

How the US electricity industry works

Generation – National Grid and others

Electricity generating stations produce electricity from another form of energy such as fossil fuel (coal, oil or natural gas), nuclear, hydroelectric, geothermal, solar or wind.

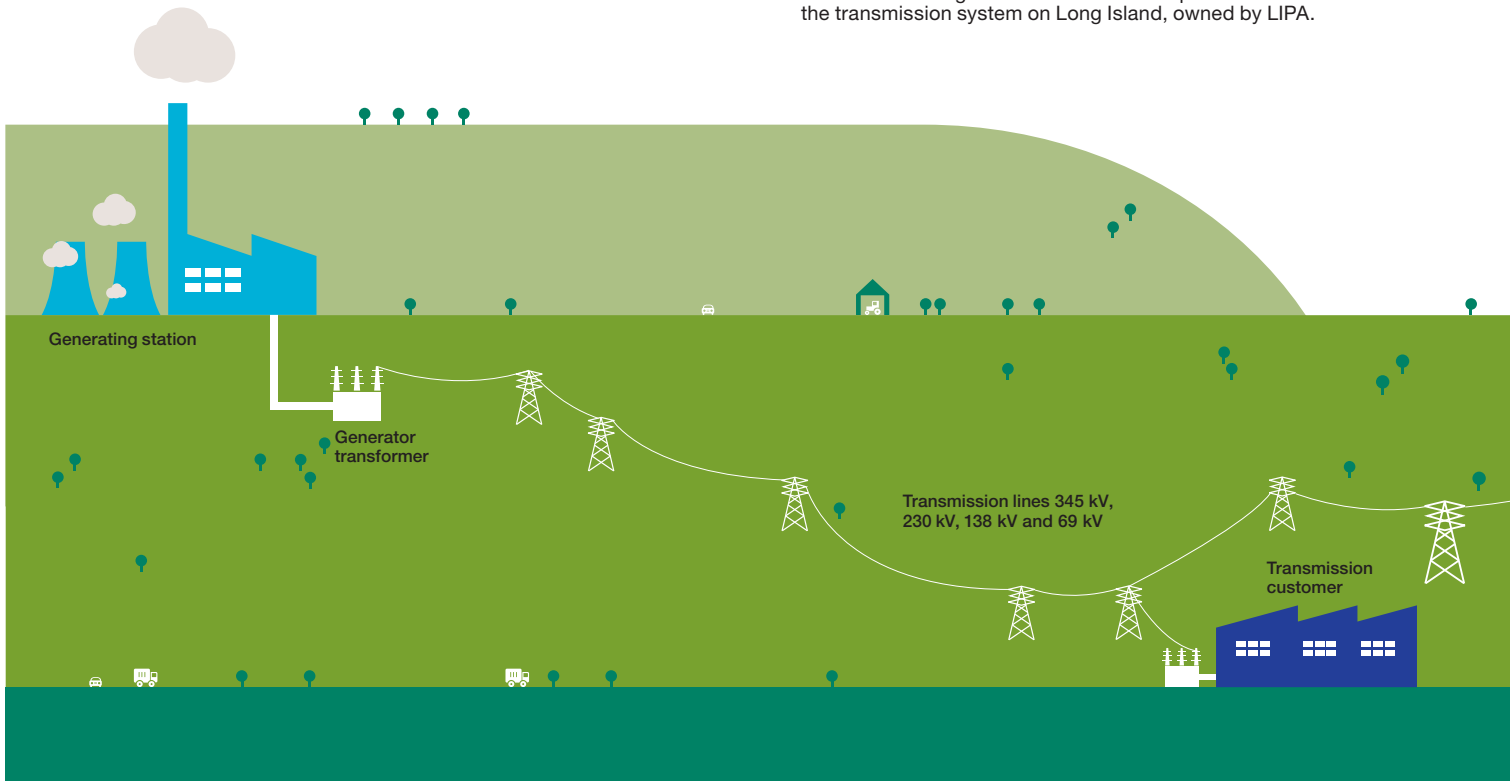
We own 57 generation units on Long Island that together provide 4.1 GW of power under contract to the Long Island Power Authority (LIPA). We also own 3.4 MW of solar generation in Massachusetts, making us the largest owner of solar generation in the state.

Transmission – National Grid and others

The transmission system supplies electricity to substations in individual service areas. Transmission lines transmit electricity from the generation source or substation to distribution substations. Transmission voltages at National Grid vary from 69 kV to 345 kV. Transmission voltages can also be converted to lower subtransmission voltages, typically 15 kV to 69 kV, to supply distribution substations and/or provide electricity to large industrial customers.

We own and operate transmission facilities in upstate New York, Massachusetts, Rhode Island, New Hampshire and Vermont. We also own and operate a 224 km transmission interconnector between New England and Canada. We operate and maintain the transmission system on Long Island, owned by LIPA.

Physical



Utilities may generate all the electricity they sell or may purchase electricity on the wholesale market from other utilities, independent power producers, power marketers or from a market based on membership in a regional transmission reliability organisation such as an independent system operator (ISO).

