

# Utility Fleet Electrification – Internal Fleet Conversion

Role of Electric Utilities in Electric Vehicle Deployment



## Background & Quick Take

As utilities expand and invest in transportation electrification programming for their customers, they can also lead by example by converting their own fleets to electric vehicles (EVs). These efforts can involve a wide range of initiatives, from installing EV chargers at company sites for commuter charging to converting the light-, medium-, and heavy-duty vehicles employees use while on the job. In partnership with Edison Electric Institute (EEI), a number of utilities made fleet procurement commitments to allocate a certain percentage of fleet procurement budgets to EVs, with several member companies agreeing in 2014 to allocate 5 percent of their budgets going forward. Most recently, during Climate Week 2020, EEI and many of its member companies announced several new fleet procurement goals that collectively put member companies on track to electrify one-third of their fleets by 2030, including two thirds of their passenger fleets.<sup>1</sup>

As these fleet procurement targets apply to a larger percentage of a utility's overall fleet and as many utilities consider adding medium- and heavy-duty vehicles to their electric procurement targets, understanding existing vehicle usage patterns and vehicle needs will become more important. This case study highlights two utilities – Southern California Edison (SCE) and the New York Power Authority (NYPA) – that use fleet replacement modeling paired with greenhouse gas (GHG) emissions reductions analyses as part of their fleet electrification planning process to ensure that fleet electrification and GHG reduction goals are met.

## Southern California Edison

SCE has taken a data-driven approach to evaluating both its fleet electrification goals and its broader GHG emissions reduction goals. In 2019, SCE published its Pathways 2045 analysis, which evaluated California's pathways to reaching the state's goal of carbon neutrality by 2045. SCE has used this modeling to create a number of company decarbonization goals, including goals around fleet electrification, that are in line with the State's deep decarbonization targets. SCE's approach to fleet electrification planning is unique, combining its internal fleet procurement plans with external original equipment manufacturer (OEM) announcements to ensure that electrification targets are both aggressive and attainable. As part of this process, SCE engages in a ten-year fleet replacement plan annually and updates which vehicles are eligible for electrification as new vehicle options are announced. In addition to evaluating vehicle availability and fleet turnover, SCE also considers infrastructure

## Goals and Process

### By 2030, SCE aims to electrify:

- 100% of passenger cars and small-to-midsize SUVs
- 60% of forklifts
- 30% of medium-duty vehicles and pickup trucks
- 8% of heavy-duty trucks

To understand fleet turnover eligibility, SCE engages in a ten-year fleet replacement plan annually.

### NYPA's fleet electrification goals are two-fold:

- Reduce GHG intensity and absolute GHG emissions from all vehicles 25 percent by 2025 and 40 percent by 2030 (2010 baseline)
- Electrify 50 percent of light-duty fleet by 2025 and 100 percent by 2030

To understand fleet turnover eligibility, NYPA has conducted a fleet replacement analysis of its entire vehicle inventory and has evaluated the potential GHG savings.

<sup>1</sup> "Leading by Example: EEI member companies collectively on track to electrify more than one-third of their fleet vehicles by 2030," Edison Electric Institute, September 29, 2020,

<https://www.eei.org/resourcesandmedia/newsroom/Pages/Press%20Releases/EEI%20Member%20Companies%20Collectively%20on%20Track%20to%20Electrify%20More%20Than%20One-Third%20of%20Their%20Fleet%20Vehicles%20by%202030.aspx>.

Utilities, like other fleet operators, are considering vehicle retirement criteria, model availability, vehicle cost, daily range requirements, and available/needed EVSE when beginning their fleet electrification

requirements necessary to support their electric fleet. As of 2019, SCE had installed 370 charging ports to support their electrifying fleet.

This modelling and monitoring approach enabled the company to announce ambitious fleet electrification goals in 2020, including goals to electrify 100 percent of passenger cars and small-to-midsized SUVs, 30 percent of medium-duty vehicles and pickup trucks, and eight percent of heavy-duty trucks by 2030 for its fleet of more than 6,200 vehicles. In order to achieve these 2030 goals, SCE estimates it will need to install almost 1,300 additional chargers. SCE estimates that these conversions will annually save more than 620,000 gallons of fuel and eliminate close to 6,000 metric tons of GHG emissions.

## New York Power Authority

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Guided by New York State's Executive Order 166, which directs state entities to reduce emissions from light-, medium-, and heavy-duty vehicles 40 percent by 2030, NYPA has established two targets: (1) reduce GHG intensity and absolute GHG emissions from all vehicles 25 percent by 2025 and increasing to 40 percent by 2030 (compared to a 2010 baseline) and (2) electrify the light-duty fleet 50 percent by 2025 and 100 percent by 2030. In order to reach these ambitious targets — in 2017, only 5.5 percent of NYPA's fleet was electrified — the company has conducted a fleet replacement analysis of its entire vehicle inventory and has evaluated the potential GHG savings to better understand its possible vehicle electrification pathway.

NYPA's analysis began with categorizing the existing light-duty vehicle fleet by vehicle type (e.g., sedan, crossover, pickup truck, SUV, etc.) and technology type (standard gas engine, hybrid, EV). Next, electrified vehicle offerings were investigated by vehicle type and when they would be available. To understand when vehicles would be replaced, NYPA relied on their vehicle retirement policy of 5 years or 75,000 miles (whichever occurs first). Each vehicle was given a replacement year using this criterion and currently available odometer readings and in-service dates. Electrified options were then paired with vehicles identified for retirement each year through 2030. Since not all vehicles could be electrified based on current market offerings, NYPA assumed a percentage of vehicles being retired would be replaced with standard gasoline vehicles while others would be electrified on an annual basis. The last step in the analysis was to calculate GHG emissions for the existing fleet compared to the proposed fleet moving forward. This involved analyzing available information on annual vehicle mileage and using assumptions around miles-per-gallon (gasoline and hybrid vehicles) and kWh/mi (EVs) to infer fuel or energy usage. Using 2019 as the baseline, annual GHG savings were calculated through 2030.

The resulting analysis provided a snapshot of 2020-2030 vehicle purchases and retirements, GHG savings compared to baseline, and anticipated costs NYPA would incur for vehicle replacement enabling the utility to better evaluate its fleet electrification options. NYPA also included the capability to adjust assumptions (e.g., retirement criteria, percent EV annual purchases, replacement vehicle pricing) allowing them to model different electrification scenarios given changes to key criteria.

## Next Steps

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Both NYPA and SCE have plans to continue to evaluate and assess their fleets as they continue to progress towards their fleet electrification goals.