Register of Completed Embedded Generation Projects Greater than 200kW 2020

PowerWater

Disclaimer
This document has been compiled based on the best information available to Power and Water Corporation (Power and Water) at the time of drafting, and the information published in this document should not be relied upon without consultation with Power and Water.

Version History

Version	TRIM	Date	Comments
1.0	D2019/538917	31/12/2019	Initial version
2.0	D2022/073570	18/02/2022	2020 Version

Contents

1 Introduction

This register of completed embedded generation projects has been developed to provide information on projects that have been successfully connected[1] to Power and Water Corporations (Power and Water) distribution network.

2 Purpose of Register

It is a requirement under Chapters 5 and 5A of the Northern Territory National Electricity Rules (NT NER) that Power and Water publish a register of completed embedded generation projects (i.e. for systems with a generating capacity greater than 200kW).
For projects greater than 2MW, this register:

- includes details of all embedded generation projects completed within the preceding five year period; and
- Is to be updated annually for all completed projects in the 5 year period preceding the review date.

For projects between 200kW and 2MW, this register:

- includes details of all embedded generation projects completed since 1 July 2019; and
- Is to be updated annually for all completed projects in the 5 year period preceding the review date.

3 Details included in the Register

The register of completed embedded generation projects includes, but is not limited to:

- technology of generating unit (e.g. synchronous generating unit, induction generator, photovoltaic array, etc) and it's make and model;
- maximum power generation capacity of all embedded generating units comprised in the relevant generating system;
- contribution to fault levels;
- the size and rating of the relevant transformer;
- a single line diagram of the connection arrangement;
- protection systems and communication systems;
- voltage control and reactive power capability; and
- details specific to the location of a facility connected to the network that are relevant to any of the details above.

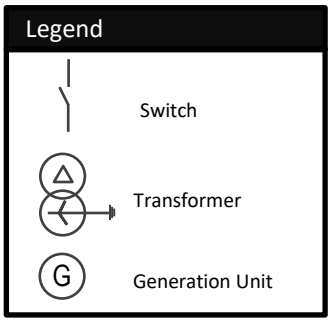
[1] To form a physical link to or through a transmission network (including to a network connection asset or through a dedicated connection asset that is physically linked to that transmission network) or distribution network.

