



# SUPERCHARGER

## EMERGENCY RESPONSE GUIDE

## **DISCLAIMER**

This guide is intended only for use by certified rescuers and first responders. It assumes that readers have a comprehensive understanding of how safety systems work and have completed the appropriate training and certification required to safely handle rescue situations. Therefore, this guide provides only the specific information required to understand and safely handle Tesla Supercharger equipment in an emergency. It describes how to identify Supercharger equipment and provides the locations and descriptions of its high voltage components. This guide includes the high voltage disabling procedure and any safety considerations specific to Supercharger equipment. Failure to follow recommended practices or procedures can result in serious injury or death. Supercharger equipment is constantly evolving and multiple generations of hardware exist. The images in this guide may not match the equipment you are working on. Any major changes regarding high voltage components across equipment generations will be explicitly outlined in this guide.

Important Safety Information..... 2

SDS Information..... 3

Switchgear/Transformer Safety  
Considerations..... 4

Firefighting.....5

    Firefighter Response.....5

Warning Labels..... 8

Identifying Supercharger Variant..... 9

Site Disconnect Considerations..... 11

Turning Off Power to Entire Supercharger  
Site..... 12

V3 Supercharger.....14

V3 Supercharger Site Layout.....15

V3 Supercharger Voltage Feeds.....17

Turning Off Power to V3 Supercharger  
Cabinet..... 18

V2 and Urban Superchargers..... 19

V2 and Urban Superchargers Site Layouts....  
.....20

Turning Off Power to V2 or Urban  
Supercharger Cabinets.....21



## IMPORTANT SAFETY INFORMATION

This document contains important instructions and warnings that must be followed when handling Urban, V2, and V3 Supercharger systems in an emergency situation.



**WARNING:** Always use appropriate tools. Always wear appropriate personal protective equipment (PPE) while working around Supercharger equipment, switchgear, and breakers. Failure to follow these instructions can result in serious injury or death.



**WARNING:** Regardless of the disabling procedure you use, ALWAYS ASSUME THAT ALL HIGH VOLTAGE COMPONENTS ARE ENERGIZED! Cutting, crushing, or touching high voltage components can result in serious injury or death.



**WARNING:** Always use appropriate Personal Protective Equipment (PPE) when handling high voltage equipment.



## SDS INFORMATION

Safety Data Sheets (SDS) are a sub-requirement of the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard, 29 CFR Subpart 1910.1200. This Hazard Communication Standard does not apply to various subcategories including anything defined by OSHA as an “article.” OSHA has defined “article” as a manufactured item other than a fluid or particle; (i) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities (e.g., minute or trace amounts) of a hazardous chemical, and does not pose a physical hazard or health risk to employees.

Tesla Energy Products referenced herein meet the OSHA definition of “article.” Thus, they are exempt from the requirements of the Hazard Communication Standard and do not require an SDS per OSHA.

 **NOTE:** For projects in Australia or New Zealand, contact your Tesla representative for the product's safety data sheet.

Table 1. Thermal Contents

Non-Cell Materials with SDS found in Tesla Energy Products	Approximate Quantity
Ethylene glycol 50/50 mixture with water	V2 - Cabinet: 50/50 mixture V3 - Cabinet and Charge post: 50/50 mixture



# SWITCHGEAR/TRANSFORMER SAFETY CONSIDERATIONS

ALWAYS BE AWARE OF ELECTRICAL HAZARDS.



**NOTE:** Contact local utility company to disconnect grid power coming into equipment.



**WARNING:** Use extreme caution when approaching the scene of an electrical emergency, especially at night.



**WARNING:** Treat all wires as dangerous and energized at high voltage.



**WARNING:** Do not attempt to move exposed power cables



**WARNING:** Do not spray water on exposed cables, transformers or other electrical equipment.



**WARNING:** Do not disassemble electrical switchgear or transformer. This may only be done by licensed electricians or trained utility technicians with a proper understanding of the equipment



**WARNING:** Always use appropriate Personal Protective Equipment (PPE) when handling high voltage equipment



# FIREFIGHTING

Fires on Supercharger equipment are considered "electrical fires", while fires on vehicles are considered "vehicle fires". If there is a vehicle fire present, visit [tesla.com/firstresponders](https://tesla.com/firstresponders) and consult the Firefighting chapter in the Emergency Response Guide for the specific Tesla vehicle. If vehicle is charging at a supercharger site, de-energize supercharger site prior to proceeding with vehicle fire.

Electrical fires should be extinguished by de-energizing source then using CO2 (or other appropriate electrical fire suppression) and vehicle fires should be extinguished with water.

Extinguish small fires that do not involve a high voltage battery, ordinary combustibles or electrical, using a CO2 or ABC extinguisher.

