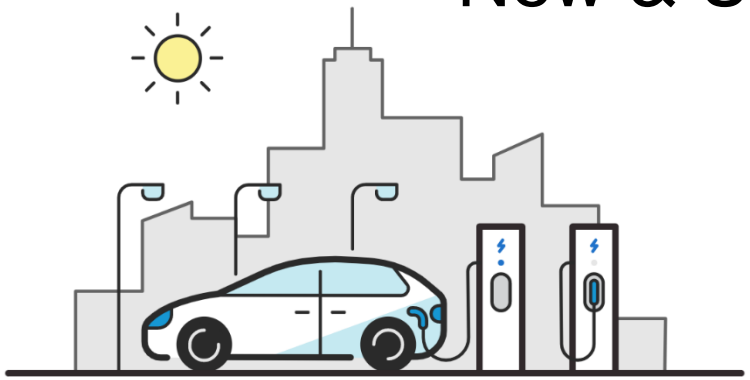
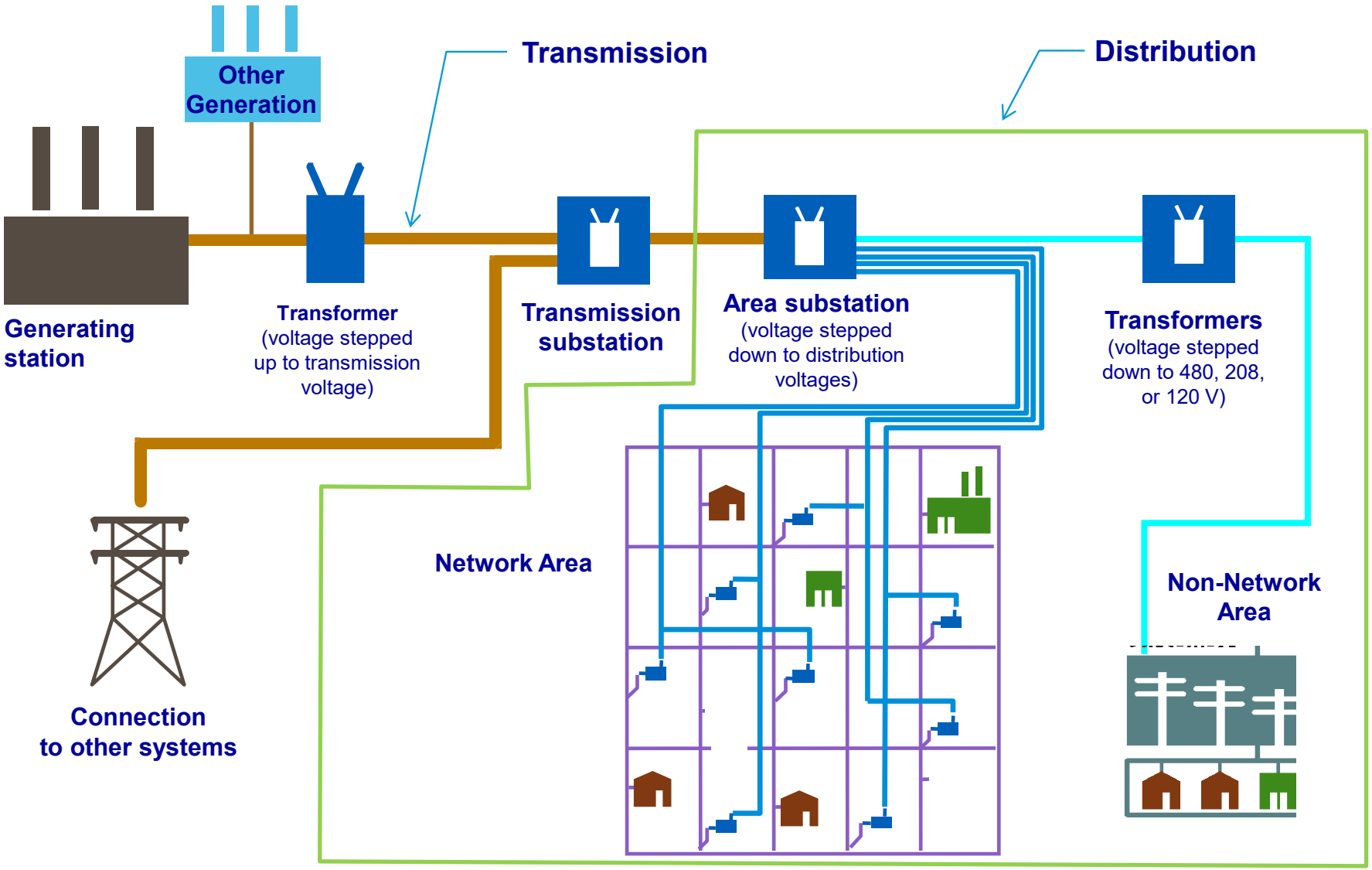
conEdison

