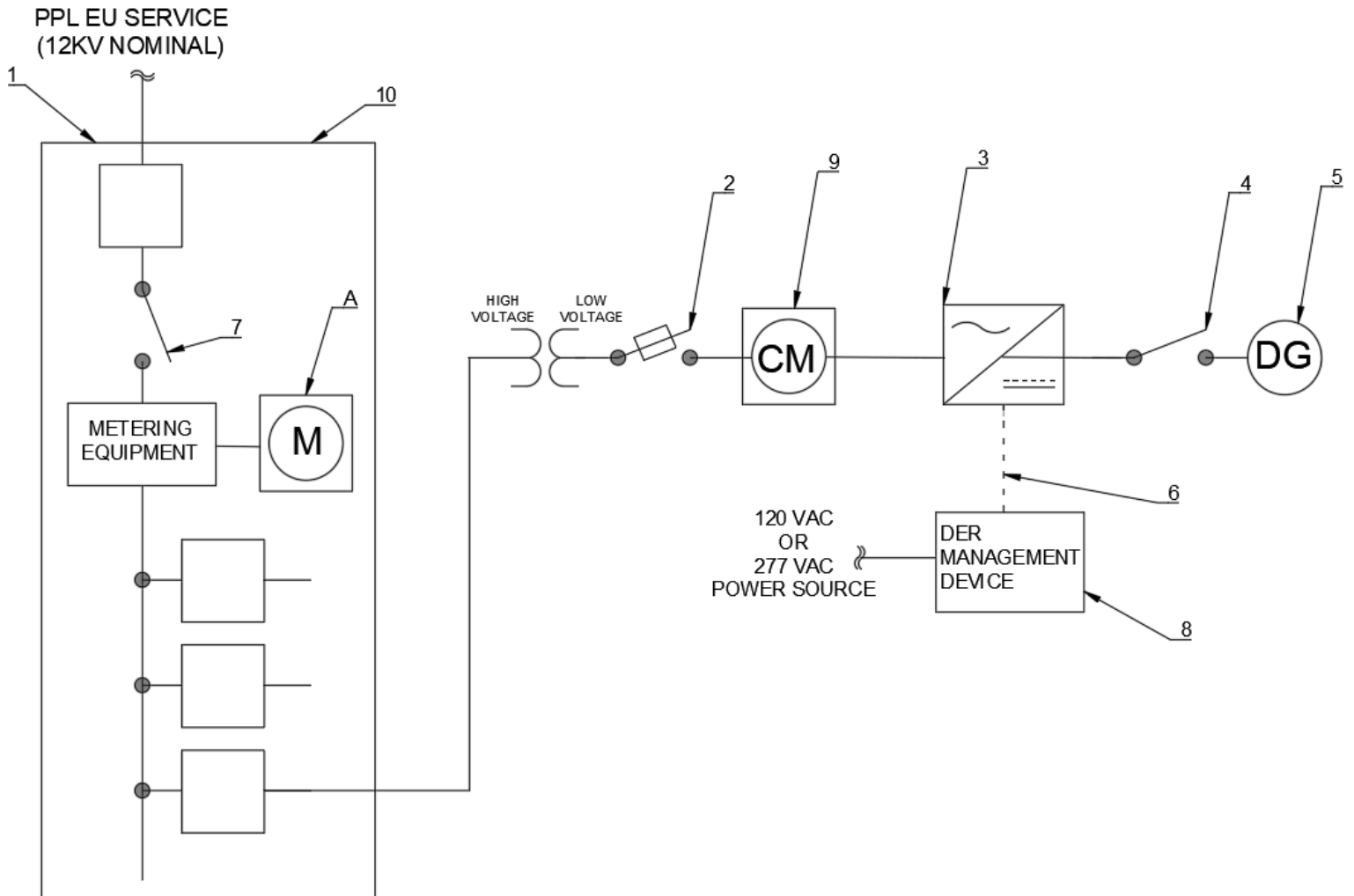


Sketch #59b Inverter-based renewable generation for 12kV Switchgear installations