During overhaul, do not make contact with any high voltage components. Always use insulated tools for overhaul.

## Firefighter PPE

Firefighters should wear self-contained breathing apparatus (SCBA) and fire-protective turnout gear. Regulatory testing has shown products of combustion in Tesla Energy Products can include flammable and nonflammable gases. Based on those regulatory tests, the flammable gases were found to be below their lower flammable limit (LFL) and would not pose a deflagration or explosion risk to first responders or the general public. The nonflammable gases were found to be comparable to the smoke encountered in a typical Class A structure fire and do not contain any unique or atypical gases beyond what you would find in the combustion of modern combustible materials.

## Firefighter Response

- Autotransformer





# FIREFIGHTING





**NOTE:** Autotransformers are not present at every Supercharger site.

- Cabinet




- Switchgear

For vehicle information, see [Emergency Response Guide Tesla Model 3](#), [Emergency Response Guide Tesla Model S](#), and [Emergency Response Guide Tesla Model Y](#).






INFORMATION FOR FIRST AND SECOND RESPONDERS



EMERGENCY RESPONSE GUIDE



TESLA  
MODEL 3  
ELECTRIC











INFORMATION FOR FIRST AND SECOND RESPONDERS



EMERGENCY RESPONSE GUIDE



TESLA  
MODEL S  
ELECTRIC











INFORMATION FOR FIRST AND SECOND RESPONDERS

EMERGENCY RESPONSE GUIDE



TESLA  
MODEL Y  
ELECTRIC









# FIREFIGHTING

See the [Lithium-Ion Battery Emergency Response Guide](#) for battery information.



POWERWALL



MEGAPACK



POWERPACK

## Lithium-Ion Battery Emergency Response Guide




## WARNING LABELS

Examples of labels associated with high voltage equipment are shown below. Depending on the region, these labels may be translated into other languages.


**WARNING**  
**AVERTISSEMENT**

- HAVE DEFECTIVE CORDS OR WIRES REPLACED BY QUALIFIED SERVICE PERSONNEL**  
*FAIRE REMPLACER LES CÂBLES OU LES FILS DÉFECTUEUX PAR DU PERSONNEL QUALIFIÉ*
- DO NOT USE THIS EQUIPMENT IF DAMAGED**  
*NE PAS UTILISER CE MATÉRIEL S'IL EST ENDOMMAGÉ*
- DO NOT USE EQUIPMENT WHERE EXPOSED TO FLAMMABLE VAPOURS**  
*NE PAS UTILISER CE MATÉRIEL EN PRÉSENCE DE VAPEURS INFLAMMABLES*

 **FOR USE WITH ELECTRIC VEHICLES**

TRANSMITTER MODEL: 1023049  
FCC ID: 2AEIM-1023049   CMIIT ID: 2015DJ4358   IC: 20098-1023049

☐ CS-350-A1  
☐ CS-350-A2

  
c                      u s

RATED VOLTAGE	500 VDC
RATED CURRENT	350 A
DUTY CYCLE	100%
OPERATING TEMP.	-30°C to +35°C
ENCLOSURE IP-CODE	IP44; RAINPROOF

TESLA, INC.  
3500 DEER CREEK ROAD   PALO ALTO, CA 94304   U.S.A.



High Voltage and Risk of Electric Shock.  
Disconnect from power before servicing.

Arc Flash and Shock Hazard. For safe work practices and for personal protective equipment, follow all requirements specified in NFPA 70 E.



## IDENTIFYING SUPERCHARGER VARIANT

Supercharger systems have two main components - charge post and cabinet. There are three variants of Supercharger systems.

### V3 Supercharger



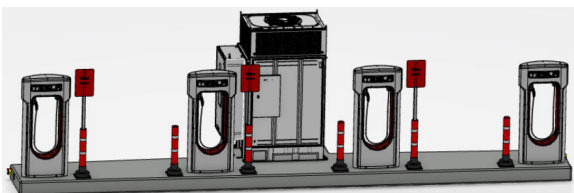
### V2 Supercharger



### Urban Supercharger



### Pre-Assembled Supercharger Unit (PSU)





# IDENTIFYING SUPERCHARGER VARIANT

## Semi Charger Cabinet & Post





## SITE DISCONNECT CONSIDERATIONS

REVIEW ALL NOTES AND WARNINGS BEFORE ATTEMPTING TO DISCONNECT POWER TO A SUPERCHARGER SITE.



**WARNING:** Do not attempt to reset the breaker to disconnect.



**WARNING:** Do not attempt to disconnect power to the site via the Supercharger cabinets. Supercharger cabinets must only be shut off via the branch breakers in the switchgear.