E-Mobility Interconnection Guide

New & Upgraded Electric Service Overview

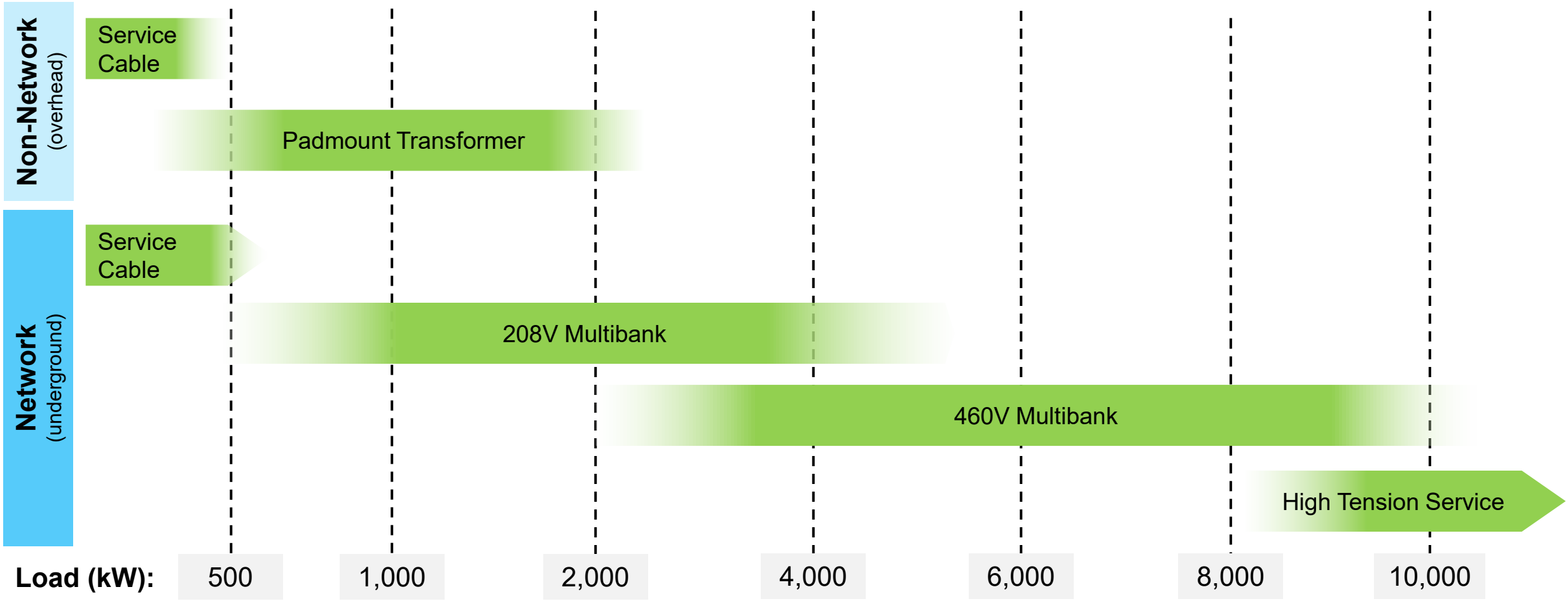


The Electric System

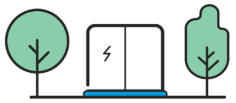
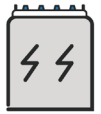
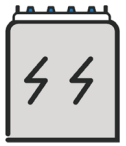


