notice of inquiry separate from these proposals/ CEJA to solicit feedback on IRA/IIJA funding from stakeholders. ICC can't apply for the funds but can work with agencies, utilities, and stakeholders to streamline the use of federal dollars.

Florida:

 Florida is in a similar boat to Illinois regarding federal funds and are constantly in communication with state agencies about those funds. Communication is key for them.

<u>Indiana</u>

- IOUs are having trouble finding suitable site developments for EV chargers funded by the Volkswagen Settlement funds.
- Federal right of way laws can sometimes get in the way of those site developments.

Next EV SWG meeting: Tues, March 28 at 3pm ET

<u>WWW.NARUC.ORG/CPI-1/ENERGY-</u> <u>INFRASTRUCTURE-</u> <u>MODERNIZATION/ELECTRIC-</u> <u>VEHICLES/</u>