

Modernizing Our Electric Grid



New Jersey's aging electric grid needs to be readied to support customer demand for electric vehicles, buildings and appliances, distributed generation, and emerging technologies such as artificial intelligence. Under today's regulatory regime, the pace of modernizing the grid moves too slowly. New Jersey needs a proactive, modern regulatory framework and a modern grid that ensures all utility customers realize the economic benefits of strategic grid planning.

By accelerating the pace at which New Jersey's aging grid is modernized, and doing so in a strategic manner, utility customers will get the electric service they require, when they require it. Grid modernization will facilitate the transition to electric cars, trucks, buses, and efficient appliances that can save consumers money while also ensuring reliable service even in the face of increased demand. Requiring utilities to right-size and future-proof grid investments will yield cost savings for all utility customers — not just those who own EVs or live in electrified buildings — especially if utilities seek to avoid grid upgrades whenever it is less

costly to invest in load management and non-wires alternatives. Real-world data shows total costs of grid buildout can be halved if the utility builds appropriately plans for future deployment and right-sizes infrastructure investments rather than making multiple incremental upgrades.

EVs will play a significant role in how we modernize New Jersey's grid. EV charging can spread the costs of maintaining the grid over more kilowatt-hours, reducing the price per kilowatt-hour to the benefit of all customers. This phenomenon has already been observed in real-world New Jersey data. Synapse Energy Economics has documented that, between 2011 and 2021, EV customers in New Jersey contributed \$85.3 million more than what it cost to serve that additional EV load. This additional revenue pushes electric rates down for all customers, not just those that own EVs. However, benefits won't be fully realized unless we proactively plan and build the grid needed to support all beneficial electrification, while also allowing the state to meet its climate, air quality, and equity goals.

RECOMMENDATIONS

Require robust data collection and analysis in order to be able to develop effective long-term grid modernization plans

- Conduct analysis of the present state of the grid, including grid functionalities and distribution system planning
- Identify data gaps and what work needs to be done to reach New Jersey's goals
- Incorporate additional data sources (e.g., geospatial analyses of fleet depots and truck route patterns) into utility planning to better identify future load sources
- Develop concrete steps for ensuring equal and reliable service for all New Jerseyans
- Require regularly updated, transparent, and verifiable hosting capacity maps, and transparent interconnection cost estimates to support New Jersey's goal of maximizing solar development and distributed energy resources by 2050

Redouble efforts to modernize electric distribution systems to support faster electrification

- Support improved utilization and efficient expansion of the grid in preparation for electrification loads including vehicles and buildings

Incorporate express consideration of community benefits in the development, evaluation, construction, and operation of major grid projects

- Identify community benefits and pursue energy justice through local stakeholder participation

Require utilities to develop and adopt comprehensive plans for modernizing the grid infrastructure given projected demand based on clear data and in line with state initiatives

- Require electric utilities to align their grid deployment efforts with the needs identified through state policies and planning initiatives
- Require long-term planning, consistent with EO 317, for gas utilities that includes non-pipeline alternatives and integrates these plans with electric distribution system plans
- Require utilities to engage in climate resilience planning by identifying climate-related vulnerabilities and exploring cost-effective options to enhance system resiliency

Adopt and expand initiatives to use creative and nontraditional solutions to modernize the electric grid

- Expand utilization of cost-effective non-wires utility-side solutions, such as energy storage, to defer or mitigate the need for traditional grid infrastructure
- Implement programs that enable greater load flexibility, such as flexible interconnections and structured utility management of customer-side distributed energy resources (DERs), to enable more customers to connect to the grid without triggering the need for capital upgrades