= *Distribution System*

Utility infrastructure needed to serve a site depends on the load and service conditions in the area



Utility service requirements will vary based on site conditions and the proposed EV charging scope

	Service Type (Service Voltage)	Typical Load (kW)	Project Timeline*	Customer-Side Equipment and Space
Non-Network (Overhead)	**Non-Network Service Cable (Overhead)** (120/240V, 120/208V)	<300 kW	4-6 Months	▪ Meter housing ▪ Weather-head installation
	 **Padmount Transformer** (120/208V, 120/240V, 265/460V)	300-2,000 kW	12-18 Months	▪ Meter housing ▪ Concrete pad (typical space requirements: 12' x 12')
Network (Underground)	**Network Service Cable (Underground)** (120/208V, 120/240V)	<500 kW	4-6 Months (existing conduit) 9-12 Months (trenching needed)	▪ End line box and meter housing ▪ Service conduit
	 **208V Multibank** (120/208V)	500-5,000 kW	24-36 Months	▪ Space for below ground vaults in the sidewalk or a blockhouse on customer property (typical space requirements: 11’ x 60-75’)
	 **460V Multibank** (265/460V)	2,000-10,000 kW	24-36 Months	▪ Space for below ground vaults and network protectors in the sidewalk or a blockhouse on customer property (typical space requirements: 20’ x 50-60’)
	High Tension Service (4kV, 13kV, 27kV, 33kV)	>8,000 kW	36+ Months	▪ Customer-owned transformers, network protectors, and switchgear ▪ Large space on customer property for customer-designed and owned blockhouse

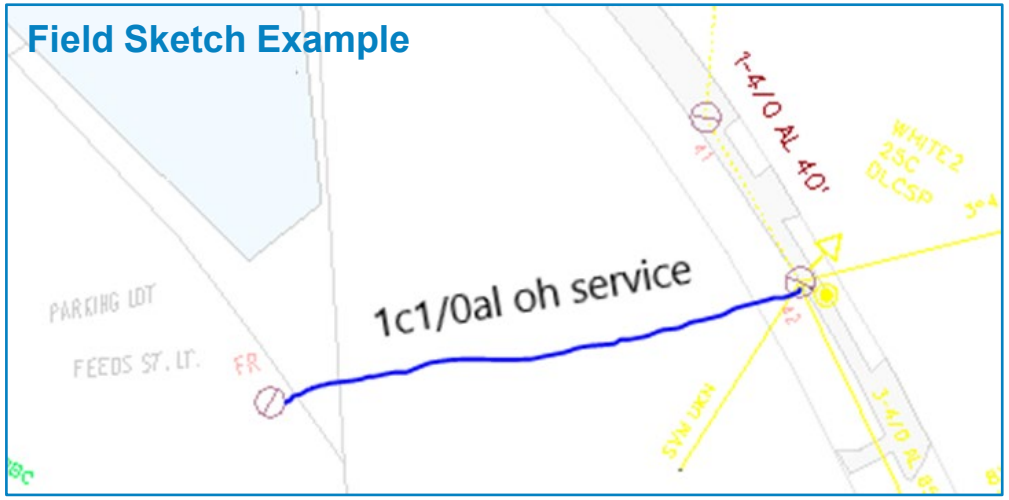
*From receiving a service determination to energization. Varies based on site-specific conditions. Relies on timely completion of customer design and construction responsibilities

Non-Network Service Cable (Overhead)

Typical Load (kW)	Service Voltage	Project Timeline
<500 kW	120/240V, 120/208V	4-6 Months

