There are 1 million electric vehicles (EVs) on U.S. roads today and more are expected to come. Every major automaker has made big commitments to EVs, with plans to bring at least one EV model to the market in the next few years. According to the Edison Electric Institute and the Institute for Electric Innovation, more than 7 million plug-in electric vehicles (PEVs) are expected to hit U.S. roads by 2025, requiring an estimated 5 million charging ports.

What does this EV growth mean to electric utilities and how should they prepare?

The Council of State Governments (CSG) had an opportunity to submit questions to Rishi Sondhi, emerging products manager at National Grid. National Grid serves over 20 million people throughout New York, Massachusetts, and Rhode Island, and is the largest natural gas supplier in the Northeast.

Sondhi’s answers, slightly edited for clarity, are produced below.

The EV market has grown rapidly since 2010, both in volume and diversity. Can you share what this growth means for the nation's utilities and what are the ways in which this growth impacts utility operation and planning?

Rishi Sondhi: EV sales are accelerating globally, with cumulative EV sales hitting 4 million this year. As reported by Bloomberg New Energy Finance recently, the time needed to reach each consecutive million EVs sold has shrunk from 17 months for the second million to 6 months for the fourth million. It is expected that the five-millionth EV will be sold by March 2019 - in just over 6 months from now. 25 percent of those upcoming EV sales will be in North America. Utilities have an important role in supporting wider EV adoption, meeting their customers’ needs, and achieving our states emissions and clean-air targets. This role includes helping expand deployment of charging infrastructure, increasing customer awareness, and preparing for future EV integration into the electric distribution system.

Given the rapidly evolving EV landscape, how can utilities like yours best position themselves and their customers for an EV future?

Rishi Sondhi: As utilities are in the business of providing electrical infrastructure and engage daily with its customers, they are well-positioned to stimulate rapid proliferation of EV charging infrastructure, as a complement to private sector investment. The old utility paradigm is changing. Yes, we have to deliver energy safely and reliably, but those are table stakes. Because of National Grid’s size—we deliver energy to power the lives of 20 million people in the Northeast—we are at the heart of one of the greatest challenges facing our society: delivering clean energy to support our communities long into the future. We think of ourselves as a clean energy transition company and our commitment is to look ahead and figure out how to keep pace with changing customer expectations and the enormity of the climate change challenge.

According to a recent SEPA report, about 74% of utilities remain in the early stages of
planning for growth in EV ownership. From the utility perspective, what are some of the key challenges in EV deployment?

Rishi Sondhi: We have identified three key areas that are critical to increasing electrification of the transportation sector, either by improving supply or demand for EVs: (1) customer awareness; (2) access; and (3) affordability.

1. Customer Awareness – Our vision is that customers will await the release of the latest plug-in models with as much excitement as the newest iPhone. But, first, significant effort will be needed to address customers’ concerns about EV performance, battery life, charging options and cost of ownership.

2. Access – Our vision is that EV charging will be effortless thanks to ubiquitous and convenient charging options at home, at work, and in public. Customers will have access to EV options in every vehicle class at their local car dealerships, or to clean public transit.

3. Affordability - Plug-in options at every price point and vehicle performance will be on par or better than conventional vehicles. Charging cost, whether at home or away, will be lower or comparable to petroleum-based fuel. And National Grid will help customers take advantage of every available incentive or rebate to lower the upfront cost of vehicles.

These three factors we believe will influence market behavior that can help usher in the kind of scale and pace of adoption needed to hit our targets. Specifically, for utility sponsored programs, one of the biggest challenge has been the slow pace of regulatory approvals which has been an impediment to faster deployments of charging infrastructure – a prerequisite to widespread electrification of the transportation sector.

How are you working with energy regulators, policymakers, and other stakeholders to achieve progress toward an electric vehicle future?

Rishi Sondhi: National Grid has joined the states we serve (Massachusetts, Rhode Island, and New York) in their goals to decarbonize and reduce greenhouse gas emissions by 80 percent below 1990 levels by 2050 – what we call 80x50 [4]. The transportation sector represents roughly 42% of GHG emissions in the U.S. Northeast. In June this year, after a great deal of research and modeling, we launched a piece of work we are calling National Grid’s Northeast 80x50 Pathway [5]. Our research shows that we will not achieve 80x50 goals if we do not have a 50% conversion of light duty vehicles (LDV) by 2030. Here’s some other ways that we are leading this transition:

- A few months ago, National Grid launched a new employee EV adoption program where we have facilitated the sale of more than 200 EVs in the first few months of the program using shareholder dollars, quadrupling our EV driver baseline.
- We have installed charging stations at 20 of our facilities to date, and will be adding more charging infrastructure for our employees in the near future. We have committed to investing 5% of our corporate fleet budget to EVs.
- We own and manage 150 Level 2 stations across our jurisdictions, and have installed three DC fast charging stations in Massachusetts with state grant funding.
- We now plan to enable 10,000 public charging ports by 2025 in our US jurisdictions with the approval of state regulatory agencies, which was an announcement we made at the Global Climate Action Summit in San Francisco a few weeks ago. We think utilities should play a major role in enabling charging infrastructure. There is a current lack of build out by the competitive marketplace.
- In the last year, we’ve included more than $40 million in regulatory filings for transport related initiatives - such as charging infrastructure, customer outreach/education, and grid integration - over the next 3 years in all of our National Grid jurisdictions.
In addition, our US President Dean Seavers serves as a co-chair of Alliance to Save Energy’s “50x50 Commission,” a diverse group of stakeholders working to reduce energy use in the transportation sector by 50% by 2050 while also meeting future mobility needs. Just last month, the 50x50 Commission unveiled a report which provides recommendations to policymakers on how to reach that goal. Our CEO, John Pettigrew, serves on the EEI CEO Task Force. The Task Force goal is to accelerate the growth of the EV market by focusing on how member companies develop EV programs, advance federal policy, promote industry coordination.

**How do you expect the EV market to change in the future?**

**Rishi Sondhi:** Light-duty EV adoption will increase rapidly over the next 5 years, with more vehicle models available and 200+ mile range battery will be the norm. The post-2030 challenge will see broader progress across all transport sectors – with new zero-carbon options will be required for medium- and heavy-duty vehicles, as well as non-road uses such as ships, railroads and aviation. We would like to influence public policy such that our customers who don’t use a personal vehicle aren’t left behind in this transition. Electric bus cost parity is ahead of the curve, so let’s capitalize and bring the benefits of electrified public transportation to the population who uses it. We believe we are taking a leadership role in electrifying transportation, but there is a great deal of work to be done. Utilities should plan for the future needs of the grid in ways that deliver customer benefits while optimizing the system utilization. These solutions may range from new rate designs to vehicle-to-grid technologies.

- In the near-term, EV drivers need access to lower-cost night time charging.
- Over the longer-term, more dynamic and sophisticated rate structures will enable EV owners and fleets to charge at specific times, operating in a way that best optimizes the use of the system and thereby benefits all customers.

Finally, we believe a price on carbon has a role to play in this transition, provided that it protects vulnerable customers AND proceeds are invested to drive the clean energy transition faster.

In previous blog posts, CSG has interviewed other stakeholders including utility regulators and state policymakers to get their perspective on how they are preparing for the coming surge in EV sales. CSG also published an infographic outlining 8 Reasons Why Electric Vehicles Are the Future of Transportation. A report, State Strategies for Advancing the Electric Vehicle Marketplace, will be released during the CSG 2018 National Conference in Northern Kentucky-Greater Cincinnati.