



Fact Sheet

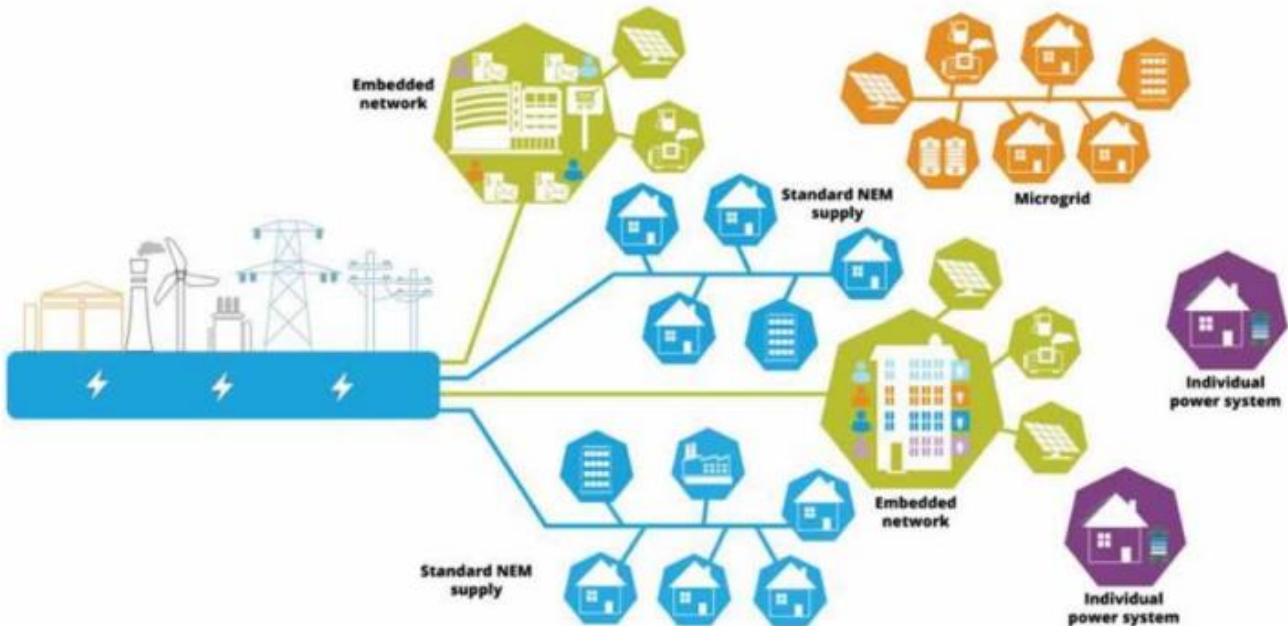
This fact sheet provides a set of questions and answers in relation to distribution-led stand-alone power systems (SAPS)

What is a SAPS?

A SAPS is an electricity supply arrangement that is not physically connected to the national grid.

Currently only SAPS led by the distribution businesses (DNSPs) are recognised within the Rules. These regulated SAPS may be supplied via a:

- microgrid isolated from the interconnected grid, or
- individual power system (IPS), which only provides electricity to the End User(s) in question.



Source: AEMC



How will a SAPS be identified?

Each DNSP has been allocated a range of TNI codes where the first character is unique to their distribution area. These TNI Codes will be grouped into SAPS Profile Areas for each DNSP.

Each SAPS will have a unique TNI code that will be assigned to all the NMIs connected within that SAPS.

SAPS NMIs can be identified by the first character of the TNI code.

Below is a list of DNSP, Profile Areas and the TNI Code Ranges:

DNSP	Profile Area	TNI Range
Ergon Energy	ERGONSAPS	B
Energex	ENERGXSAPS	C
Essential Energy	COUNTRYENGYSAPS	E
Ausgrid	ENERGYAUSTSAPS	F
Endeavour Energy	INTEGRALSAPS	G
ActewAGL	ACTEWAGLSAPS	H
Powercor	POWERCORSAAPS	J
Ausnet Services	TXUSAPS	K
Jemena	VICAGLSAPS	L
CitiPower	CITIPOWERSAPS	M
United Energy	UNITEDSAPS	P
SAPN	UMPLPSAPS	R
TasNetworks	AURORASAPS	U

Table 1 – list of SAPS profile areas and the first character of the TNI code.