Con Edison Role	▪ Install cables to property ▪ Complete any needed upstream modifications and upgrades
Customer Role	▪ Install any needed pole or weather-head with standpipe on customer property ▪ Install meter housing, and any needed cable and conduit from service connection point to meter and to customer equipment
Design & Equipment Considerations	▪ May come overhead to a point of attachment on a building or customer pole ▪ Customer must meet certain clearances for service connection point (heights, windows, etc.) ▪ Customer provided step-up transformer needed for DCFC charging
Timeline Drivers	▪ Need for new or modified poles or other structures ▪ Utility-side transformer or feeder reinforcement

Field Sketch Example



Padmount Transformer

Typical Load (kW)	Service Voltage	Project Timeline
300-2,000 kW	120/240V, 120/208V, 265/460V	12-18 Months

Con Edison Role	▪ Install conduit and cables to property line ▪ Furnish and deliver transformer
Customer Role	▪ Identify on-site space and construct concrete pad within customer premise ▪ Construct property line manhole, meter housing, and all on-site cable and conduit
Design & Equipment Considerations	▪ Concrete pad dimensions, conduit openings, and clearances must meet Con Edison specifications ▪ Typical space requirements: 12’ x 12' ▪ In flood zones, must design to FEMA+5' ▪ Install bollards or barriers around transformer and switchgear equipment located near vehicular traffic
Timeline Drivers	▪ Customer construction schedule ▪ Primary conduit must be installed prior to Con Edison construction (stubbed out 1’ past the property line) ▪ Extent of upstream utility work required

Service Determination Example

Con Edison Service Determination

PAD MOUNTED TRANSFORMER INSTALLATION

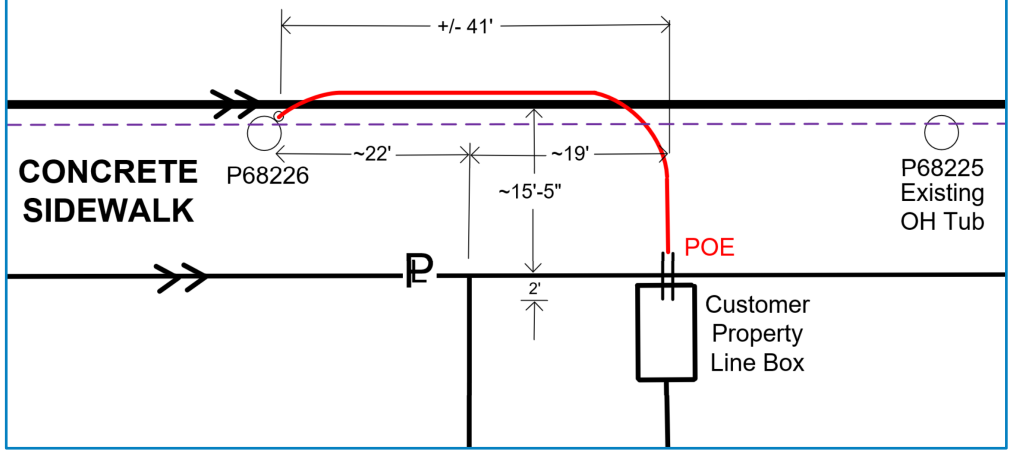
THIS EXISTING CUSTOMER WISHES TO ADD (6) DCF CHARGERS, THIS IS AN EXISTING CUSTOMER PROPERTY (PARKING LOT) F&D 2000KVA PADMOUNT 460V 4/13KV LI #506, AND F&D 1000KVA PADMOUNT 460V LP 4/13KV LI #98. Padmount are to be connected inline. THE CUSTOMER TO INSTALL NEW CUSTOMER POLE AT THE P/L ACROSS POLE T-81 AT POLE T-81 (ON) INSTALL A 140AMPS FUSE ON T81 AND NEW 3PH FUSESA ON POLE 15199 BOTH ON REMOVE ANY

