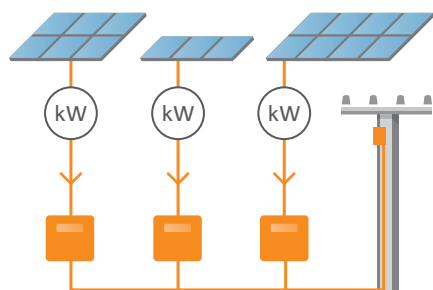


Cluster Rule for generators

The 'Cluster Rule' is the process of aggregating individual generation units, to ascertain the collective network and customer impact.



The total size of the cluster will determine how SA Power Networks:

- process connection applications,
- undertake impact assessments, and
- prescribe technical requirements, namely protection, export limits and SCADA.

Based on feedback from our customers, SA Power Networks is applying the following to ensure all generation connections are processed fairly and consistently.

Embedded Networks

Embedded Networks are privately owned electricity networks behind a single parent meter. They are common in apartment buildings and retirement villages. Some customers in these networks have a 'child' energy meter and an agreement with another network service provider separate to SA Power Networks.

SA Power Networks does not have supply contracts with child meters, hence all generator applications are assessed with respect to the parent meter.

Definition of a cluster

A cluster is defined as:

The aggregation of generating units on the same title or adjacent titles of land when they are owned or operated by customers that share an interest in the other generator(s), and/or the land, regardless of the number of NMIs or connection points.

The aggregated capacity of the cluster determines the connection process and impact assessment undertaken (refer to NICC270).

Requirement for back-up protection

In line with AS4777, one **Network Protection Unit (NPU)** is required for each connection point when >30kVA capacity of generating units are electrically connected beyond. The Office of the Technical Regulator has released a standing exemption to Network Protection units in certain conditions. More can be read on our website at Cluster Rule for Generators.

Flexible Exports – Cluster Trial

Customers intending to install a SEG at a connection point with more than 30kVA of generation capacity will now be able to proceed without the need to submit a MEG application, by opting into the Flexible Exports trial. The offering is available so long as the applicant:

- installs Flexible Exports compatible equipment;
- obtains all relevant approvals and consents for the installation; and
- has a supply with a unique, market-facing NMI.

Requirements for control and monitoring

One SA Power Networks SCADA Remote Terminal Unit (RTU) is required for a cluster when:

- there is 200kW export from a parent NMI, or
- a capacity constraint is identified (which is one major item of plant out of service, such as a substation transformer).

When generating units are added to a cluster, an impact assessment of the full cluster will be undertaken. The requirement for SCADA will be considered as part of this new connection application.

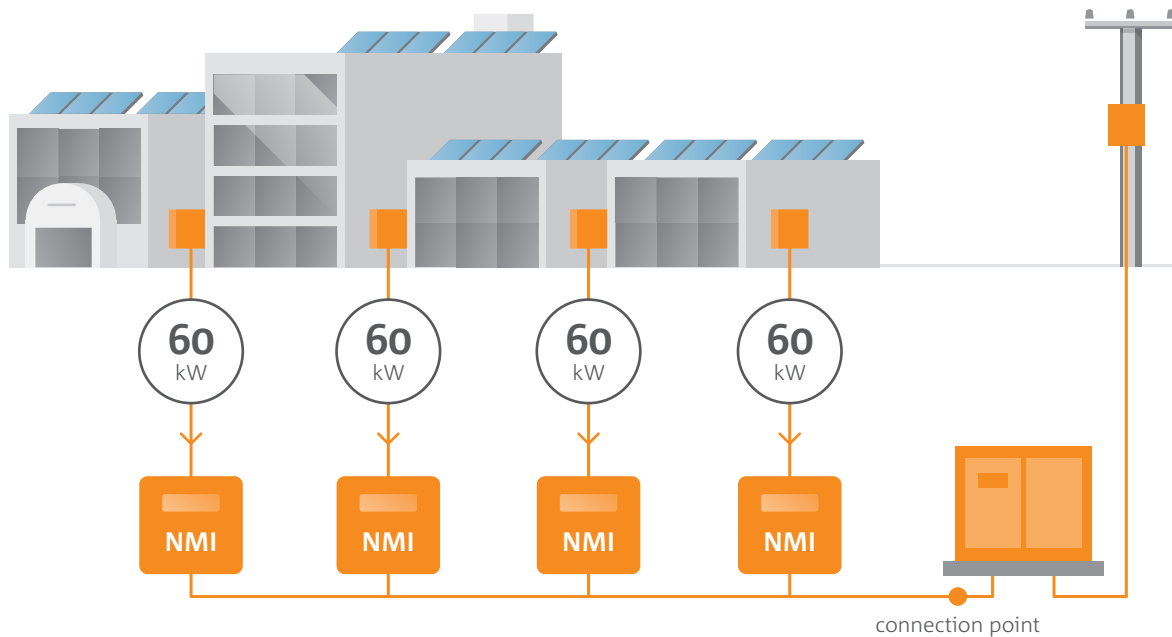
When a cluster comprises of only residential dwellings that are owned by proponents that do not share an interest, the cluster may be exempt from SCADA requirements.