**NOTE:** Switchgear is typically within 100 feet of the Supercharger posts and may be inside an enclosure.



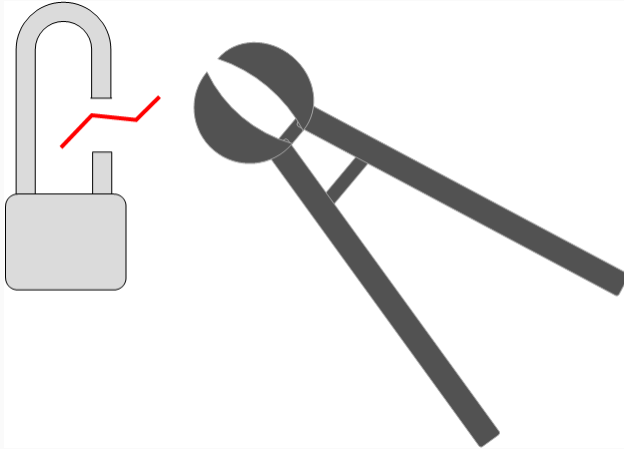
**NOTE:** If the main breaker is inoperable or malfunctioning: Locate every branch breaker and turn them downward to the OFF position.



**NOTE:** If the switchgear is inoperable or appears to have major damage: Contact the utility company to disconnect power from the grid.



**NOTE:** If entering an enclosure, use bolt cutters to cut the locks.



**NOTE:** Switchgear typically consists of two or three bays, each with their own door. Exact configurations vary by site.



## TURNING OFF POWER TO ENTIRE SUPERCHARGER SITE

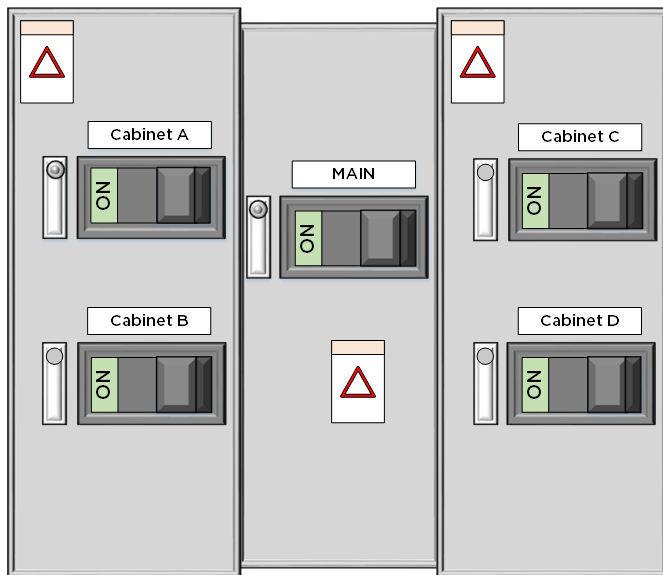
 **WARNING: ALWAYS ASSUME THAT ALL HIGH VOLTAGE COMPONENTS ARE ENERGIZED.** Cutting, crushing, or touching high voltage components may result in serious injury or death.

1. Enter the locked enclosure, using boltcutters to cut padlocks if needed.



**NOTE:** Many sites do not have an enclosure around the equipment.

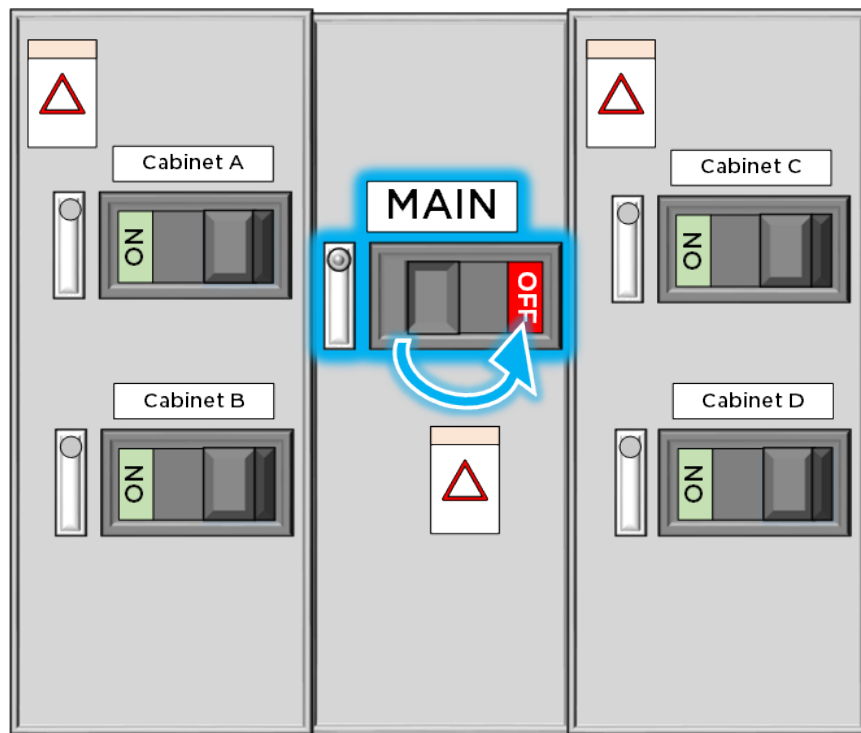
2. Locate the electrical switchgear associated with the Supercharger cabinets on site.