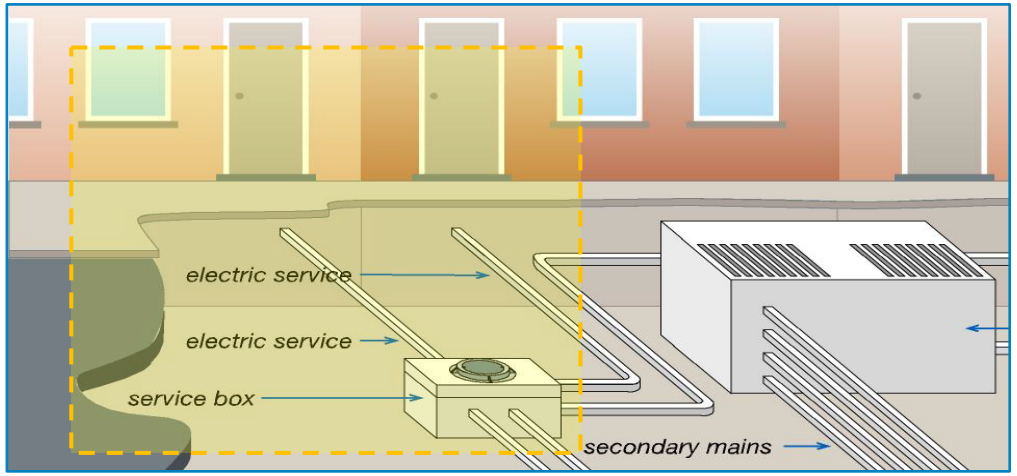
Network Service Cable (Underground)

Typical Load (kW)	Service Voltage	Project Timeline
<800 kW	120/240V, 120/208V	4-6 Months (existing conduit) 9-12 Months (trenching needed)

Con Edison Role	▪ Install conduit and cables to property ▪ Complete any needed upstream modifications and upgrades
Customer Role	▪ Construct end line box or customer manhole at property line ▪ Install meter housing and any needed conduit and cable to meter and customer equipment
Design & Equipment Considerations	▪ Customer will need a step-up transformer for DCFC charging at 460V
Timeline Drivers	▪ Service conduit must be installed prior to Con Edison construction (stubbed out 1' past the property line) ▪ Extent of new conduit and trenching required ▪ Municipal restrictions on digging in recently paved streets

