

### Event Overview:

- **Title:** Electrifying Municipal Sanitation Fleets
- **Organizer:** AEG New York 22Q4 Clean Transportation Task Force
- **Date:** April 19, 2023
- **Location:** WSP USA, One Penn Plaza, New York, NY

### Speaker Presentations:

- [Fabio Mantovani, Vice President, Ventures, NYPA](#)
- [Spiro Kattan, Deputy Director, NYC Department of Sanitation](#)
- [Tyler Ohlmansiek, Director, E-Mobility Sales, Mack Trucks](#)
- [Jeff Emerine, Regional Sales Manager, Northeast, BYD](#)

### Resources:

- [Event Web Page](#)
- [Municipal Fleet Questionnaire](#) - Please help our Task Force by completing this survey
- [Attendee List](#) - Contact information may be provided upon request
- [Slido Summary](#) - Municipal Fleet Questionnaire Results
- [Article: Governor Hochul Announces Major Milestone to Advance Infrastructure for Medium- and Heavy-Duty Electric Vehicles](#)

**Challenge:** “Lack of collaboration on grid/operational needs and vehicle specifications within the MHDH fleet community” - Brent Taylor, Assistant Commissioner, Citywide Fleet Operations, Sustainability Infrastructure, Emergency Management, NYC DCAS

**Objective:** Create a framework to enhance communication and collaboration to tackle 1) vehicle specifications and 2) grid need and 3) operational needs

**Stakeholder Queries:** EV ecosystem is more complex than of ICE; Energy and Transportation have never been closer; incorporating stakeholders such as: Utility, Developers, EV charging OEM, Vehicle OEM, charging optimization software, Fleet Manager / Operational Needs, How to transition a major fleet of refuse trucks to a non-carbon emitting “plowable asset”?

### Case Study:

- **Who:** NYC Department of Sanitation (DSNY), one of the largest municipal refuse fleets in the world, has thousands of light-duty (1.4K), medium-duty (1.2K), and heavy-duty (3.7K) vehicles in its fleet serving various purposes.
- **Issue:** Under **Executive Order No.90**, DSNY must transition their vehicle fleets to zero emission by **2040**. Although the DSNY has made significant progress on its ambitious decarbonization and electrification goals with BEVs and EVSEs, there are still various fleet-specific needs that must be addressed by OEMs and other stakeholders before it can be fully successful, including:
  - **BEV considerations:** Budgeting & Planning, Vehicle lifecycles, Battery capacity (kWh), Performance (payload, range, gradeability, snow plowing), Lead-times (production/delivery), Fueling/Charging window (~ 1 hour during snow storm), Training (operator, mechanic), Warranty (what is covered/how long)
  - **EVSE considerations:** Budgeting & Planning, How many chargers (Level-2, DCFC), Who will install?, Who will Maintain?, Charger networking (Wi-Fi, cellular service), Charge management (avoid Peak Load Demand charges), How much power (Megawatts?), Floor Plan (parking/charging). Electrical service upgrade, Plowing and Freon Recovery needs

- **Holistic approach:** To address fleet-specific considerations, various OEMs like Mack Trucks and BYD are taking a holistic approach to managing customer vehicle electrification:
  - Mack Trucks' robust energy solutions portfolio and strategic partnerships network delivers a customized offering to provide Mack customers with a total solution for electrification. The Mack MD Electric officially launched in March 2023.
  - BYD is the first and only company in the world to provide full market new energy vehicle solutions and the only auto company to master the core technologies of the entire EV industrial chain. Sells Class 6 Refuse truck; Class 8 tandem trailer; and Class 8 refuse truck, all of which are in demo/pilot studies in New Jersey. BYD

#### **Key Next Step:**

- Obtain robust data sources on usage and routing from agencies across the country (for both ICE and early EV vehicles) and provide to OEMs so they can develop data models, typologies, typical use cases that can inform product roadmaps, predict demand, charging requirements and overall market opportunity.

#### **How can OEMs best design and deliver successful replacements to specific municipal fleets in terms of vehicle specification and key performance metrics?**

- Provide demo vehicles – BYD is committed to this action
- Focus on replacing vehicles that have a OEM replacement product available while discussing needs for future vehicles
- Offer free workforce training and upgrades (or other ancillary supports)
- Demonstrate to ground-up facilities in particular the benefits to fleets of reorganizing their operations to maximize the value provided by EVs
- Design lighter and more efficient batteries
- Re-write the specs from scratch as a separate electric model parallel, rather than trying to adjust a diesel spec to fit in an EV option.
- Survey key operational metrics and tailor specs to meet use cases: duty cycle, routes, emergency requirements, land use/spatial, workflow, asset optimization, total cost of ownership, mileage, topography, number of pickups, weight tickets, stops, idling, propulsion requirements, HVAC and interior functions, charging requirements

#### **What is the ideal partnership framework between utilities, municipal fleet managers and OEMs to accelerate municipal fleet electrification? What information needs to be shared?**

- Complete transparency and open data sharing to create visibility into:
  - Fleet plans/goals so utilities so they can use EV usage patterns and predicted EV growth for forecasting and planning
  - Utility power capacity
  - Laws and incentives like through federal resources like DOE AFDC
  - Driver behavior (can affect battery life)
  - Human/workforce needs
  - Funding
  - The charging time between vehicles, so an easily adoptable CMS and shift optimization will be helpful.
  - Grid capacity for constant charging scenarios such as snow storms that need vehicles operating 24/7.
- Pilot locations for tests e.g. with utility sites with available capacity
- Incentivize alignment for similar metrics
- Need to reduce costs

- Financing and Government Incentives
- Funding
  - DoE funding for government projects taking most funds. Early posting of intents by agencies before project RFP.
- Managed charging and V2G for financial benefits and grid relief
- Partnerships
  - Identify appropriate roles and responsibilities to take on segments of the solution
  - Need to start with identifying partners at a level up, such as unions and the state legislature, and giving them a seat at the table

**How do we foster greater engagement among these critical stakeholders? What stakeholders are we missing?**

- Stakeholders:
  - Independent power producer
  - Design consultants for expertise
  - Unions
  - State legislators
  - Corporate buy-in
  - Utilities
  - More MDHD fleet operators
  - Infrastructure owners that might have an off-taker charging agreement with MDHD fleets
  - Industry associations
  - Government outreach support system
  - Regulators and legal departments for policies
  - Green tech investors
  - EVSE suppliers and software providers
- Funding: Stakeholders can also work together to seek out public funding including DOE innovation and formula funding and state green banks for financing
- Benefits: Everyone at the table needs to feel a benefit from this transition and need to determine a way to show the benefits of this transition to show its validity