DNSPs creating a new SAPS will need to recommend the new TNI code using the above range for their distribution network when filling out the [AEMO SAPS Connection Point Check List](#). The recommended TNI code must be unique and will be approved by AEMO prior to registration in AEMO systems.



What changes are there to Participant Registration category?

Currently MSATS simply records all financially responsible participants as FRMPs. However to support the new SAPS requirements, a new Role Category is to be created and MSATS will need to identify the participant category.

- The Role Category assigned to the FRMP associated to a SAPS generating unit will be:
 - MSRP – Market SAPS Resource Provider
- The new Role Category will be included into the C1 – Cats_Participant_Roles report
- The New Role Category will be used in MSATS Change Requests validations.

What is a SAPS Resource Provider?

As a SAPS is not part of the interconnected grid, a separate generating unit(s) will need to provide the energy for End Users connected to SAPS. Since this generation unit may be owned, controlled, and operated by the DNSP or a third party a new market customer category of Market SAPS resource provider (MSRP) has been introduced. This MSRP participant will be the financially responsible market participant (FRMP) for the SAPS generation unit(s). Where a DNSP is registering as a MSRP, they must comply with the requirements if the [AER Ring Fencing Guideline](#).

Information on how to register as a SAPS Resource Provider can be found [here](#)



How is a SAPS established?

To register a new SAPS, the DNSP will need to provide AEMO with information about the SAPS to facilitate the creation of a SAPS. To capture this information, AEMO has created a SAPS Connection Point checklist which can be downloaded from the AEMO web site [here](#). Once the checklist is completed it should be emailed to NEM.LNSP&RP@aemo.com.au

On receipt of the SAPS Connection Point checklist, AEMO will review the form and create a New SAPS TNI code and notify the DNSP.

The DNSP is now able to set up the SAPS generating unit(s) in MSATS using the standard change request processes. Due to the size of the generating units the NMI Classification Code will be set to “NREG”.

The DNSP will also need to update any respective End User NMI connected to the SAPS, with the new SAPS TNI code.

The DNSP will need to change the DLF code for all SAPS NMIs (generator(s) and End Users) to “SAPS”.

Other Market Participants associated with the NMIs affected by the creation of the SAPS (retailers, ROLR's and metering roles) will be notified through the standard MSATS change request notification processes.

Important exclusions and validations for SAPS

There are some differences between a NMI connected to a SAPS and a NMI connected to the national grid. For example, the SAPS change:

- Does not support the inclusion of embedded networks within the SAPS
- Does not allow for the registration of a Small Generator Aggregator (SGA) to a SAPS
- Does not have losses or unaccounted for energy (UFE) allocated to SAPS End User NMIs.

The metering data for the SAPS generating units will be determined by summing all End User net metered energy on that SAPS,

As identified above, the SAPS Rule introduces some new conditions relating to participants and connections to a SAPS. To support these conditions the following CR validations have been introduced:

- Embedded Networks are not supported within the SAPS
 - The change request will be rejected when a NMI being registered to a SAPS TNI code has an Embedded Network Code assigned.
- Transferring a NMI to a SAPS TNI code requires the TNI code and DLF code to be updated.
 - The change request will be rejected when a NMI being assigned to a SAPS TNI code does not have the ‘SAPS’ DLF code
- Small Generator Aggregators (SGA) are not eligible to be a FRMP within a SAPS

- The change request will be rejected when a SGA (FRMP) Participant is being transferred to a NMI connected to a SAPS TNI code or a NMI being transferred to a SAPS TNI code has a current SGA registered.
- SAPS Resource Providers (MSRP) are not eligible to be a FRMP beyond a SAPS
 - The change request will be rejected when a MSRP (FRMP) Participant is being transferred to a NMI connected to a non-SAPS TNI Code, or a NMI is being transferred to a non-SAPS TNI code where the MSRP is currently registered in the FRMP role.
- SAPS Resource Providers (MSRP) are only eligible for be FRMP to a SAPS generating unit
 - The change request will be rejected when a MSRP (FRMP) Participant is being transferred to a NMI that has a NMI Classification Code other than 'NREG'

To ensure that data integrity is maintained in MSATS over time, new Standing Data Quality (SDQ) checks will be added to the RM29 report:

- LNSP checks:
 - SAPS DLF is correctly assigned to only SAPS NMIs
 - SAPS NMIs do not have an Embedded Network Code assigned
 - Each SAPS has a generating unit NMI and an End User NMI assigned
- ENM checks:
 - SAPS NMIs do not have an Embedded Network Code assigned
- FRMP checks:
 - A SGA is not assigned as the FRMP to a SAPS NMI
 - A MSRP is not assigned as the FRMP to a NEM NMI
 - A Scheduled Generator is not assigned to a SAPS
 - A MSRP is only assigned to a SAPS connection point with NMI Classification Code "NREG".