**NOTE:** Some sites may not have a single switchgear with a main breaker. Sometimes, there is a collection of individual disconnects for each V3 cabinet. This applies to standard sites and PSU sites.

3. **To disconnect all power to the site:**
  - If there is an E-Stop device, engage the E-stop. This will trip the main feeder breaker and if applicable, de-energize Tesla battery units.
  - If there is no E-Stop present, locate the main feeder breaker (typically in the middle bay of the switchgear) and turn the handle downward to the OFF position.

# TURNING OFF POWER TO ENTIRE SUPERCHARGER SITE



 **NOTE:** If both the main breaker and branch breakers are inoperable or have major damage, contact the utility company to disconnect power from the grid.

 **NOTE:** Highlighted below are the PSU disconnect switches attached to the cabinet. Each PSU disconnect switch will shut off the cabinet as well as the four charging posts attached to the corresponding cabinet.



 **NOTE:** Turn off all breakers on sites with no main breakers.




## V3 SUPERCHARGER




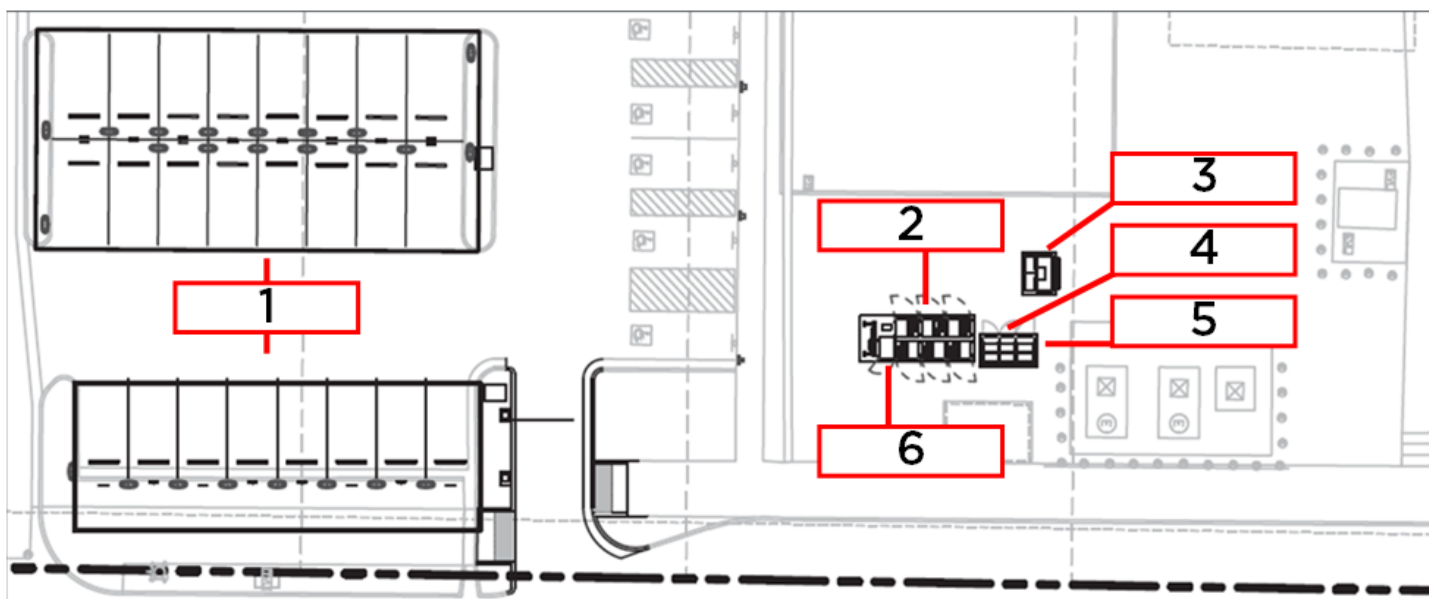




## V3 SUPERCHARGER SITE LAYOUT

 **NOTE:** No two sites are identical, but the switchgear and Supercharger cabinets are typically inside an enclosure or in a closed off area with limited visibility to the public, and within 100 feet of the Supercharger stalls.

