APPENDIX A

Con Edison Electric System Overview

1. Power Delivery System

Con Edison delivers electricity to 3.3 million customers in New York City and Westchester County – a service territory of 660 square miles with a population of approximately 9 million people. Electricity is delivered through approximately 95,000 miles of underground cable and almost 34,000 miles of overhead cable. As shown in Figure A-1, the Con Edison electric power delivery system is comprised of three distinct sub-systems: generation, transmission, and distribution.

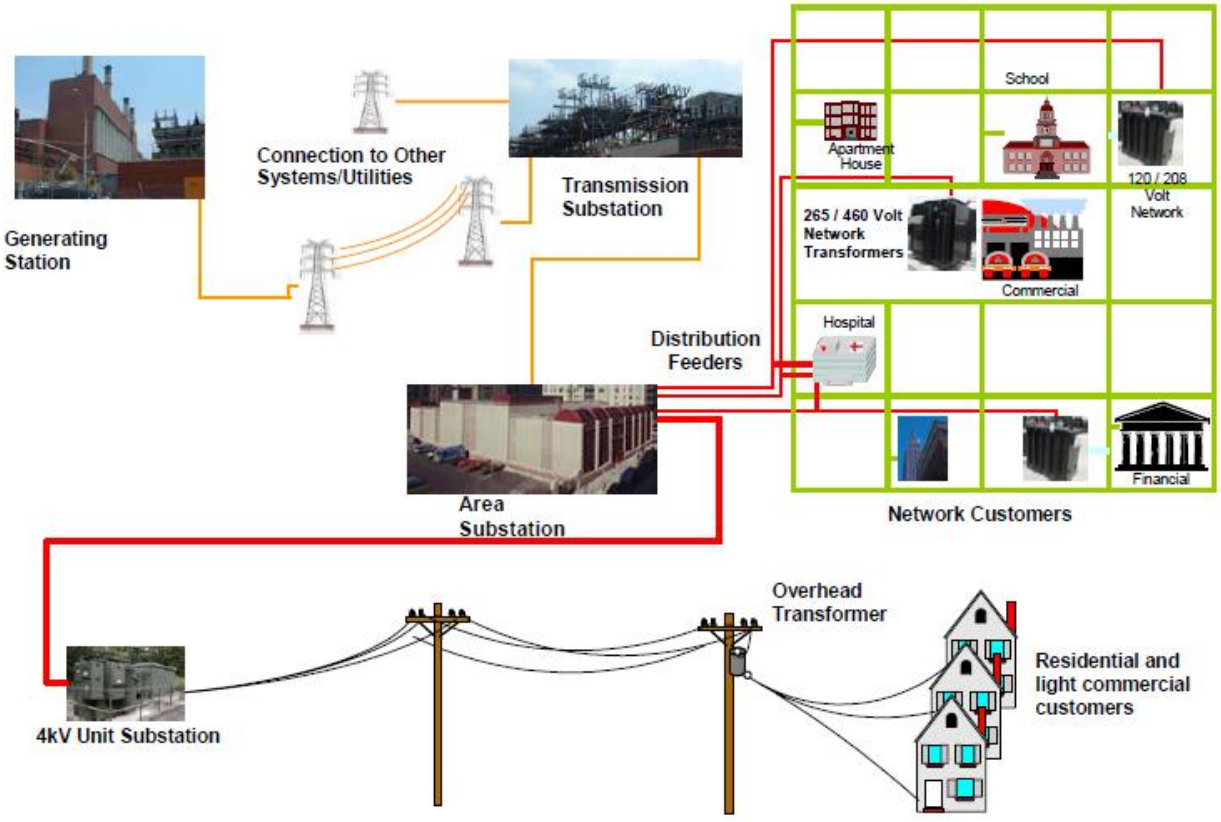

Figure A-1: Electric Power Delivery System

Central power plants[1] generate electricity that is transmitted over high-voltage transmission lines (69,000, 138,000, and 345,000 volts) that have the capability of delivering electricity over long distances.[2] These transmission lines supply the distribution substations – known as area substations – where the voltage is reduced from 345 kV, 138 kV, or 69 kV to primary distribution levels of 27 kV for Brooklyn and Queens, 33 kV and 13 kV for Staten Island, and 13 kV for Manhattan, the Bronx, and Westchester County.

From the area substations, high-voltage primary feeders distribute the power and feed a secondary system of low-voltage cables. In Figure 1, two different types of distribution systems (network and overhead) are shown. One type of secondary system is the underground network system in which each feeder supplies underground transformers located throughout local streets. These network transformers reduce the primary distribution voltage to a level used by customers.

