MINUTES – DER REGISTER MEETING ON COLLECTION

MEETING: DER Register meeting on collection

DATE: Friday, 1 February 2019

TIME: 09.30 am – 1.00pm (AEDT)

LOCATION: AEMO Offices & Dial in

ATTENDEES:

NAME	COMPANY	LOCATION
Luke Barlow	AEMO	MEL
Rama Ganguli	AEMO	Dial In
Roy Kaplan	AEMO	MEL
Michelle Norris	AEMO	BRI
Kausik Samanta	AEMO	MEL
Robert Speedy	AEMO	SYD
Gurinder Singh	AEMO	MEL
Eloise Taylor	AEMO	SYD
Salman Gillani	AusGrid	SYD
Joseph Jessenby	AusGrid	SYD
Kevin Smith	Ausgrid	SYD
Robert Simpson	Ausgrid	SYD
Justin Betlehem	Ausnet Services	MEL
Lisa Forden	AusNet Services	MEL
Adam Ryan	CitiPower and Powercor	MEL
Dor Son Tan	CitiPower and Powercor	MEL
Elizabeth Rosenberg	Clean Energy Council	MEL
Jess Edwards	Clean Energy Regulator	MEL
Michael Whitelaw	Clean Energy Regulator	MEL
Adrian Panow	Deakin University	MEL
Anthony Kavaliauskas	Endeavour Energy	SYD
Annie Macdonald	Endeavour Energy	SYD
Albert Pors	Endeavour Energy	SYD
Dean Comber	Energy Queensland	BRI
Lisa Harry	Energy Queensland	BRI
Matthew Talbot	Energy Queensland	Dial In
Graeme Ferguson	Essential Energy	Dial In
Ricky Martin	Evoenergy	Dial In
Eddie Thanavelil	EvoEnergy	Dial In
Aleisha Baboolal	EY	BRI
Cara Graham	EY	BRI
Simone Zawadski	EY	BRI
Jared Green	Formbay	SYD
Jaz Singh	Formbay	SYD
Daniel Sullivan	Formbay	SYD
Subas Ghimire	Jemena	MEL
Anubhav Berry	Kickstart agile	MEL
Vivek Wathoo	Kickstart agile	MEL
Victor Ho	SA Power Networks	ADL
Travis Kauschke	SA Power Networks	ADL
Steve Blume	Smart Energy Council	MEL
Daman Cole	Solar Scope	BRI
John Dalgliesh	Solar Scope	SYD
Bradley Woods	TasNetworks	Dial In
Rodney Bray	United Energy	MEL
Rothanth Sivanathan	United Energy	MEL

1. Agenda

1. Issues Paper - general data content
2. CER Presentation and discussion
3. DER Register collection framework
4. Next steps

2. Action Items

ITEM	ITEM	DUE
1	Send in scenarios for installation configurations	28/02/2019
2	Send in use cases for changes to installations (before vs after)	28/02/2019
3	Issues paper submissions	07/03/2019

3. Notes

3.1. Issues Paper - general data content

- AEMO presented single line diagram scenarios and talked through how they would be represented in the current data model (available in the issues paper). All scenarios presented are available in **Appendix 1**. Discussion focussed on scenarios which are not accommodated by the data model.
- Scenario D – one-to-many relationship between DER Device and AC connection (see Appendix 1)
  - This is a common scenario in networks.
  - Suggestion for the AC connection level of the data model to have a group count, similar to the DER Device level.
  - The AC connections (e.g. inverters) would not necessarily be the same make/ manufacturer, so the data model should account for DER devices going to different types of AC connections.
  - To accurately describe the behaviour of the system you need the right connection relationships between the panel and inverter and not just have total panel and total inverter.
- Scenario G– Multiple NMIs at a connection point (see Appendix 1)
  - DER installations must be linked to a single NMI.
  - Networks are more likely to see the embedded network (EN) arrangement (scenario H), compared to scenario G.
  - There is potential for a site to have two NMIs, with one allocated to the load and the other to the generation.
- Scenario H (see Appendix 1) – Embedded Network
  - DNSPs have visibility at the gate NMI, however in ENs there are other child NMIs, which may be market or non-market, with DER behind them. The DNSPs don't have control of the child NMIS, so will the Embedded Network Operator need to be involved in this scenario?
- Scenario K – many-to-many relationship between DER Device and AC connection (see Appendix 1). Not a typical install that is seen by Networks.
- What is the purpose of the DERID level of the data model? This level is for the DNSPs. When they get an application, they are interested in the aggregate impact of the DER installation to the network. The structure is set up to allow the DNSPs to look at the aggregate level, and the installers to populate the lower (equipment) levels. This aggregated level also simplifies the process somewhat, as there is difficulty associated with aggregating equipment level information.
  - Is there an opportunity to place limits/ capacities at the NMI level vs the DERID level, thus making a change to existing NMI data table elements?