Please refer to the following examples applying these principles.

Example 1a

Multiple generation systems on individual premises and NMIs behind a connection point

also shopping centres, schools, etc.



The connection is considered one clustered 240kW system as all inverters are on one single site. Each NMI connecting to the grid exports <200kW.

Assessed under

4 × assessed under
31–500kW process

NPU

**Up to 4 × NPUs
required (>30kVA)**

Or one central NPU,
so all generating
units are protected
by an NPU

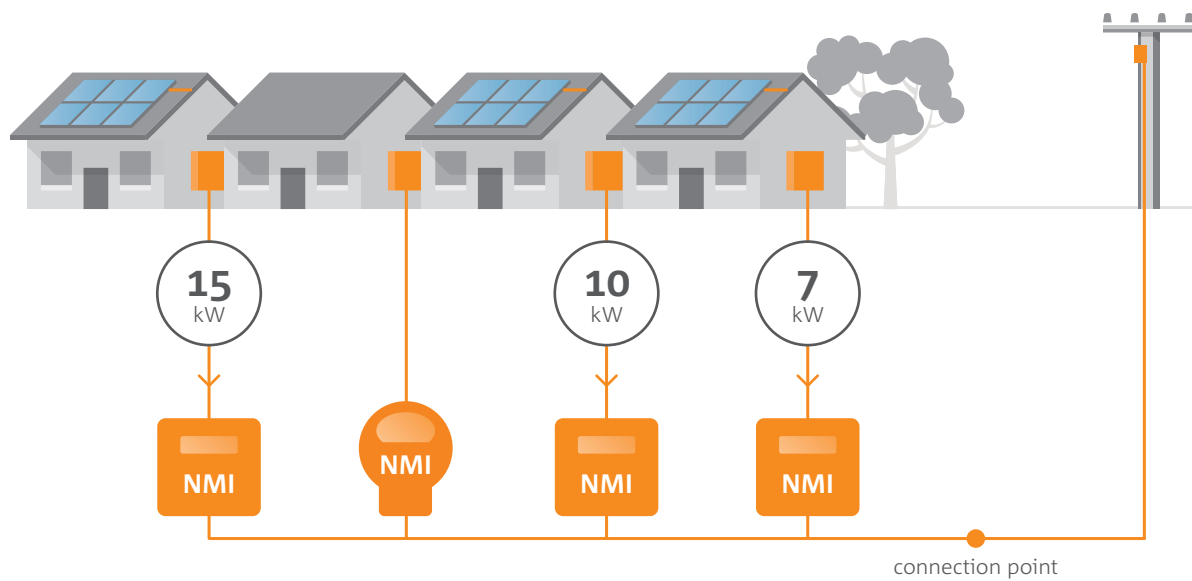
SCADA

Not required
if no network
constraint (if
constraint, only
required for that
application)

Example 1b

Four residential dwellings, each connected behind individual NMIs on the same land

includes community title arrangements



Each system contributes to the cluster.

