



Voltage Drop from Menoken Substation
Existing System

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Clarifications for Late Exhibit G

Mr. Kuntz asked:

Could you check with CEC to obtain and file as part of the exhibit at least the following study information: (1) the assumed load (kw or mw) at the Menards site; (2) whether the Menards location used in the study was the entry point of the site, the first padmount transformer, or the last padmount transformer; (3) the substation voltage used in the study; and (4) whether the voltage shown at the Menards site is at the primary or secondary level. Thanks.

CEC's response to Mr. Kuntz's request:

- 1.) 1 MW
- 2.) Entry point
- 3.) 7.2 KV
- 4.) Primary

Mr. Kuntz's follow up question:

Regarding question 3, what is the regulated output voltage (on a 120 volt base) at the Menoken substation needed to obtain voltages shown in the study at the Menards site?

CEC's response:

The voltage level at the Menoken substation is 122 with a bandwidth of 2 volts.

Mr. Kuntz's additional question:

As I understand, the voltage level and output voltage are two different values. Please provide the output voltage at the Menoken Sub in order to obtain the voltages (119.3, 116.6 and 119.5) shown in the study at the entry point to the Menards site. Thank you.

CEC's response:

The output voltage at the substation is 122 volts on a 120 volt base. What that means is 120 volts = 7,200 volts. The Substation transformer is a 41.6 kv high side and it steps it down to 7,200 volts or 7.2 kv. So coming out of the substation transformer it is 120 volts, it goes to the voltage regulators and the voltage regulators step it up to 122 volts or 7.32 kv. Depending on the load on each phase the voltage regulators try to maintain the 122 volts at the substation. That is why each phase has a different voltage at the Menards site. HDR used the peak loading for the circuit and then added the 1 MW load for Menards. Like I said before we can up the voltage on B phase by switching some load on that phase to A and C phases and transferring some of the B phase load to the Sterling Substation. Hopefully this explains what the voltage is at the substation.