- Why are the lower (equipment) levels important? Important for forecasting contributions from DER and understanding the dynamic nature of the DER fleet.
- Networks differed in whether they thought there should be one or more than one DERID allowed for each NMI. Need to explore further about where the DERID should be defined (i.e. at the connection point (CP) and whether there is one or more DERIDs per site).
    - May be some value in adding to the existing configuration/ meter where possible and reusing the DERID. May need a capacity update or adjustment, not that different to subdivisions, etc. Would depend on the situation.
- Customers with multiple connection points can swap DER through the different CPs. This is a static register, and not intended to keep up with switching. This issue also currently exists with load.
- Will integration of DSP information into the DER Register assist NSPs to meet their regulatory obligations or requirements?
    - It would help to understand from the other providers of DSP information (Aggregators and Retailers), particularly information in the DSP data model section 2. Good to know if there are NMIs participating in a retailer-led or aggregator-led programs, so DNSPs can know where they are and how big they are for use in network planning, system security and network impact assessments.
- **ACTION**: Meeting participants to send through any additional scenarios.

3.2. CER Presentation and discussion

- CER presented on the solar panel validation (SPV) initiative. AEMO notes that this was an opportunity to do the collection differently to the way we currently do NMI standing data. We want to improve data quality by making it easy and efficient for customers/ installers.
- High level overview of the SPV initiative:
    - A customer decides to install solar → engages a retailer or installer → installer must be accredited by the Clean Energy Council (CEC) → Equipment (panels, inverters) must be CEC approved.
    - At installation the customer will need to provide permission for an agent to claim the incentive on their behalf (small scale technology certificate). Agents will need to collect information on the installation to prove that it has been installed correctly. The agent signs a declaration and takes on the responsibility for the information provided to the CER.
- Vetting of the application once it is received by CER, includes:
    - Targeted checks to vet the agent (rather than the information), some manual assessment, data analytics and aggregate checks to look at the pool of applications.
    - Inspect 1.5% of systems with a ~12-month lag. Mainly an electrical safety check. Secondary feature is to check that installation is done correctly and cross checking to installer quality
- Note, CER have ~1,500 applications a day, with a smaller scope compared to the DER Register, so any automation is a good.
- Described SPV smartphone initiative diagram (Appendix B). Installer would use the smartphone app to scan serial number on the panel. This gets checked against a database of manufacturer information. This check returns a positive or negative result. If negative they need to sort it out on site. If positive it creates a signed secure data package all about the serial number that has been checked and some additional information on the installation. This gets submitted alongside the application to the CER. A user-friendly version is created and sent to the customer for their records.
- This is a risk reduction tool. Reduces the risk to customers for unapproved equipment to be installed and it reduces risk for agents because it gives a greater assurance that the installation happened.
- Why SPV works:
    - Fast, efficient. A lot of pre-population of information in the data package.

- Sustainable solution, which is designed to outlast the CER and the scheme. Can be applied to a range of process.
- Reduces the risk of installing unapproved solar panels.
- Simple for installers/retailers to use. Installers are the key information gatherers, who already have a lot of reporting requirements. Any tool that can satisfy multiple parties will likely get good take-up.

- Key lessons learnt:
  - Working with a voluntary/co-designed model
  - Helped us balance the needs of consumers with the requirements of industry and scheme administration. The supply chain could easily reject the solution if it was not fit for purpose.
  - Clear communication of information requirements to ensure consistency across industry via the Message Interface Standard (technical specifications).
  - Can the CER portal incorporate data from networks? The apps get a data set from site for parties. Doesn't need go flow through the CER to the DER, it can go point to point, straight to the DER Register. May be different datasets for the different networks.