How are SAPS NMIs included in the broader Wholesale Market arrangements?

A SAPS has no physical connection with the broader NEM and as such SAPS have been excluded from some of AEMO's NEM functions. For example, SAPS NMIs:

- cannot be included in Ancillary Services markets
- are not captured in SCADA
- have been excluded from AEMO's regional forecasts
- do not have UFE allocated to them

General information about SAPS

An End User connected to a SAPS is eligible for the same level of consumer protection as an End User connected to the broader NEM. This includes for example, the NER provisions for life support and outage notifications.

SAPS NMIs can be used in settlement reallocations between participants.

SAPS NMIs will be included in the determination of a Participants prudential obligations.



How does AEMO process metering data for SAPS?

Provision of Metering Data

Metering Data Providers for the SAPS generating unit metering installation must provide 5-minute remote metering data in accordance with the Procedures.

Metering Data Providers for the SAPS End User NMIs will provide metering data relevant to the meter type installed at the premises (5-minute, 15-minute, 30-minute or accumulation). For non 5-minute reads metering data, AEMO will use a Uniform Allocation Method (UAM) to calculate 5 minute trading interval metering data for settlement purposes:

- 15-minute reads divide by 3 to create 3 x 5-minute trading intervals
- 30-minute reads divide by 6 to create 6 x 5-minute trading intervals
- Accumulation reads divide by days in read period, then divide by 288 to create 288 x 5-minute trading intervals

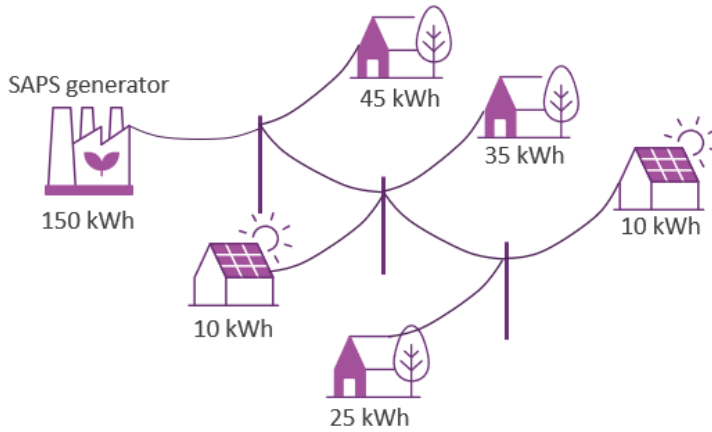
Where a Metering Data Provider does not supply metering data for a NMI in line with the Metering Data Delivery Calendar, AEMO will not substitute meter reads or settlement values. In these instances the energy value for the NMI will be excluded for any SAPS settlement calculations.

All existing metering data reports will include SAPS metering data.

Where a Third Party has registered as a MSRP, they must comply with clause 7.4.2 (e) where they must not be registered as a Meter Data Provider for a connection point which is involved in trading energy.

What is the process for calculating SAPS generating unit metering data?

SAPS generating units will be settled using “calculated metering data” that is calculated as the sum of the total net energy for each trading interval (TI) of all End User NMIs connected to the SAPS TNI.