4 Project Register

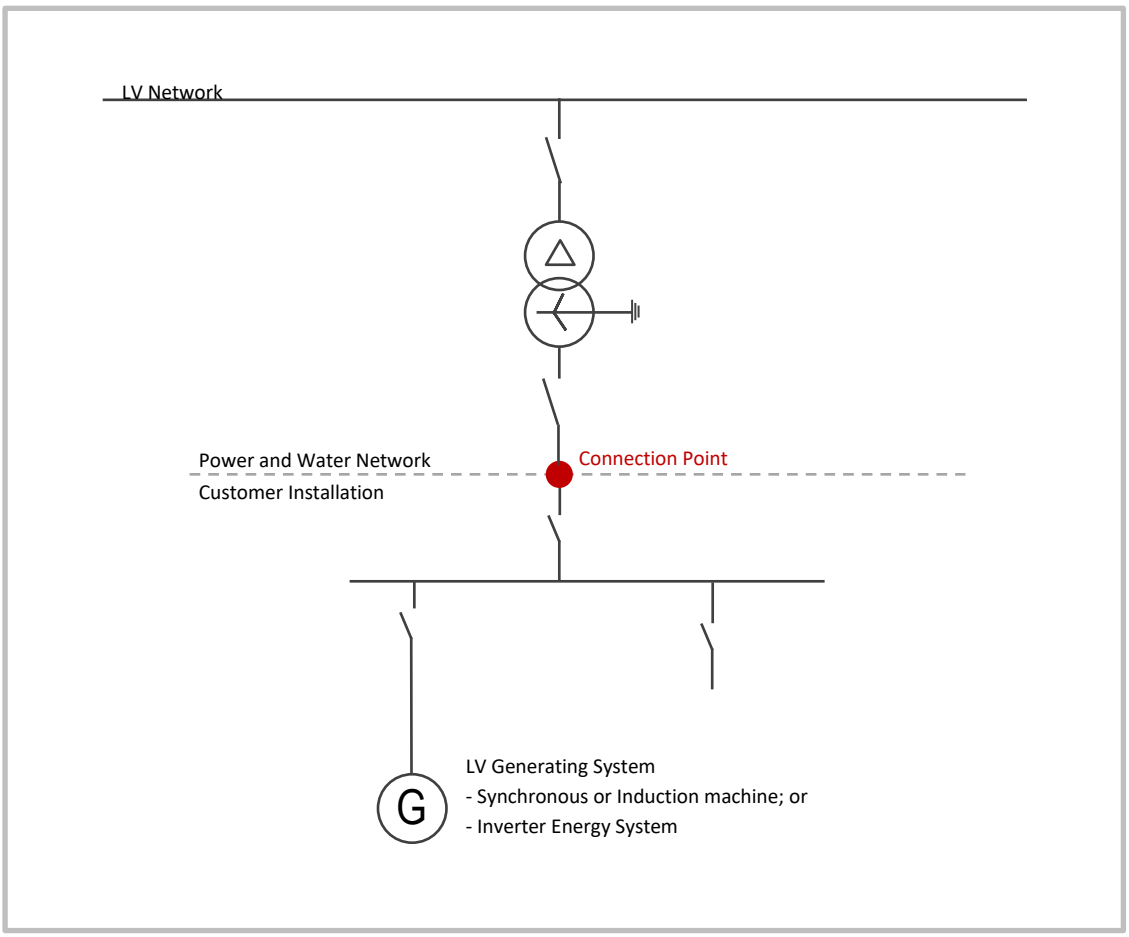
S.No	Generating System	Year Completed (connected)	Location	Technology of the Generating Unit(s)	Generating units Details (Make and Model)	Maximum Power generation capacity of all embedded Generating Units (kW)	Contribution to Fault Levels (kA)	Size and rating of relevant transformers (voltages & kVA)	Single Line Diagram of the connection arrangement (PDF)	Protecting System and Communication Systems	Voltage Control and Reactive power capability	Details relevant to the specific location of the facility
1	Katherine Solar Power Station (25MW Solar PV and 6 MW BESS)	2020	Katherine	Solar PV Array and BESS	RSM 144-6-340P/5BB 1500 Solar PV Panel 9 x SMA Sunny Central (SC)3000-EV - Inverter 6 x 1.053MVA GPTech BESS (3MWD3-V450 BESS)	25000+6318	9.4	3 x 22/0.665 kV, 6MVA	SLD -2	● Anti-Islanding, Inter-tripping, synch check, differential protection scheme between KSPS and KZS. ● Local protection and control operation of KSPS ● SCADA link	● The default voltage control mode is droop control with reference voltage of 1.0pu and 4.0% droop on 10.8Mvar base. ● The generating system, while not supplying or absorbing reactive power under an ancillary services agreement will draw electricity with a power factor in the range 0.9 lead to 0.9 lag.	Katherine Solar Power Station (KSPS) is a solar generating plant near Katherine Zone Substation in Northern Territory.