3.3. DER Register collection framework

- Aim of the discussion to understand the opportunities to improve collection, particularly how to make it as easy as possible for the industry (especially installers) and how to open other value streams.
- AEMO presented use cases (see **Appendix 3**) to understand what the register and accompanying process will need to cater for. Discussion was centred around collection only (no discussion on data dissemination services).
- **ACTION**: Meeting participants to send through any other use cases.
- Broad agreement that the site information should be accessible to installers on site (or others who are entitled to the information, e.g. auditors). The NMI is readily available, however we should consider the services/ data feed that the Register could provide to the installer on site.
- Decommissioning installation use case needs further work. Sometimes this would be covered by the NMI extinction process (when a whole site is removed), but in others the customer may want to just disconnect generation. DNSPs had varied processes to deal with disconnection.
  - Disconnection could also be done by looking at meter information. Could raise sites that we think are incorrect based on the consumption process, however this will get harder with the addition of batteries behind the meter.
- AEMO presented a process strawman (**Appendix 4**) to go over a high-level view of the end-to-end collection framework. AEMO is interested in looking at if we can get the information flow, that has worked well in the CER process from installers through to the DER Register.
- There is significant investment in standing data frameworks. Will likely need some degree of integration to take advantage of processes, such as NMI extinction.
- There should always be a path that goes the NSP for approval. However, there are also other validation services that could be provided directly to the installer (e.g. NMI validation)
- The processes shown are both missing the upfront connection approval process. AEMO will need assistance form NSPs in understanding if there is an opportunity to capture consistent information from the process.
- Discussion around integration of the DNSP application process with the DER Register information collection.
  - Needs to be the DNSP up front to link an application to the dataset that will come through (part of the approvals and data flow process).
  - The NSP enters in the connection application parameters. Once the parameters are set, the installer needs to establish an installation within those parameters.

- If there is a new installation, the DNSP will have the NMI and capacity and kick off an application. The information package could be provided by the DNSP as part of a permission to act.
- The first thing the installer would do is to input the NMI and that would return the DERID and start off the data pack. Serial numbers are scanned on site as they are unloaded off the truck (accepted industry practice since the CER solar panel validation initiative).
- The DNSP connection application information also acts as an independent piece of information on capacity limits. A validation could be run to check whether an installation has conformed to the connection application. There could be some on-site validation to let installers know if the installation does/does not meet capacity parameters.
- DNSP role at the back end should be exception handling only. This exception handling should also be an automatic process.

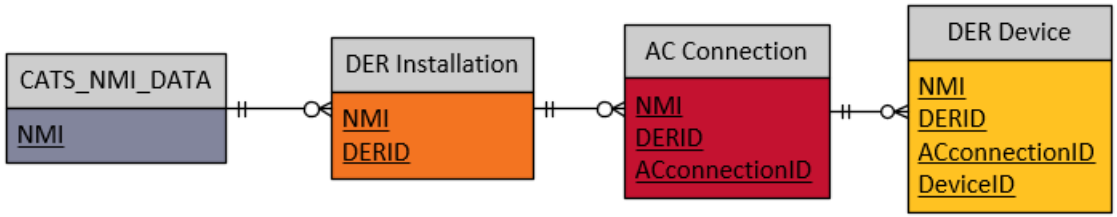
- **ACTION**: we will add the NSP up-front application process to the data flow process diagram.
- Additional questions presented in the meeting, but not discussed:
  - What services would industry want to be provided to improve data quality? (e.g. NMI Validation; Manufacturer/Make lookup; Australian Standards Lookup; Other (CER crosscheck?))
  - What is the easiest way for NSPs to interface with the DER Register? (e.g. Existing hub messaging; Direct method (API); browser screens)
  - What happens if installer sends through information to the DER register that contradicts the connection application/ what should the exception framework look like?
  - What if the NMI doesn't exist at the time of installation?
- **ACTION**: provide comments on the above questions if relevant.