End User Load	
	+45 kWh
	+35 kWh
	+10 kWh
	+25 kWh
	<u>+10 kWh</u>
	+125 kWh

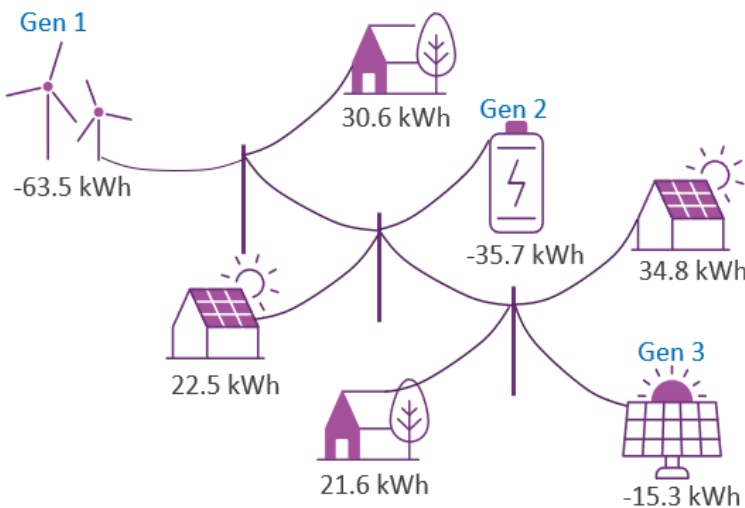
Generation	-150 kWh
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Allocation = Total load x -1
Gen = -125 kWh

Diagram 1 – calculation of a TI for a single SAPS Generating unit.

Allocation of Energy to multiple generating units on a single SAPS

Where there are multiple generators supplying a SAPS, AEMO will calculate a Contribution Ratio for each trading interval (TI) to determine the energy allocation for each generating unit. An example of this is shown in the example below.



Load	30.6 kWh
	22.5 kWh
	21.6 kWh
	<u>25.4 kWh</u>
Total Load	100.1 kWh

Gen 1	-63.5 kWh
Gen 2	-35.7 kWh
Gen 3	<u>-15.3 kWh</u>
Total Gen	-114.5 kWh

Calculate Contribution Ratio
 Ratio = Gen *n* / Total Gen
 Gen 1 = -63.5 / -114.5 = 0.5546
 Gen 2 = -35.7 / -114.5 = 0.3118
 Gen 3 = -15.3 / -114.5 = 0.1336

Allocation = Total Load * Ratio
 Gen 1 = 100.1 x 0.5546 = -55.52
 Gen 2 = 100.1 x 0.3118 = -31.21
 Gen 3 = 100.1 x 0.1336 = -13.37
 Energy sign set to '-' to indicate Generation

Diagram 2 – calculation of a TI for multiple SAPS Generating unit.

How do I reconcile metering data used in settlements?

Reconciliation of SAPS settlement data will be included in the existing RM Reports:

- RM16 - Level 1 Settlement reconciliation
- RM27 - Level 2 Settlement reconciliation
- RM17 - Level 3 Settlement reconciliation

However as AEMO will be determining the “calculated energy data” for each SAPS generating unit, a new report will be created to provide MSRPs the values used in the calculation of the settlement values.

- RM51 – Regulated SAPS generator reconciliation, will be available for MSRPs to request via the MSATS browser or can be automatically generated for participant that subscribe to the report.