<u>Voltage/ Phase:</u> 1 phase, 7200V 3 phase, 4 wire WYE 7200/12,240V	<u>Amperage:</u> N/A	<u>Inverter Continuous Current</u> N/A
<u>Service Type:</u> Overhead/Underground	<u>Meter Type/Location:</u> Primary Metering	<u>Bus Bar Rating:</u> N/A



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REMSI Sketches 51-100
Sketch #59b
6-52

0000-000-ST-6052
Custom ID: DCS 6-52
Revision: 12
Effective Date: 3/13/2024
Page 42 of 85

Sketch #59b (Cont.) Inverter-based renewable generation for 12kv switchgear installation (cont.)

CUSTOMER FURNISHES, INSTALLS, MAINTAINS:

1. Fault interrupting device can be circuit breaker or fuse.
2. Ac disconnect switch (fused)
3. Inverter(s) (includes metering and communication features), inverter shall be labeled as IEEE 1547/ul 1741 listed.
4. Dc disconnect
5. Distributed generator (DG) source
7. Switching device
9. Customer meter (optional)
10. 15kv switchgear

PPL ELECTRIC FURNISHES, MAINTAINS:

6. Wired communication between PPL DER Management Device and inverter.
8. PPL communication device to PPL network.

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REMSI Sketches 51-100
Sketch #59b
6-52

0000-000-ST-6052
Custom ID: DCS 6-52
Revision: 12
Effective Date: 3/13/2024
Page 43 of 85

Sketch #59b (Cont.) Inverter-based renewable generation for 12kv switchgear installation (cont.)

NOTES:

- A. Metering equipment. See appropriate sketch for service type and size to determine metering responsibilities. Foreign energy sources shall not be connected directly to metering equipment. See rule 12.
- B. See PPL Electric customer-owned generation website for more information.
- C. Application for customer-owned, inverter-based renewable generation must be completed. See customer-owned generation applications.
- D. PPL Electric requires an independent electrical inspection. The inspector is required to verify the IEEE/UL listing of the inverter.
- E. Installation must adhere to the requirements of national electrical code (NEC) article 690 and article 705.
- F. All labeling must be in accordance with NEC article 690.
- G. In addition to Note D, PPL Electric will install permanent labeling on the meter base (CID 1012171) and pad mount transformer (CID 1012171) or pole top transformer (CID 1013816) upon receipt of inspection.
- H. If a neutral connection exists at the inverter, the inverter neutral shall be connected to the service neutral.
- I. If inverter output voltage > 480vac, customer must provide transformation to match PPL service voltage.
- J. If inverter output voltage > 480vac, customer must provide external power source for PPL owned DER management device.
- K. Customer shall contact PPL Electric prior to any new installations depicted in this sketch.
- L. PPL requires a local RS-485 or ethernet communication interface, also referred to as a communication port, to be open and accessible for the company owned DER management device (IEEE 1547-2018, sec. 10.1,4). Enclosure containing the communications interface shall include provisions for 120V or 277V power source, neutral, and grounding, either by way of providing safely terminated conductors or ensuring adequate space for use of insulating piercing connectors by the utility to tap existing conductors.
- M. Communication interface earmarked for utility use shall be configured to have a static IP address if using Modbus TCP (Ethernet) protocol, or a dynamic IP address (DHCP mode) if using IEEE 2030.5 protocol. For Modbus TCP: the static IP address, gateway IP address, and subnet mask IP address shall be provided to PPL Electric.
- N. Installations with multiple inverters shall be networked together by the customer per manufacturer guidelines or RS-485 multidrop networking. A communication network diagram depicting port availability and networking design shall be included with the system's interconnection application.
- O. For inverters where an additional module or kit is required to make the communication interface/port available, the module or kit must be included as part of the installed system. Reference PPL's approved smart inverter list for specific information.
- P. In the event of an outage or interruption due to equipment failure, weather, etc., any connected der systems may be temporarily interrupted during the service restoration process.

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