Assessed under

First assessed
under **≤30kW**
process

Once 30kVA
threshold is
breached,
subsequent
customers eligible
for Flexible Exports
Cluster Trial

NPU

Eligible for central
protection standing
exemption

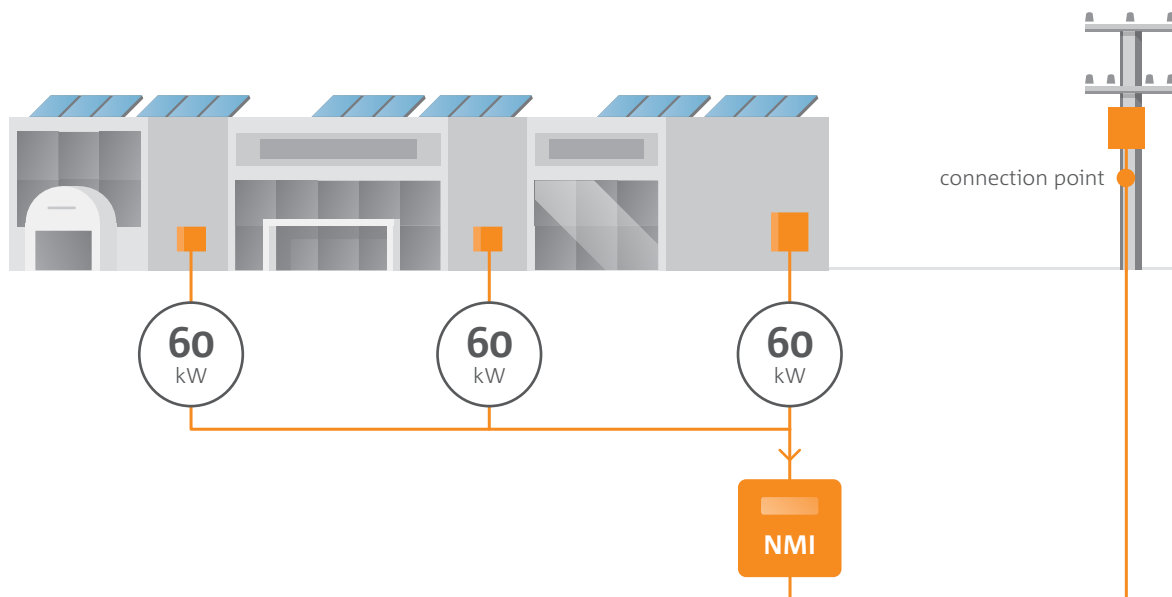
SCADA

**Requirement
not assessed**

Example 2

Multiple individual premises, each with a generating system, under one NMI behind a connection point

regardless of individual tenants having individual child meters



The connection is considered one clustered 180kW system as all inverters are on one single site, and there is one NMI connecting to the grid.

Assessed under

31–500kW process

NPU

Required (>30kVA)