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CaseID, SettlementType, ProfileArea, TNI, NMI, SettlementDate, CreationDT, Null_Data, DataType, Period001, Period002, Period003, Period004, Period005, Peri
9876, FINAL, COUNTRYENGYSAPS, E123, 8010009102, 2023/06/01, 2023/06/01T20:02:02, N, TOTAL_LOAD, 0.3, 0.3, 0.5, 0.3, 0.3, 0.3, -0.3, 0, 0, 0.2, 0.3, 0.3, 0.3, 0.3, C
9876, FINAL, COUNTRYENGYSAPS, E123, 8010009102, 2023/06/01, 2023/06/01T20:02:02, N, CONT_RATIO, 0.5714, 0.5714, 0.9091, 0.5714, 0.3333, 0.3333, 0.3333, 0.571
9876, FINAL, COUNTRYENGYSAPS, E123, 8010009102, 2023/06/01, 2023/06/01T20:02:02, N, CALC_ALLOC, -0.171, -0.171, -0.455, -0.171, -0.1, -0.1, 0.1, 0, 0, -0.16, -0
```

Diagram 3 – proposed sample of RM51 output.

The above proposed sample contains:

- Total_Load – total net energy for each trading interval (TI) of all End User NMIs connected to the SAPS TNI
- Cont_Ratio – ratio of generated energy contributed by the generating unit to the Total_Load for the SAPS TNI.
- Calc_Alloc – calculated allocation of energy for each trading interval for the generating unit determined by multiplying the Total_Load and Cont_Ratio

As all metering data within the SAPS will be produced natively in 5-minute TIs or converted to 5-minute TIs, the RM20 Profile report will not include SAPS profile areas.



What Settlement price is used for a SAPS?

In order to ensure that End Users transitioned into SAPS are not disadvantaged and retain their access to retail market offers, a SAPS Settlement Price (SSP) will be an administered price and will be calculated by AEMO.

The SSP will be calculated as 80% of the previous financial year's average wholesale price at the Regional Reference Node (RRN), AEMO will calculate a new SSP for each RRN at the end of each financial year.

To assist retailers in their determination of customer tariffs, AEMO will calculate an estimated SSP daily during the 3 months prior to the financial year end.

When will AEMO publish the SAPS Settlement Price for the first time?

AEMO will start calculating the SSP once the rule change comes into effect on the 30 May 2023, publication of a firm price for each RRN will be published as soon as practicable after that date.

Will there be a change to the Settlement Statements for SAPS?

Changes will be made to the settlement statement to include stand-alone power systems. A new line item will be included on the Summary of NEM Transactions statement, and will be included on all statements, irrespective if you have a connection to a SAPS NMI or not.

Examples of settlement document have been provided below:

**Summary of NEM Transactions
for Week 21: 15 May 2022 - 21 May 2022**

Description	\$
Energy	-2,256,053.92
Ancillary Services	-2,398.98
Settlement Residue Auction	498,783.89
Wholesale Demand Response	0.00
Standalone Power Systems	-35,159.60
Market Fees	-7,039.20
TNSP Residue	0.00
Security Deposits	2,011,429.16
Reallocation	0.00
Revision Adjustment	-18,416.95
Revision Interest	-11.92
Early Payment Interest	0.00
Other	-346.29
GST	-225,879.92
Reassignment	0.00
Total	65.89

Diagram 4 – new line item for transaction summary.

Supplies made by AEMO

Taxable Supplies

Description	GST Exclusive (\$)	GST (\$)	Sub Total (\$)
Energy -7,932 MWh	-2,256,053.92	-225,605.39	-2,481,659.31
Wholesale Demand Response	0.00	0.00	0.00
Standalone Power Systems -438.495 MWh	\$35,159.60	\$3,515.96	\$38,675.56
Ancillary Service	-2,398.98	-239.90	-2,638.88
Compensation	-346.29	-34.63	-380.92
Pool Fee - EUA	0.00	0.00	0.00
Pool Fee - Nem	0.00	0.00	0.00
Manual Adjustment	0.00	0.00	0.00
Total	-2,258,799.18	-225,879.92	-2,484,679.10

Diagram 5 – update of Taxable Supplies information.

Stand-Alone Power Systems (SAPS)



Fact Sheet

Non Market Ancillary Service Transactions by Region and Type - Recovery

NMAS Type	Service	RegionId	Availability	Enablement/Usage	Compensation	Testing	Total
SRAS	System Restart	NSW1	-\$207.70	\$0.00	\$0.00	\$0.00	-\$207.70
SRAS	System Restart	QLD1	-\$41.19	\$0.00	\$0.00	\$0.00	-\$41.19
SRAS	System Restart	SA1	-\$45.13	\$0.00	\$0.00	\$0.00	-\$45.13
SRAS	System Restart	VIC1	-\$250.94	\$0.00	\$0.00	\$0.00	-\$250.94
Total Recovery (Payment To AEMO)			-\$544.95	\$0.00	\$0.00	\$0.00	-\$544.95

Standalone Power Systems Sales (Purchases) by Transmission Connection Point

Transmission Node	Description	Trading Amount (\$)	Load Wtd Avg. Price (\$/MWh)	Aggregate Energy (MWh)	DME (MWh)	UFEA (MWh)
PUES	United Energy SAPS	-\$35,159.60	\$80.00	-439.495	-0	0

Diagram 6 – details added to settlement report.

Changes to the data model were deployed in March 2023 which support the SAPS and IESS changes

Where can I find more information?

See the AEMC’s website for a copy of the National Electricity Rules.

For any further enquiries, please contact AEMO’s Information and Support Hub via

- supporthub@aemo.com.au or
- call 1300 236 600

This fact sheet is only a summary of the SAPS arrangements. Registration applicants are responsible for ensuring they understand the relevant provisions of the National Electricity Rules and other applicable instruments, which prevail in the case of any inconsistency.

For clarification on registration matters consult AEMO, for individual connection proposals consult the relevant Network Service Provider and Metering Coordinator.