4. Key Dates

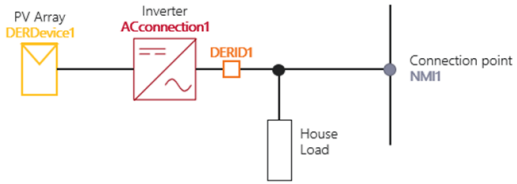
Item	Indicative Date	Action
Submissions on Issues paper close	7 March 2019	Consultation
Draft Guidelines (inc data model) and report published	29 March 2019	Consultation
Draft technical specification	April 2019	System Implementation
Submissions on draft guidelines and report close	15 April 2019	Consultation
Final Guidelines (inc data model) and report published	31 May 2019	Consultation
Final technical specification	June 2019	System Implementation
System go-live in pre-production	September 2019	System Implementation
System go-live in production	31 November 2019	System Implementation

APPENDIX 1: Data Model Scenarios

The following scenarios were provided as examples of what the data model (presented in the issue paper) can (✓) and cannot (x) accommodate.

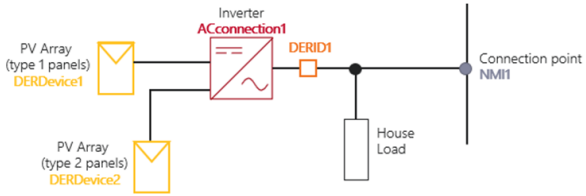


Scenario A



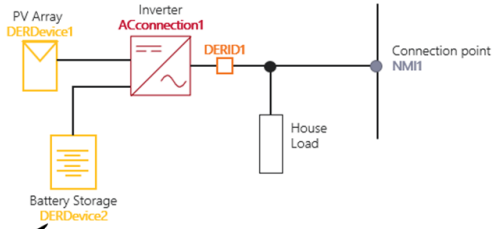
✓ 1 PV Array, 1 inverter, 1 DER installation, 1 NMI

Scenario B



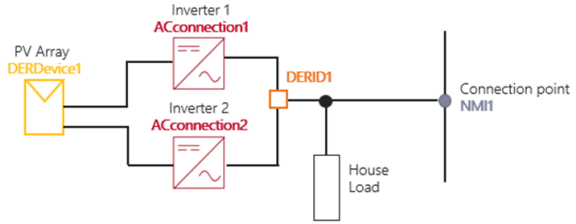
✓ 2 different PV technologies, 1 inverter, 1 DER installation, 1 NMI

Scenario C



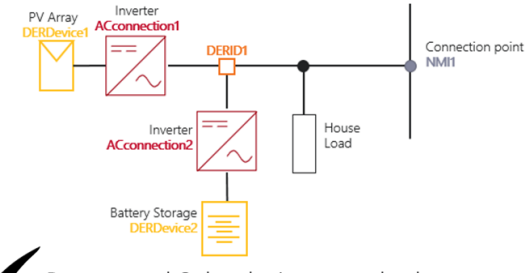
✓ Battery and Solar devices, 1 inverter, 1 DER installation, 1 NMI

Scenario D



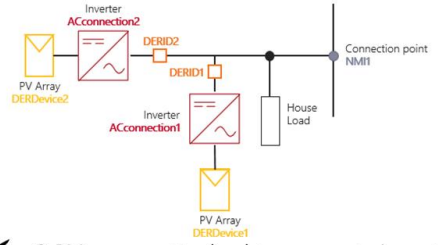
✗ 1 PV Array, 2 inverters, 1 DER installation, 1 NMI

Scenario E



✓ Battery and Solar devices attached to separate inverters, 1 DER installation, 1 NMI

Scenario F



✓ 2 PV arrays attached to separate inverters and classified as separate DER installations, 1 NMI

<table>
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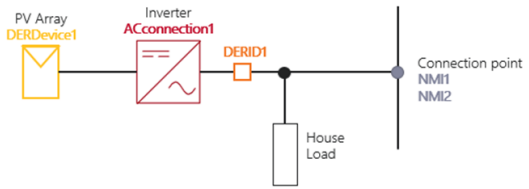
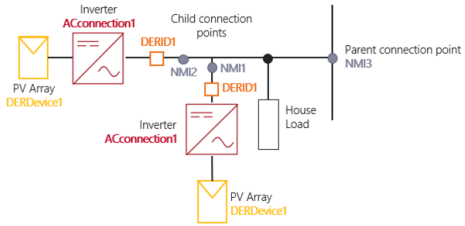
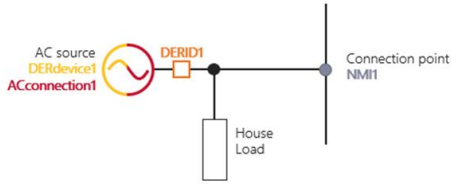
<td>Scenario G
 