Field Sketch Example

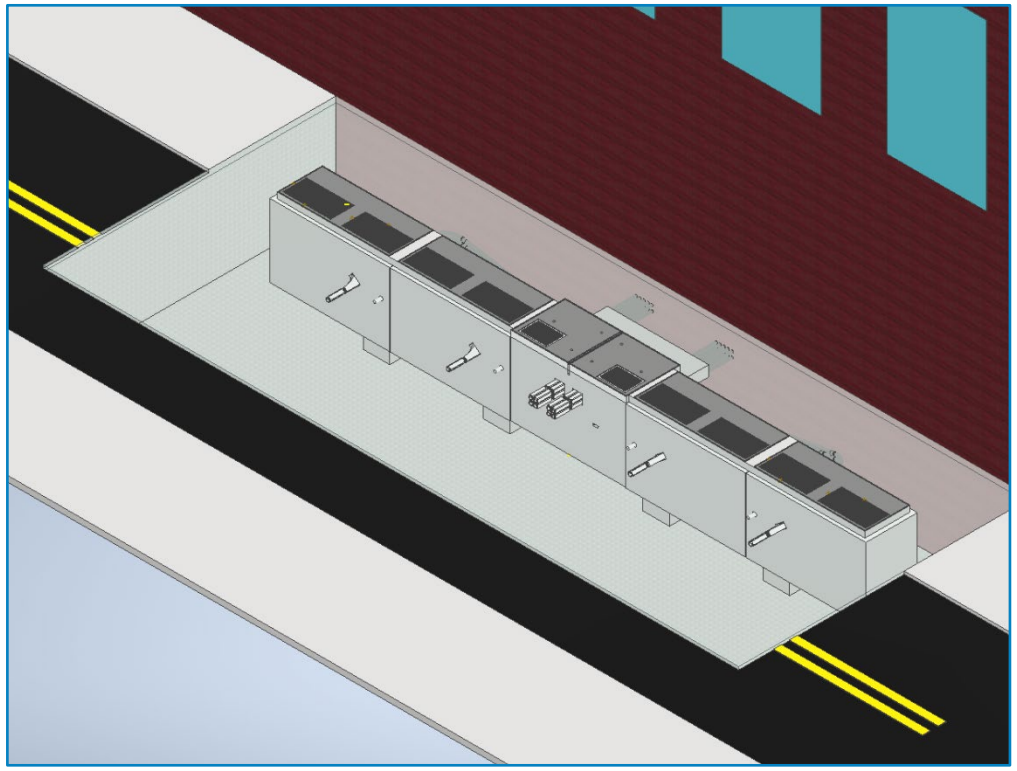




208V Multibank

Typical Load (kW)	Service Voltage	Project Timeline
500-5,000 kW	120/208V	24-36 Months

Con Edison Role	▪ Construct vaults if located below ground in sidewalk along the property line* ▪ Furnish and deliver transformers
Customer Role	▪ Identify space and secure required permits ▪ Construct transformer spaces if located inside customer property ▪ Construct service termination point to interface with service take-offs
Design & Equipment Considerations	▪ Often Includes 3 or more transformers to meet redundancy rules, though 1 and 2 transformer arrangements may be used ▪ Includes a bus compartment between vaults which houses a connection between the transformers and the customer ▪ Typical space requirements: 11’ x 60-75’ ▪ In flood zones, must design to FEMA+5’ ▪ Requires DOT permit approval when located in the sidewalk ▪ Requires a sewer connection for drainage ▪ May be installed inside customer property in vaults, above ground structures, or interior building spaces that meet specifications
Timeline Drivers	▪ Space identification, design, and permitting ▪ Civil construction



Reference Specifications

- EO-2080 - Design Of 120/208 Volt Network Installations
- EO-13895-B & EO-13124-B - Transformer Vault Plans

*Customer may elect to perform under a Developer Agreement (see slide 14)

460V Multibank

Typical Load (kW)	Service Voltage	Project Timeline
2,000-10,000 kW	265/460V	24-36 Months

Con Edison Role	▪ Construct transformer vaults if located below ground in sidewalk along the property line* ▪ Furnish and deliver transformers and network protectors
Customer Role	▪ Identify space and secure required permits ▪ Construct blockhouse or other transformer and network protector spaces located inside customer property ▪ Construct service termination point to interface with service take-offs
Design & Equipment Considerations	▪ Typical installations include at least 3 transformers (up to a max of 6) to meet redundancy rules ▪ Each transformer is paired with a separately housed network protector which prevents back feed and faults from affecting other infrastructure ▪ Transformers may be housed in vaults in the sidewalk or in appropriate spaces on customer property ▪ Network protector rooms must always be above flood level (FEMA+5') and located on customer property and within 25' of transformer vaults ▪ Requires DOT permit approval when located in the sidewalk ▪ Typical space requirements: 20' x 50-60'
Timeline Drivers	▪ Space identification, design, and permitting ▪ Civil construction

Reference Specifications

- EO-2079 - Design Of 265/460 Volt Network Installations
- EO-5023 – Requirements for Construction of 265/460 Volt Network Installations
- EO-5051 – Design and Construction of 265/460 Volt Network Installations by Contractors

*Customer may elect to perform under a Developer Agreement (see slide 14)

High Tension Service

Typical Load (kW)	Service Voltage	Project Timeline
>8,000 kW	4kV, 13kV, 27kV, 33kV	36+ Months

Con Edison Role	▪ Extend feeders to property line ▪ Review, approve, and inspect design and installation work
Customer Role	▪ Design, construct, operate, and maintain all space and equipment
Design & Equipment Considerations	▪ Installed on customer property ▪ Customer property line manhole(s) required ▪ Must meet Con Edison specifications ▪ Must provide 24/7 access to Con Edison ▪ In flood zones, must design to FEMA+5’
Timeline Drivers	▪ Unique, site-specific design ▪ Custom equipment

Reference Specifications

- Guide for Installing High Tension Service
- EO-2022 – General Specification for High Tension Service