The network transformers supply a network grid of low-voltage (120-volt) cables located underground. There are 50 area substations in New York City. These area substations serve 69 networks in New York City with 1,175 primary feeders. A network may have from 8 to 28 primary high-voltage feeders connecting the area substation to the network. Both primary feeders and secondary cables run through underground electrical structures (such as manholes and service boxes) that are interconnected by an extensive conduit system. Con Edison's system has approximately 274,000 underground structures.

Approximately 86% of the electricity delivered by Con Edison is carried by the underground network distribution system. The remaining 14% consists of non-network distribution systems, which include radial and primary auto-loop systems, underground

[1] Since the restructuring of the industry in the late 1990s, Con Edison has sold most of its large electric generating plants.

[2] The New York Independent System Operator (NYISO) administers the delivery of power through the bulk power transmission system from generating plants to the distribution systems of the state's electric utility companies.

residential distribution (URD) systems, and 4 kV supply. The network system (which includes approximately 95,000 miles of underground cable in New York City) provides superior reliability when compared to the overhead non-network system because there are multiple and alternative paths for the electricity to flow through and reach customers, and it is largely located underground where it is shielded from the effects of wind, trees, ice, lightning, and damage from vehicles. In addition, each network is designed to operate independently of every other network. As a result of this design, a problem in one network cannot affect customers in another network.

2. Primary Feeders

Figure A-2 is a simplified diagram of the primary feeders in a network.

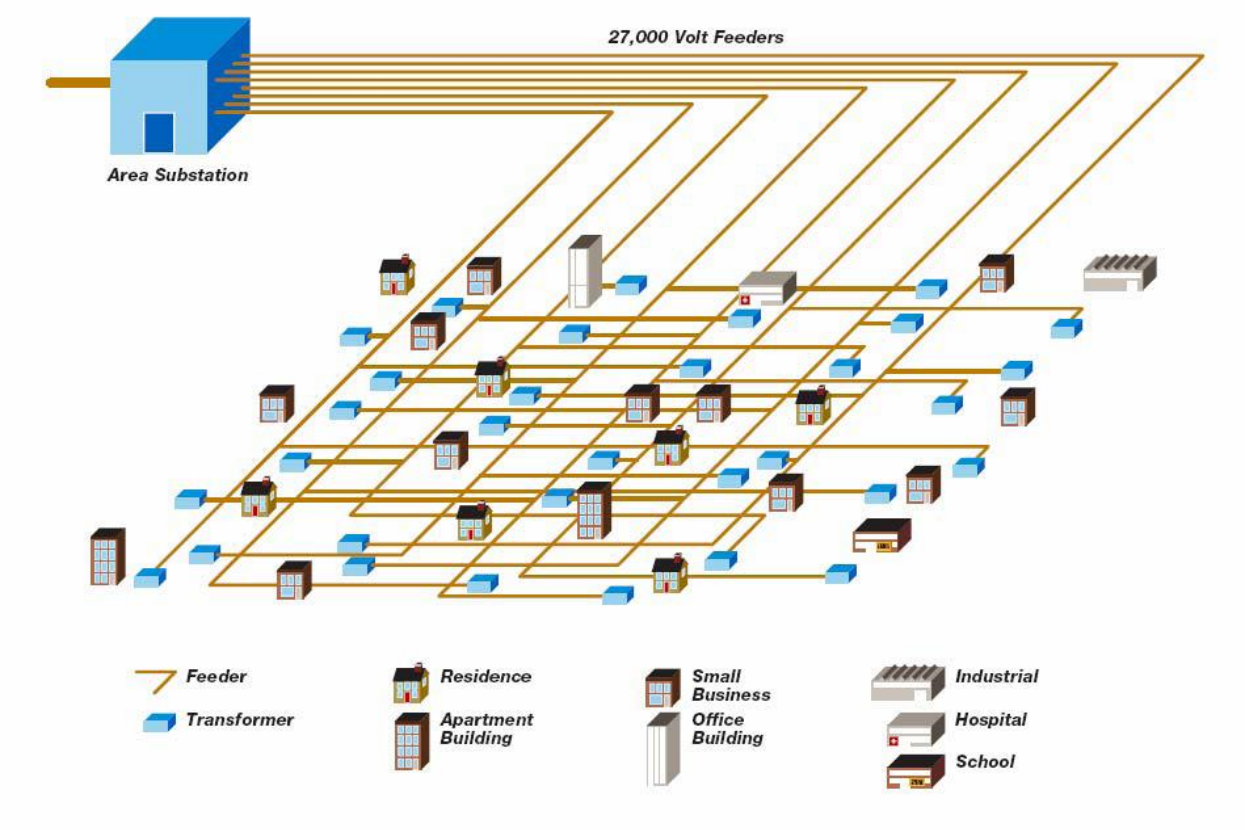

Figure A-2: Illustration of Con Edison's Primary Feeder System

This diagram displays eight 27,000-volt primary feeders delivering electricity to a network. The primary feeders supply electricity to numerous transformers (shown as blue boxes)

that supply electricity to most customers via the low-voltage secondary grid. Large industrial and commercial customers of more than one megawatt (MW) are often supplied directly by several primary feeders. Underground networks are designed to provide uninterrupted service to customers even when any two of the primary feeders supplying the network are out of service. This is known as a second contingency design criterion. The second contingency design criterion applies to all networks. It allows feeders to be removed from service for maintenance, modification, and additions without any impact on service. In addition, if cable and equipment failures occur, repairs or replacements can be implemented without affecting customers.