✗ Single PV Array, single inverter, single DER installation, 2 NMIs</td>
<td>Scenario H
 

✓ Embedded Network: 2 PV arrays attached to separate inverters and classified as separate DER installations, 3 NMIs</td>
<td>Scenario I
 

✓ 1 AC source, 1 ACconnection, 1 DER installation, 1 NMI</td>
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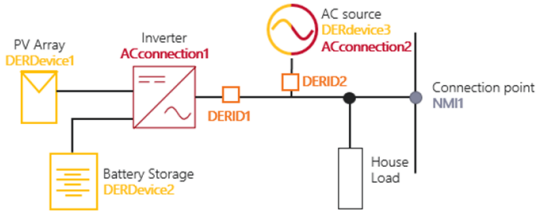
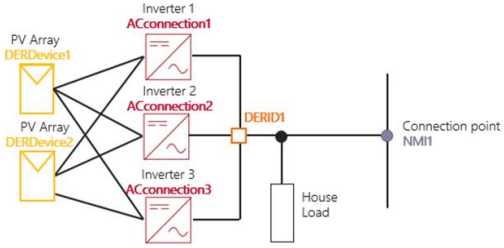
<td>Scenario J
 

✓ Battery and Solar devices connected to 1 inverter, 1 AC source and associated ACconncetion, 2 DER installation, 1 NMI</td>
<td>Scenario K
 