Interconnection Process

Service Determination

- Submit service request
- Provide service determination

Design

- Coordinate utility and customer-side layouts and drawings
- Obtain permits

Construction & Inspection

- Customer-side construction
- Utility-side construction
- Ongoing inspections

Closeout

- Submit closeout documents
- Final inspection
- Energize

- Completed by Customer
- Completed by Con Edison

Service Request Submission

Required Documents

Required Document Checklist

1. **Load Letter** template example
   Overview of the scope of the project, the equipment to be installed, and the level of new load to be added

2. **One-Line Diagram** guidance
   Detailed electrical design and specifications of the proposed project

3. **Site Plan** guidance
   Layout of the site showing all proposed and existing buildings and equipment

4. **Equipment Cut Sheet**
   Manufacturer product specifications for planned charging equipment

5. **Letter of Authorization** form
   Signed consent from the property owner to undertake the project and work with any third parties

If you plan to participate in…	You should submit your service request…
Light-Duty PowerReady Program	Through the **EV Participant Portal** (Instructions)
Medium Heavy-Duty PowerReady Program	Through **Project Center**
Micromobility Program	Through the **EV Participant Portal**
No Incentive Programs	Through **Project Center**

Con Edison Interconnection Cost

Electric service is *provided at no cost* when the customer accepts Con Edison's plan (Company Plan)

- Con Edison's service determination constitutes a least-cost *Company Plan* to provide adequate service to support the loads requested in a customer's service request
- There is no cost to customers for the Con Edison portion of service upgrades or new service provision if they accept the *Company Plan*
- Customers may be responsible for some costs related to customer-side work to support the utility upgrade (design, permitting, construction inside the property line or after the point of service termination)

Customers may incur costs from Con Edison under certain scenarios

- Temporary Service: Customers are responsible for full cost of installation and removal when requesting a temporary service to support construction or interim operation before a full service upgrade is complete. Curbside services are considered temporary service.
- Accommodations & Excess Distribution: Customers are responsible for the difference in cost when requests result in a higher cost than the *Company Plan* (e.g. different point of entry, more than one service per property, additional service capacity)

Con Edison Tariff

5.3.1 Company Obligations
"The Company shall install any necessary distribution line, service line or appurtenant facilities, with sufficient capacity and using suitable material which, in its judgment, will assure that an applicant receives safe and adequate service."

5.2.2 Change in Location of Service Line and Appurtenant Facilities
"Any change requested in the point of service termination or location of the service line and appurtenant facilities, provided such change is approved by the Company, will be made at the expense of the applicant, who shall pay in advance the Company's estimated cost of such change"

5.6.1 Space for Transforming Apparatus
"The Customer shall provide suitable space and reasonable access thereto, without rental charge. To facilitate access and ventilation, such suitable space shall be immediately adjacent to the property line and outside the building and, for underground service, immediately below street grade."

5.6.2 Interior Distribution Installation
"The Company's transformers and associated equipment may be installed by the Customer at one or more points in the building or premises on the same or different levels, provided that the entire service installation within the premises, including the installation of, and connections to the Company's transformers and associated equipment, or replacements thereof, is made at the Customer's expense in accordance with the Company's specifications"

Developer Agreement

Potential to reduce project timeline by avoiding hand-offs and site coordination between Customer and Con Edison

- Available for projects where vault construction is Con Edison's responsibility (208V or 460V transformer vaults in public right-of-way or touching property line along public right-of-way)
- Customer performs civil construction of vaults and sewer connections
- Con Edison reimburses customer at a set rate based on the specific project scope
- Con Edison can provide materials as available and appropriate (pre-cast vaults, conduit, etc.)
- Customer and their contractor must secure insurance to Con Edison's standard

Date

Corporation Officer Name
Corporation Name
Address
City, Zip Code

Re: Project Address
MC#
Layout #
Developer Agreement Transformer Vault Installation

Dear Mr./Ms. Customer Name,

The following agreement is offered to accommodate your request to be permitted to excavate and install the one (1) pre-cast V-14 transformer vaults, one (1) pre-cast BV-9 bus compartment, sewer connection, and associated conduits at the above referenced location to facilitate your own construction activity and scheduling. Con Edison will furnish the transformers at a future date.