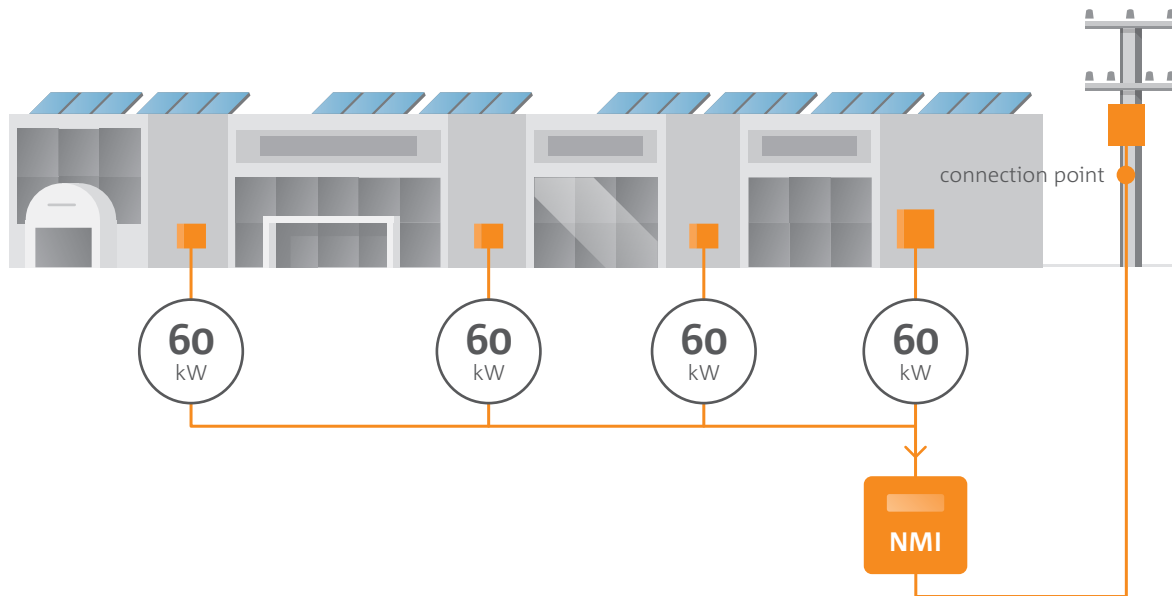
SCADA

Not required if no network constraint (network constraints checked during the assessment)

Example 3

Four non-residential premises in a retail complex behind one NMI

regardless of individual tenants having individual child meters



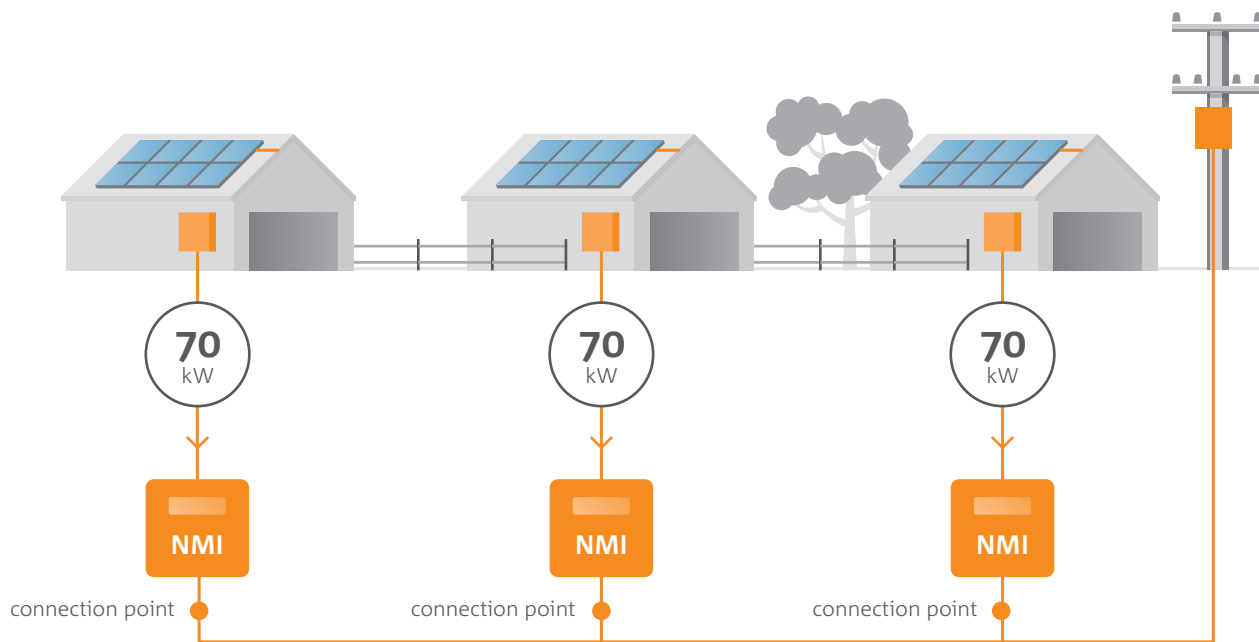
The connection is considered one clustered 240kW system as all inverters are on one single site, and there is one NMI connecting to the grid.