5 Single Line Diagram

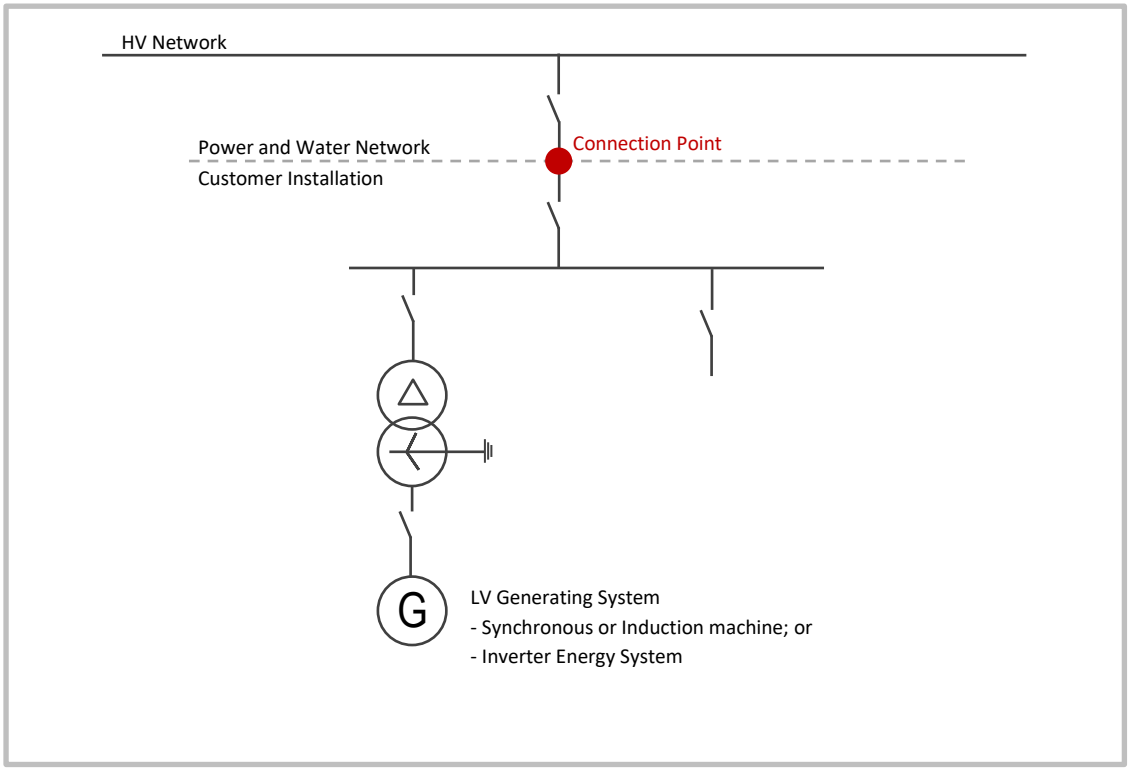
The following single line diagrams depict typical connection arrangements for embedded generators connecting to the Power and Water distribution Network. These diagrams are used for as a reference for connection arrangements listed in the register.



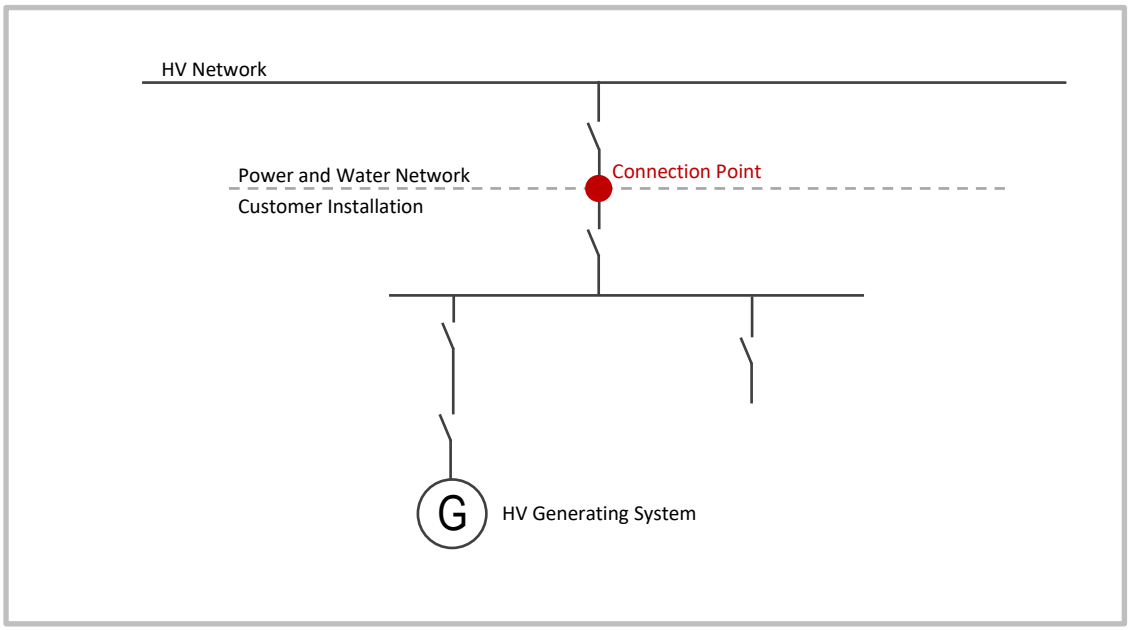
SLD 1 – Low Voltage Connection with Low Voltage Generating System (Synchronous or Induction Machine, or Inverter Energy System)



SLD 2 – High Voltage Connection with Low Voltage Generating System (Synchronous or Induction Machine, or Inverter Energy System)



SLD 3 – High Voltage Connection with High Voltage Generating System (Synchronous or Induction Machine)



6 More Information

For more information about the embedded generation projects, please contact us:

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