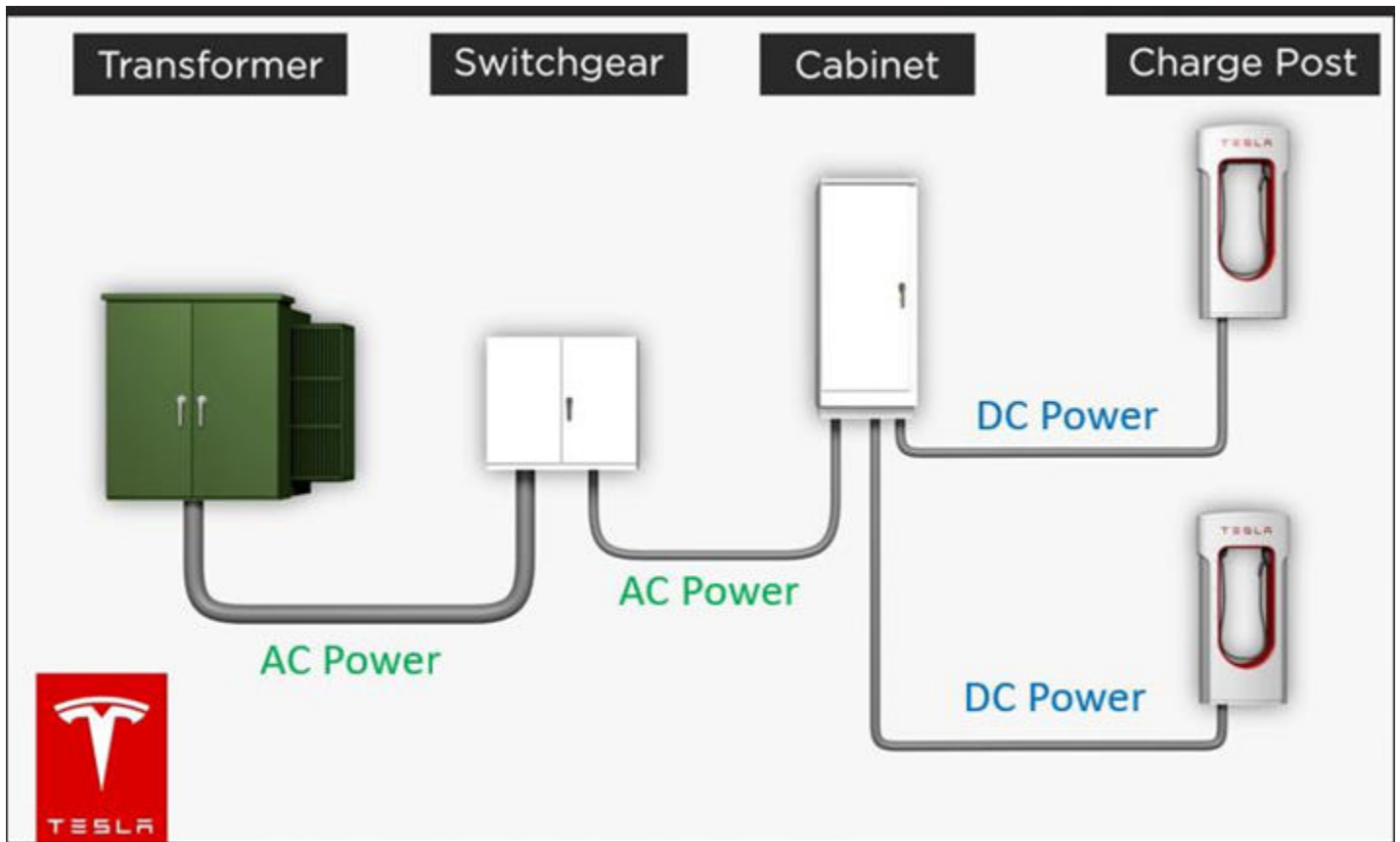
 **NOTE:** For Pre-Assembled Supercharger Unit (PSU) sites, the V3 cabinets are co-located with the posts and each one has a disconnect mounted to the side of the cabinet. There may or may not be a switchgear upstream of the cabinets with a main disconnect. In some cases, the individual PSUs are fed directly from the utility transformer. For a visual reference of the PSU, see [Identifying Supercharger Variant on page 9](#).