Assessed under	NPU	SCADA
31–500kW process	Required (>30kVA)	Required (>200kW)

Example 4

Single non-residential facility spread over three adjacent properties with three NMIs

also commercial businesses, universities, etc.



The connection is considered one clustered 210kW system as there is a common owner. There are three NMIs connecting to the grid each exporting <200kW.

Assessed under

3 × assessed under
31–500kW process

NPU

3 × NPUs required
(>30kVA)

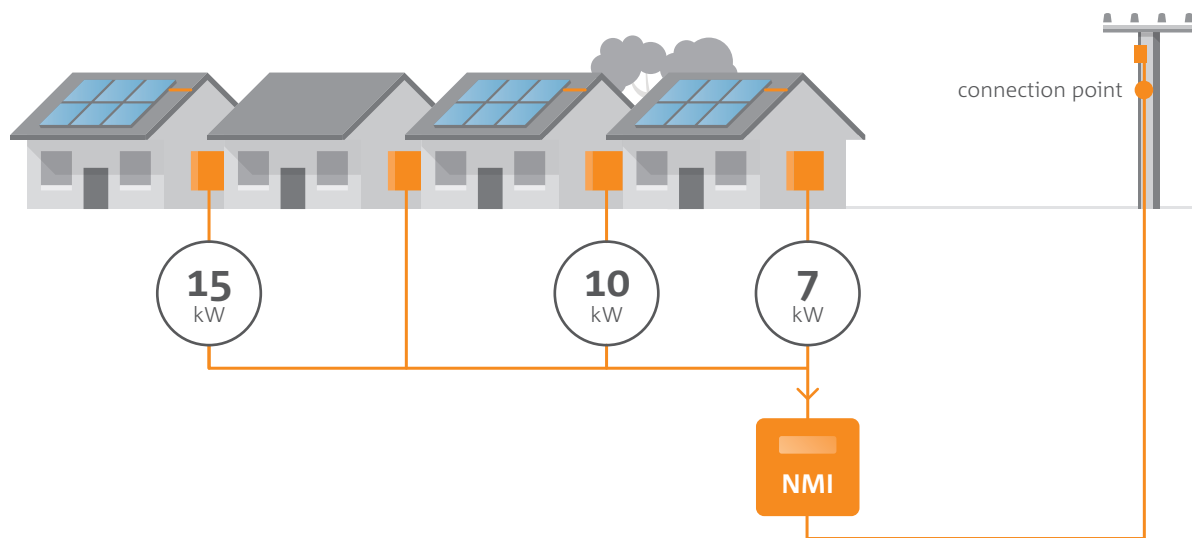
SCADA

Not required
if no network
constraint (if
constraint, only
required for that
application)

Example 5

Four residential dwellings connected behind one NMI within an embedded network

regardless of individual tenants having individual child meters also retirement villages, embedded networks, etc.



The connection is considered one clustered 32kW system as there is one NMI connecting to the grid.