We are willing to accommodate your request under the following conditions:

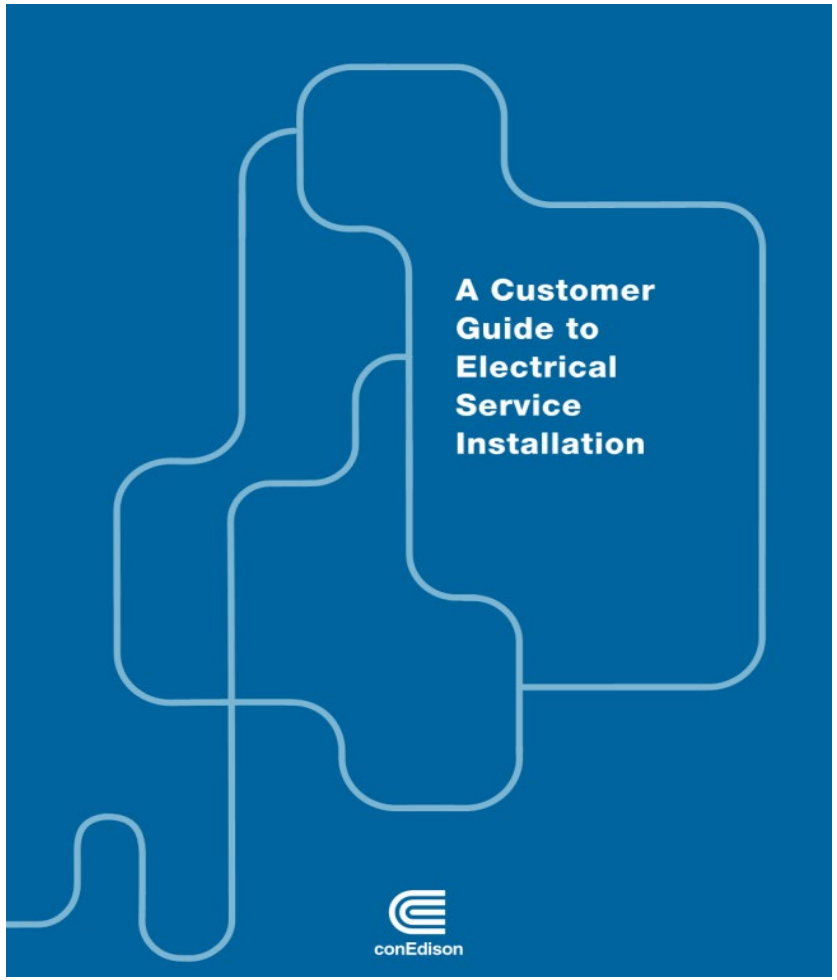
1. Con Edison will obtain the necessary vault permit and the owner's contractor shall obtain all other required permits including but not limited to crane, street closing and sidewalk closing. The owner's contractor shall install the pre-cast structures in accordance with Layout # S……..and applicable specifications and shall provide all required labor and material not provided by Con Edison for the satisfactory completion of the job.

2. The Owner shall warrant that the construction is sound and in conformance with Con Edison's specifications and approved drawings and meets all requirements of applicable laws and regulations, and shall indemnify and save Con Edison harmless from any liability for personal injury or property damage sustained in connection with such construction. You are to furnish to Con Edison the required certificate of insurance described in the enclosed standard.

3. The total payment to be paid to you for the installation of one (1) vault, one (1) bus compartment, conduit work, sewer connection, plumbing, backfilling, and setting of grates will be $xxx,xxx..00. This is understood to be the total price and no extras will be permitted.

4. Con Edison is to have the right to inspect the construction site and work to the extent it deems necessary.

Con Edison's Bluebook



Electric installation requirements

- Electric work request process
- General information
- FAQ

Specifications

- Customer wiring and equipment
- Equipment specifications
- Approved equipment list

https://www.coned.com/-/media/files/coned/documents/small-medium-large-businesses/electricbluebook.pdf