3. Secondary Grid Network

Figure A-3 is a simplified diagram that shows the secondary grid overlay (in blue) in a network.

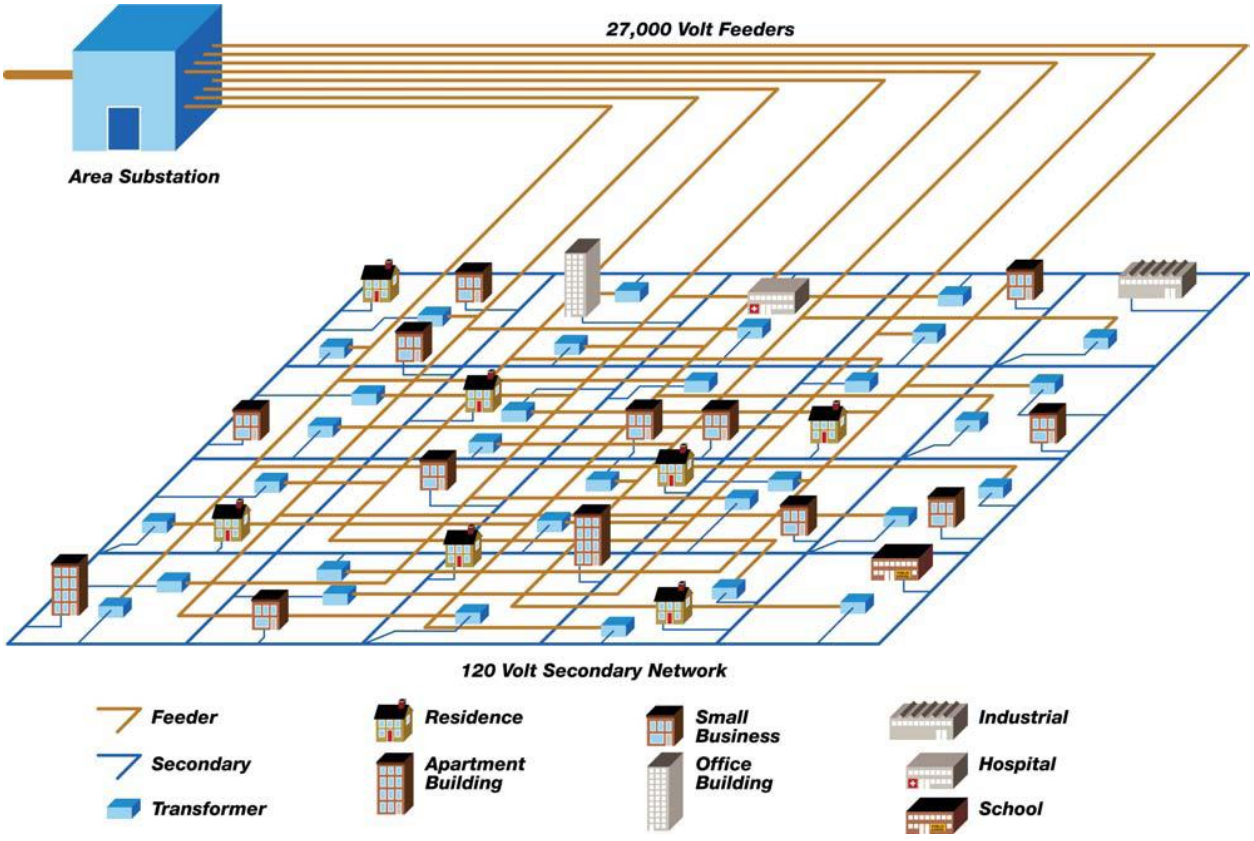

Figure A-3: Illustration of Con Edison's Primary and Secondary Network System

The secondary grid consists of multiple sets of low-voltage cables that are energized from underground transformers supplied by the network feeders. These low-voltage cables are installed in ducts under the streets and connected in manholes and service boxes. Customers' service lines are connected to these cables. The diagram illustrates how each secondary grid is a network of cables that allows the electricity to flow over numerous alternative paths, providing a very high level of reliability. Unlike an overhead radial system, where the electrical path to the customer is known, in a network system, because of the degree of interconnectivity, the exact path to the customer is not known.