✗ 2 PV arrays attached to 3 inverters, 1 DER installation, 1 NMI</td>
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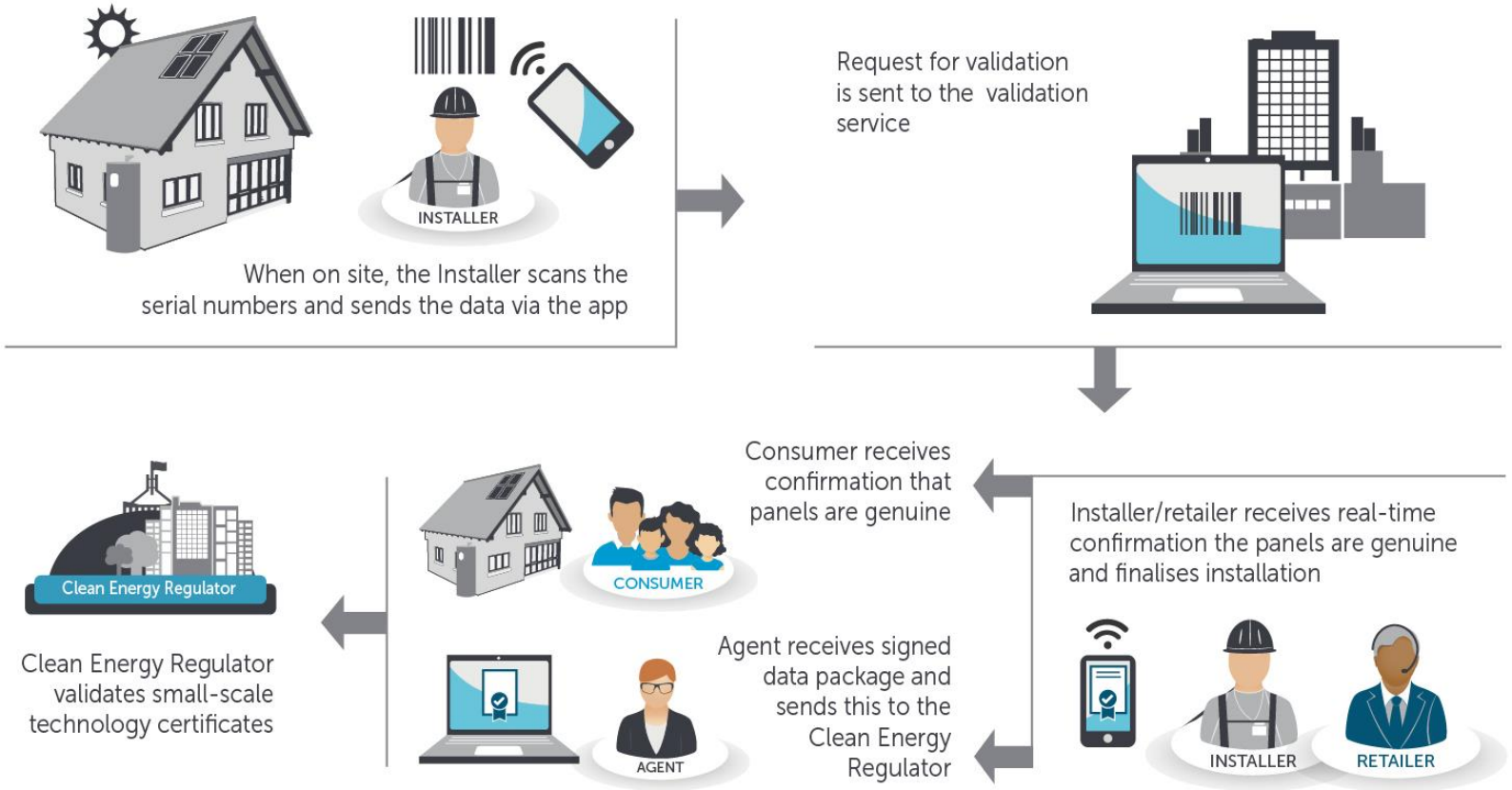
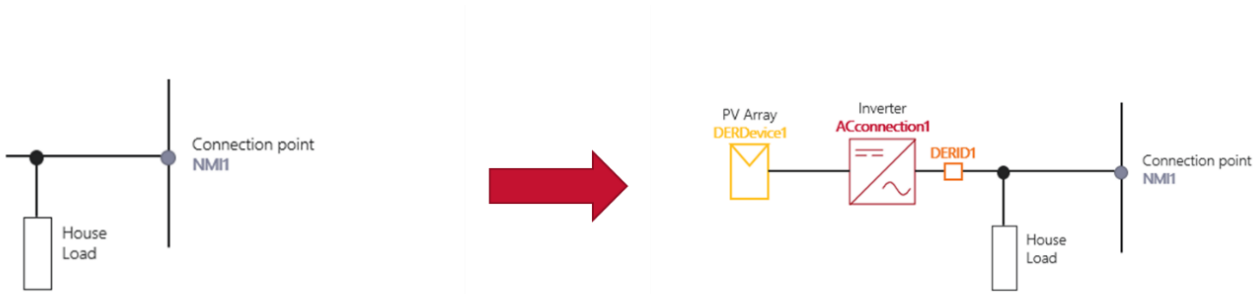
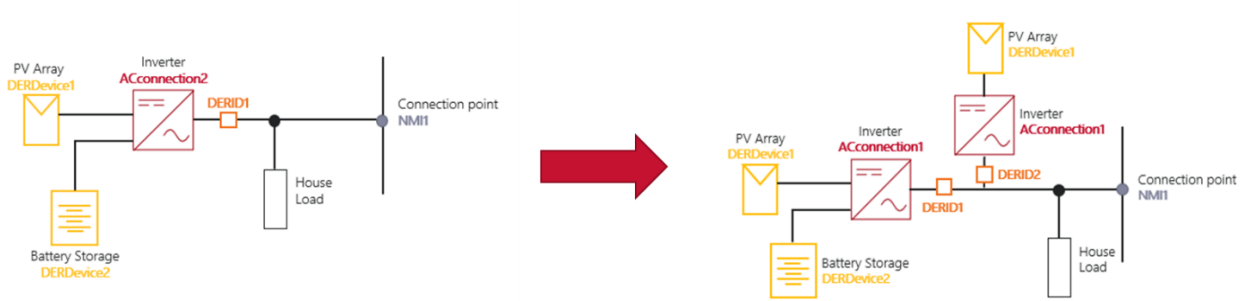
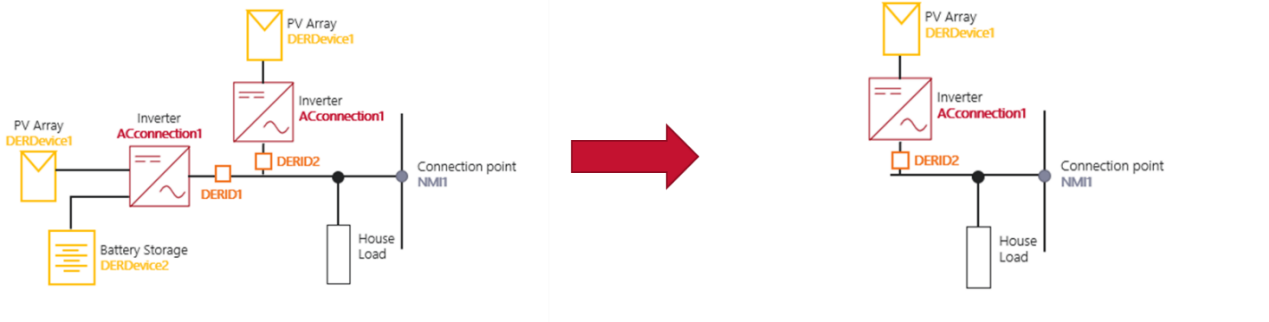
APPENDIX 2: CER Solar Panel Validation – how it works