Assessed under

First assessed under **≤30kW** process

When >30kW, assessed under **31–500kW** process

NPU

Eligible for central protection standing exemption

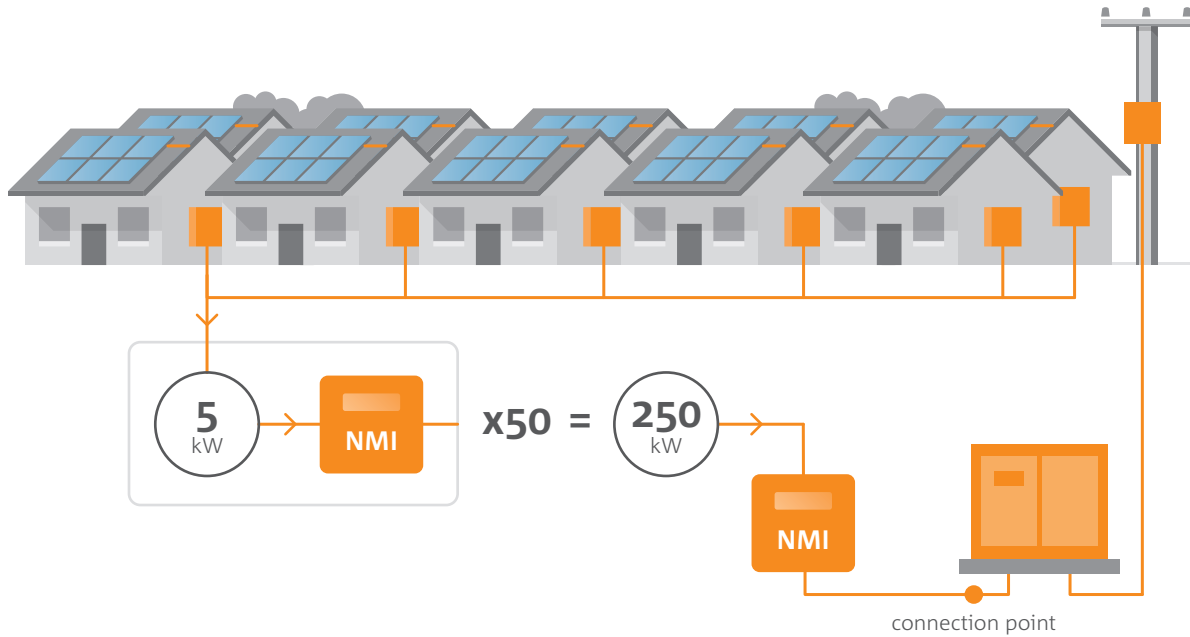
SCADA

Not required (if no network constraint)

Example 6

Fifty residential dwellings with no common interest behind one NMI, each dwelling connected behind individual child NMI within an embedded network

includes community lifestyle villages



The connection is considered one clustered 250kW system as there is one NMI connecting to the grid.

Assessed under

31–500kW process
(exempt from
>200kW process)

NPU

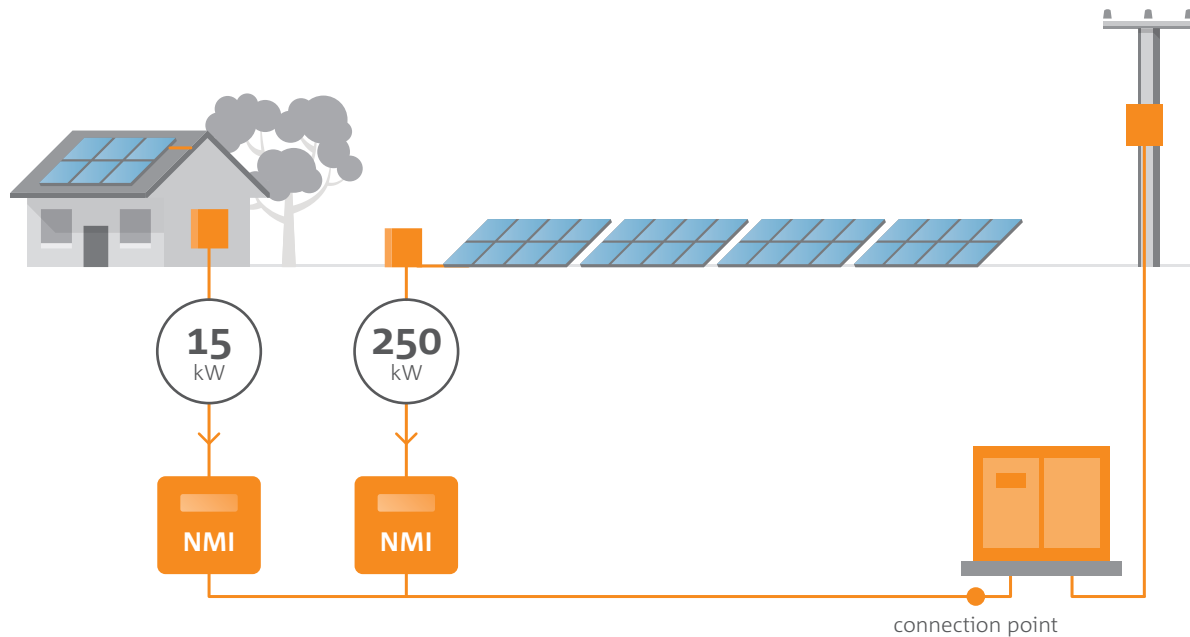
As per the Office of the Technical Regulators standing exemption, as the connection point hosts more than 200kVA of IES, the authority to exempt from central protection resides with SA Power Networks