1. V3 Supercharger posts
2. V3 Supercharger cabinet(s)
3. Utility meter
4. Main breaker
5. Branch breakers
6. Tesla Powerpack (Battery Energy Storage System)



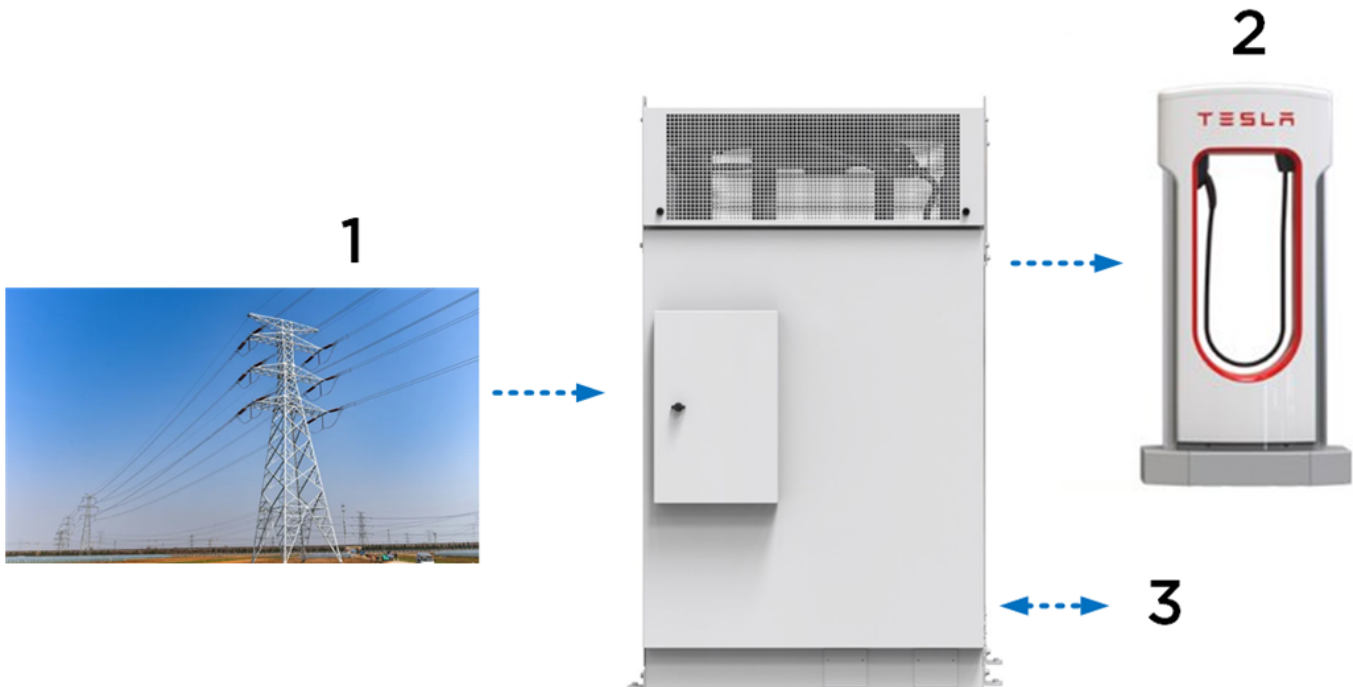
## V3 SUPERCHARGER SITE LAYOUT



**NOTE:** If an Autotransformer is present, it will be located between the Switchgear and Cabinet.



## V3 SUPERCHARGER VOLTAGE FEEDS



1. Grid (AC)
2. Supercharger post (DC)
3. Interconnected bus (DC) with other cabinets, Powerpack (if present), etc.

### Semi Charger Voltage Feeds

1. Grid (AC)
2. Isolated bus (AC)
3. Semi Charger post (DC)