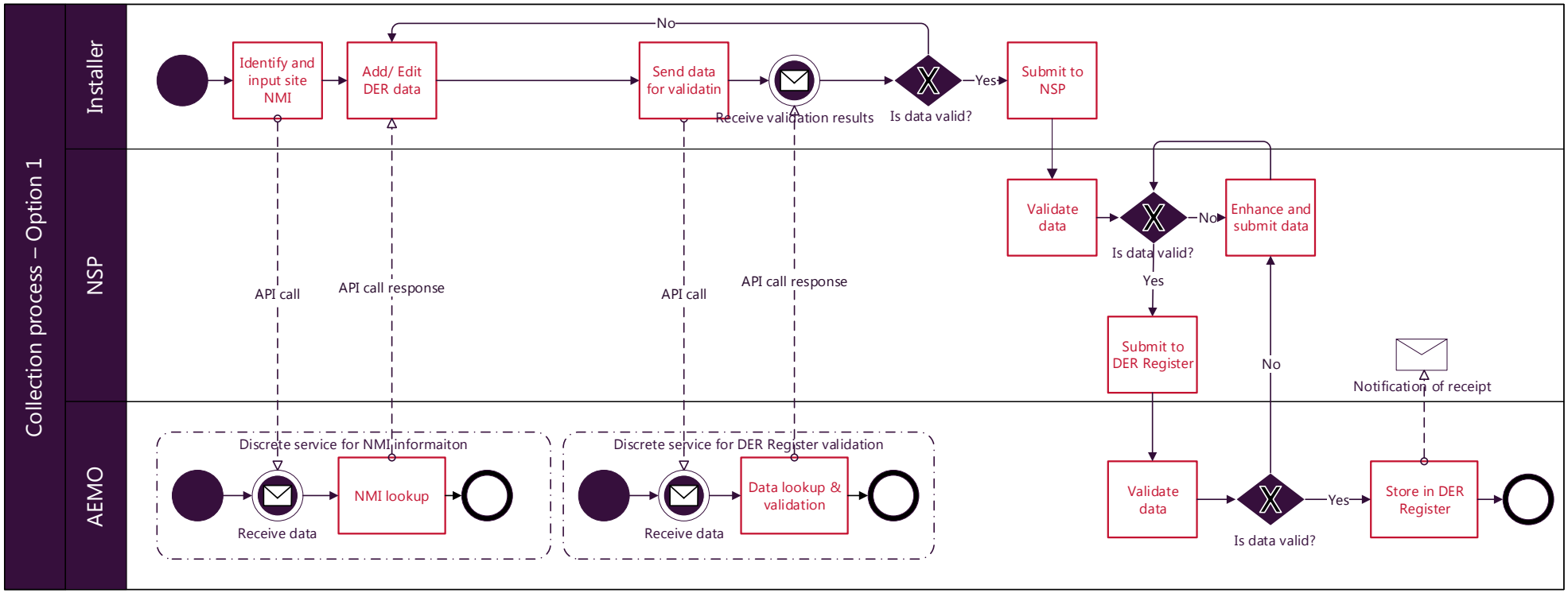
APPENDIX 3: Use cases

Use Case	Initial diagram	Description
New installation		Existing household with no DER installation has DER installed. The new installation comprises of 1 PV Array (DERDevice1), 1 inverter (ACconnection1), 1 DER installation (DERID1), 1 NMI (NMI1)
Modify installation		An existing installation is retrofitted with a battery module to form a DC coupled solar battery system. The solar inverter from state A (ACconnection1) is removed and replaced with a new inverter (ACconnection2). There is no change to the NMI.