We purchase electricity through the New York ISO and ISO New England for transmission and distribution to our customers. We also contract directly with generators to purchase electricity.

All available power from our Long Island generation facilities is made available to the New York ISO market to meet the Long Island Power Authority's requirements and for sale to others.

The independent system operators operate as independent administrators for the oversight of electricity transmission while providing fair and open access to the electricity grid. Each independent system operator is the clearing house for load serving entities' bids to purchase electricity and generating stations' offers to sell electricity. New York ISO and ISO New England markets determine the wholesale energy price for New York and New England respectively.

We are permitted to recover the cost of electricity transmission across the regional grid from our customers as a transmission service charge.

Commercial

Distribution – National Grid and others

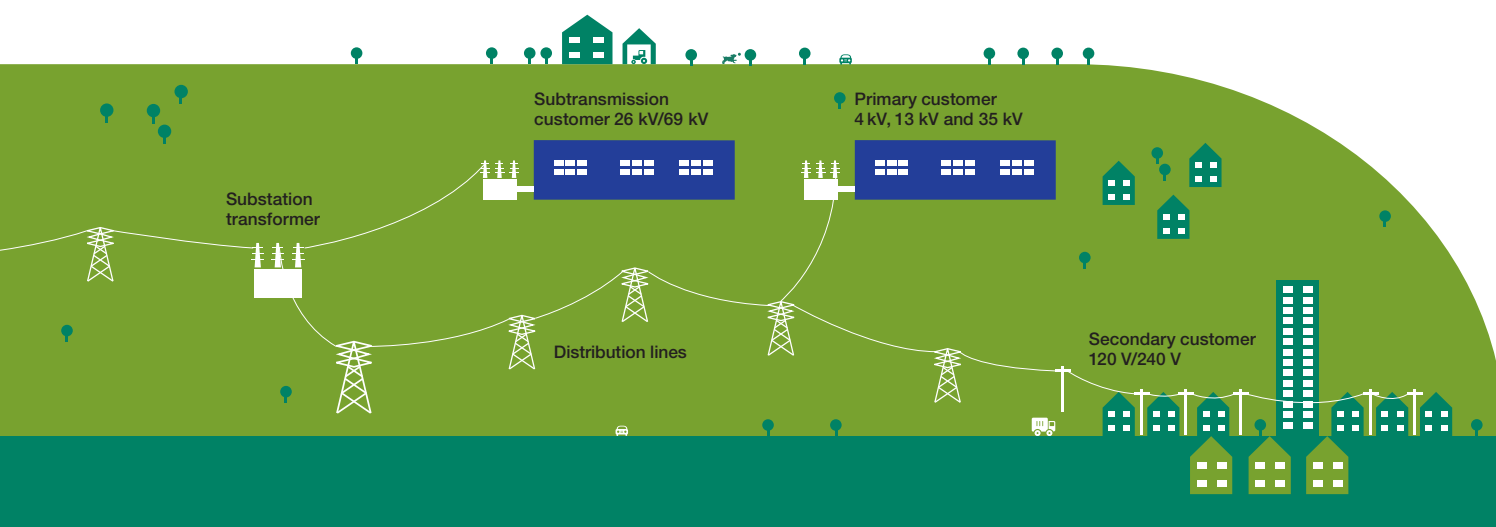
The distribution system receives electricity from the substation and supplies it to customers at a voltage that they can use. The distribution system can be considered to begin at a substation. The substation transformer converts the transmission voltage to a distribution voltage. Electricity at the distribution voltage, also called primary voltage, is typically 4 kV to 35 kV and is supplied to the service area by distribution lines.

Distribution lines may be located overhead on utility poles or buried underground. Distribution transformers convert distribution voltage to a secondary voltage, which is the voltage used by customers. We own distribution facilities and provide service to 3.4 million customers in upstate New York, Massachusetts, Rhode Island and New Hampshire. We maintain and operate the distribution system on Long Island, providing service to 1.1 million LIPA customers.

Supply – National Grid and others

Utilities such as National Grid and qualified retail marketers purchase electricity for customers connected to the distribution system. Qualified retail marketers buy and sell electricity only in deregulated states, but usually do not own or operate generation, transmission or distribution facilities.

Unlike in the UK, supply and distribution are not necessarily separate in the US; electricity distribution companies often sell electricity to their own customers connected to their distribution system.



Distribution rates are regulated by the state public utility commissions. Utility distribution facilities provide electricity services to end users. This contrasts with the UK, where distribution companies do not sell electricity to end users.

Customer bills typically comprise a commodity rate, covering the cost of electricity delivered, without a profit margin, and a delivery rate, covering our delivery service.

In deregulated states, which includes all the states in which we operate, consumers have the option to select their energy supply from the incumbent utility or retail marketers/energy supply companies.

Where customers choose National Grid, those customers pay us for distribution and commodity cost. Where they choose to purchase from third parties, they pay us for distribution only and pay the third party supplier for the commodity.