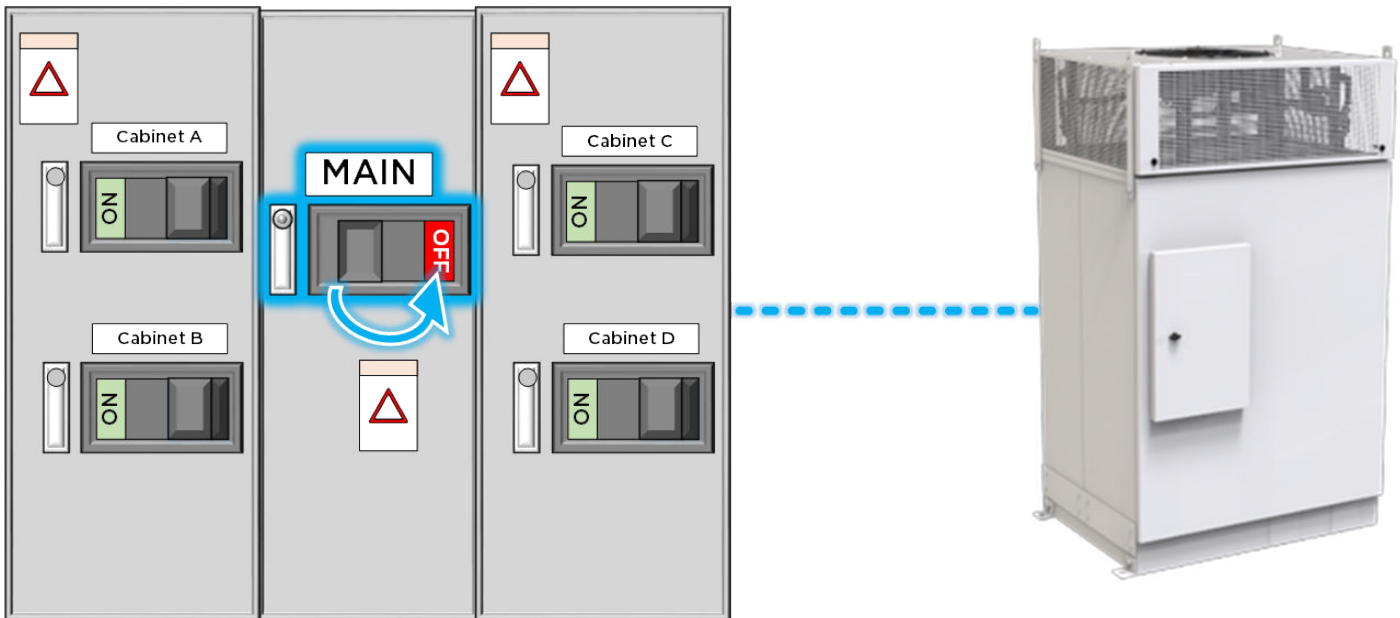


## TURNING OFF POWER TO V3 SUPERCHARGER CABINET

Turning the DC Disconnect handle on a V3 Supercharger cabinet to the OFF position alone will **NOT** de-energize the cabinet.



The only way to disconnect power to a single V3 Supercharger cabinet is to disconnect power to the whole site via the site's main breaker (or the cabinet's individual breaker, depending on site).






## V2 AND URBAN SUPERCHARGERS

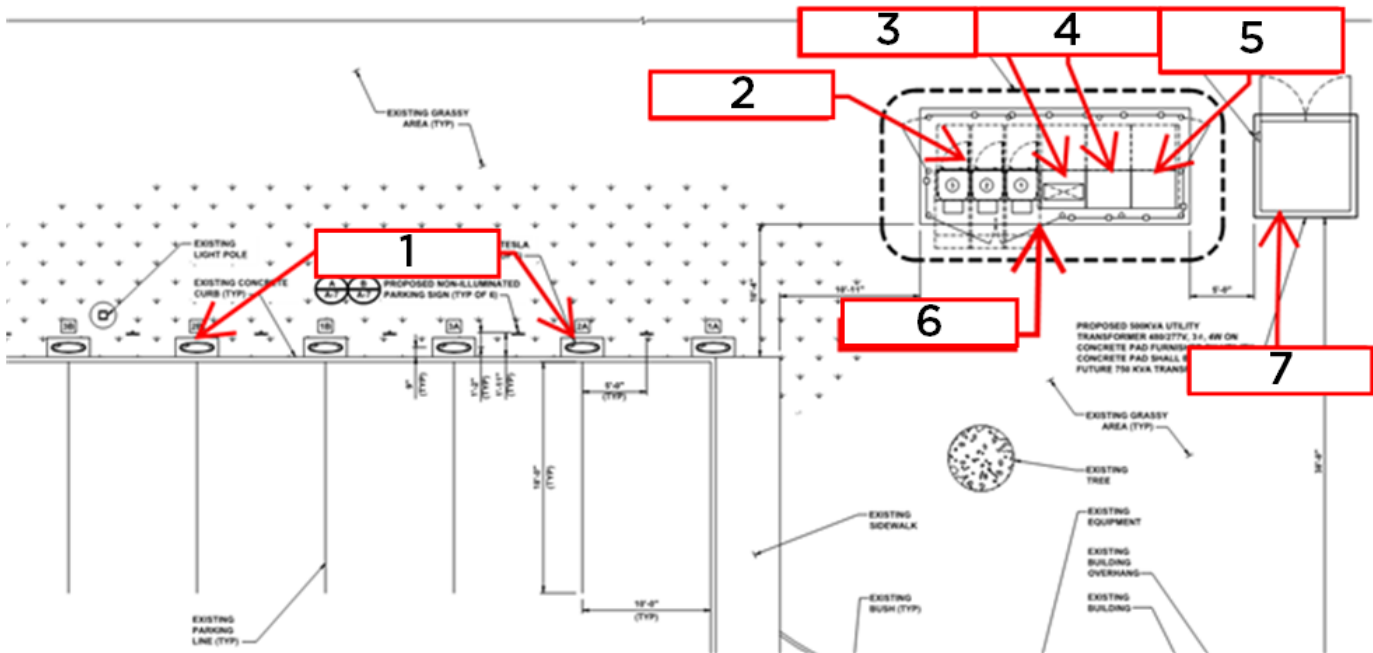




## V2 AND URBAN SUPERCHARGERS SITE LAYOUTS

Exact layout and configuration may vary by site.