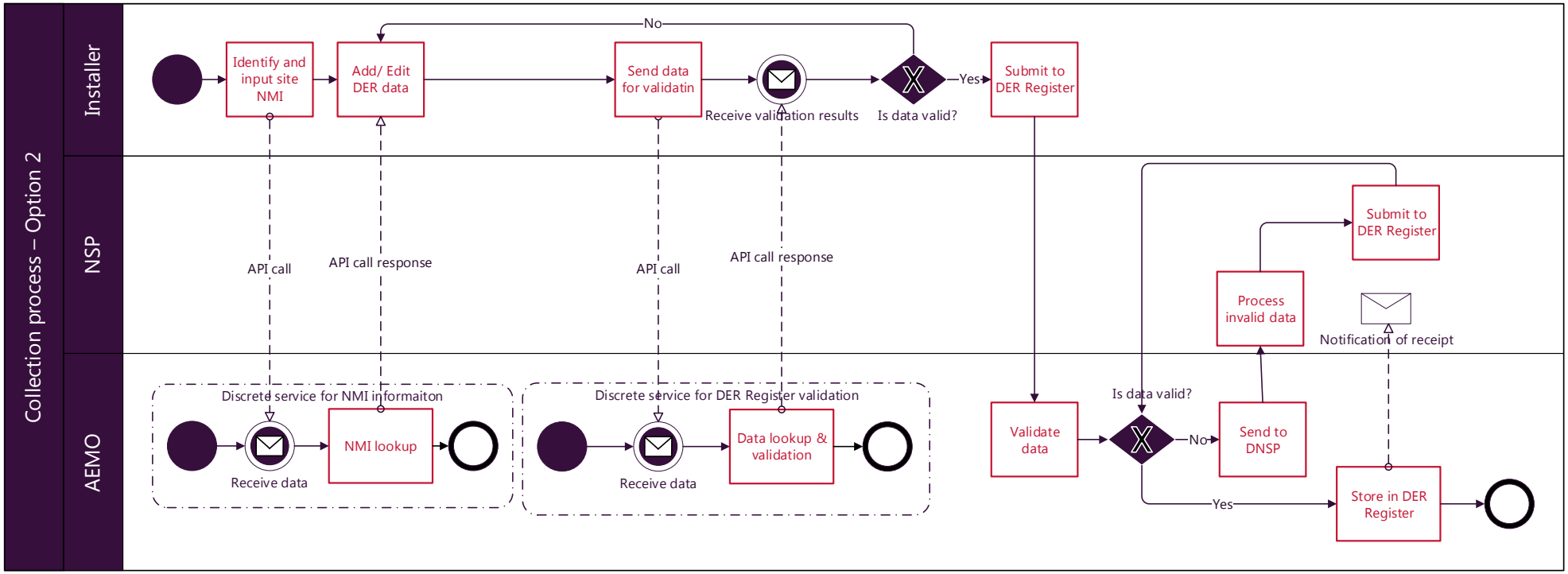
Add installation		A new DER installation is added to the NMI. This installation has a separate DERID and associated AC connection (inverter) and DER device.
Decommission installation		DERID1 is decommissioned, including the solar battery system and associated inverter. There is no change to the separate DERID or the NMI.

APPENDIX 4: Data flow diagrams

Option 1:



Option 2


Collection process – Option 2
Installer
NSP
AEMO
Identify and input site NMI
Add/ Edit DER data
Send data for validatin
Receive validation results
Is data valid?
No
Yes
Submit to DER Register
API call
API call response
API call
API call response
Discrete service for NMI informaiton
Receive data
NMI lookup
Discrete service for DER Register validation
Receive data
Data lookup & validation
Validate data
Is data valid?
No
Yes
Send to DNSP
Process invalid data
Submit to DER Register
Notification of receipt
Store in DER Register