SCADA

Exempt

Example 7

Dwelling and solar farm each connected behind individual NMIs on the same land

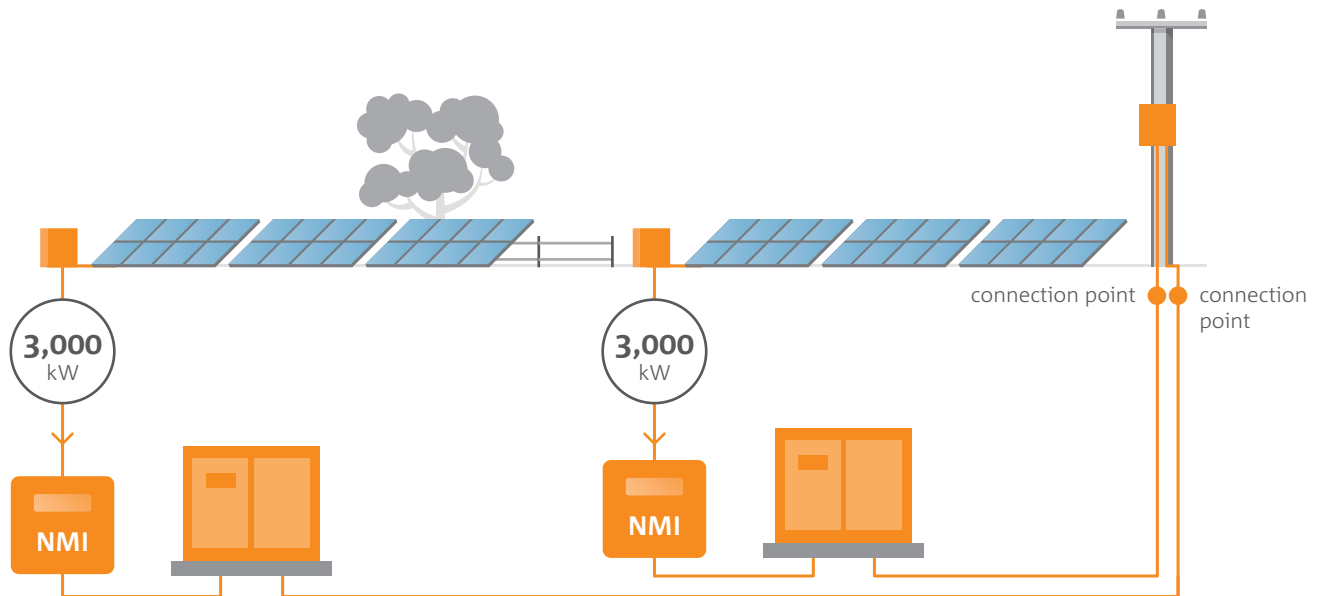


The connection is considered one clustered 265kW system as there is a common land owner.

Assessed under	NPU	SCADA
Dependent on order of applications	Required for solar farm	Required for solar farm only
<ol style="list-style-type: none">1. 15kW system applies first – auto approved2. 15kW system applies second – Flexible Exports Cluster Trial	As the connection point hosts >200kVA of DER, the authority to exempt from the 15kW system from central protection resides with SA Power Networks	

Example 8

Two solar farms with common interest connected behind individual NMIs on adjacent land



The HV connections are considered one clustered 6MW system as there is a common interest and land is adjacent.

Assessed under

First assessed under **>500kW** process

Second assessed to the **NER Chapter 5 requirements**

NPU

2 × NPUs required

SCADA

Required (>200kW)

Additional technical requirements listed in
 TS-132 for LV connected inverters
 TS-133 for HV connected inverters