 **NOTE:** No two sites are identical, but the switchgear and Supercharger cabinets are typically inside an enclosure or in a closed off area with limited visibility to the public, and within 100 feet of the Supercharger stalls.



1. V2 Supercharger posts
2. V2 Supercharger cabinet(s)
3. Incoming (metering) bay
4. Main breaker bay
5. Branch breaker (distribution bay)
6. Enclosure
7. Utility transformer

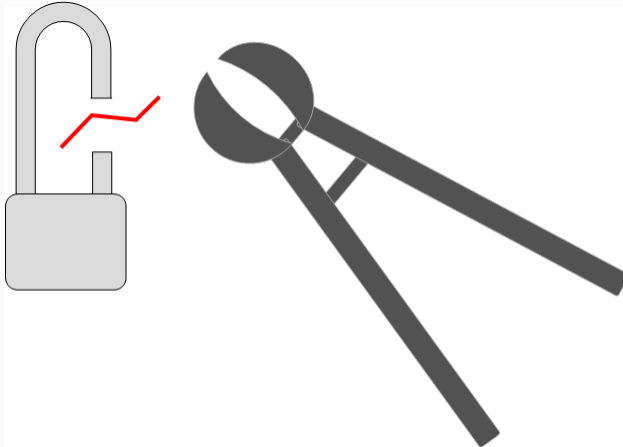


## TURNING OFF POWER TO V2 OR URBAN SUPERCHARGER CABINETS

1. Enter the locked enclosure.



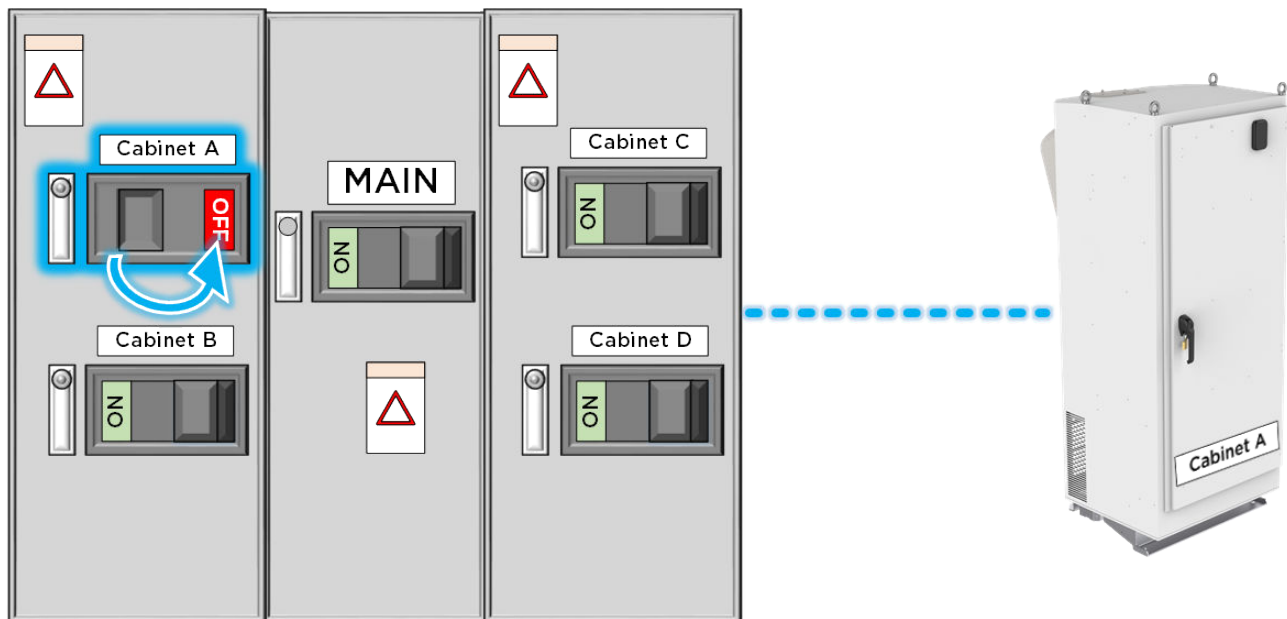
**NOTE:** Use bolt cutters to cut padlocks.



2. Find the branch breaker associated with the cabinet and turn it OFF. This turns off power to the cabinet and its corresponding charge post(s).



**NOTE:** If both the main breaker and branch breakers are inoperable or have major damage, contact the utility company to disconnect power from the grid.



# BACK COVER



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