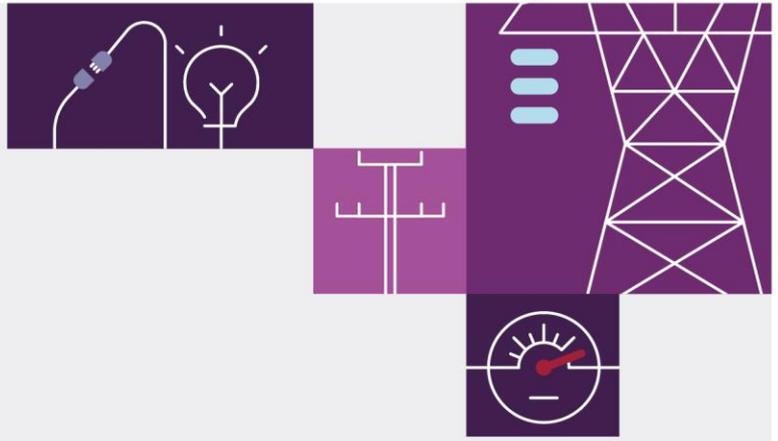


Integrating Energy Storage Systems (IESS)

July 2024

IESS Bidirectional unit transition and cutover plan





Important notice

Purpose

To support the IESS Rule Change, this document:

- Provides information to support participants in the process to cutover from BESS to BDU
- Details the prerequisites, forward notice and steps required to cutover.

This publication has been prepared by AEMO using information available at 13 March 2024.

Disclaimer

This document may be subsequently updated or amended. It is intended to provide general information and guidance, which is only current as at the date of its last publication. It does not constitute legal or business advice and should not be relied on as a substitute for obtaining detailed advice about the National Electricity Law, the National Electricity Rules, or any other applicable laws, procedures, or policies. AEMO has made every reasonable effort to ensure the quality of the information in this document but cannot guarantee its accuracy or completeness.

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Version control

Version	Release date	Changes
0.1	1/12/2023	Draft for Industry Feedback
1.0	31/1/2024	Includes changes made in response to stakeholder feedback
1.1	13/03/2024	Updated with additional detail
1.2	5/07/2024	Updated with additional detail
1.3	27/08/2024	Updated with additional detail (see Page 3 for summary)

Executive summary

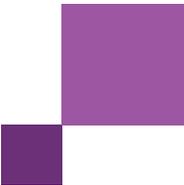
The Australian Energy Market Operator (AEMO) and National Electricity Market (NEM) participants are currently implementing the Integrating Energy Storage Systems (IESS) and the implementation program has entered its development phase.

The National Electricity Rules (NER) changes for IESS have amended or introduced new regulatory obligations on certain NEM participants and AEMO. They require significant updates or changes to market procedures and market and participants' systems at various times. AEMO has a key coordination role, through collaboration with its industry working groups, to ready industry and itself for the various rule commencement and IT system "go-live" dates.

This IESS Bidirectional Unit Transition and Cutover plan outlines the expected responsibilities, activities, dependencies, and timeframes for AEMO and Participants to successfully transition all grid-scale batteries from the existing 2-DUID arrangement to a single BDU DUID. It is one of a series of documents that support the IESS rule change.

Summary of changes to August version of IESS Bidirectional Unit Transition and Cutover Plan:

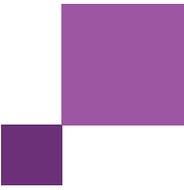
Page	Change description	Change type
24	Auto-bidding instructions updated to reflect rebidding of load/gen DUIDs not permitted post-cutover.	Update
27	Final Go/No Go decision timing changed from 9am to start of the scheduled cutover time. This is to allow for changes in operational conditions between start of day and the scheduled cutover time.	Update
31	Notification of cutover outcome to MSPs timing updated to reflect MSPs will hear from AEMO 1-2 hours following the scheduled cutover time based on the decision to rollback or not.	Update



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1 Introduction

This chapter provides background information on AEMO’s Integrating Energy Storage Systems (IESS) implementation program and sets out the purpose of this IESS Bidirectional Unit Transition and Cutover Plan.

This document pertains to the transition period and cutover process for grid-scale Battery Energy Storage Systems (BESS) to move from the existing 2-DUID arrangement to a single BDU DUID.

Transition refers to the period available to transition BESSs from the existing 2-DUID arrangement to a single BDU DUID from 03 June 2024 to 03 March 2025.

Cutover refers to the process to cutover each BESS from an existing 2-DUID arrangement to a single BDU DUID, with detailed steps.

1.1 AEMO’s IESS implementation program

On 2 December 2021 the Australian Energy Market Commission (AEMC) made a Final Determination on the Integrating Energy Storage Systems (IESS) rule. The change seeks to better integrate storage and aggregate systems into the National Electricity Market (NEM). The IESS rule comprises four distinct high-level changes, described in Table 1.

Table 1 Changes introduced by the IESS rule.

Implementation date	Change	Description
Fri 31 Mar 2023	Small generation aggregators (SGA) providing FCAS	Complete. Aggregators of small generating and storage units can now provide ancillary services (if they choose to do so).
Wed 09 Aug 2023	Aggregated dispatch conformance (ADC)	Complete. <ul style="list-style-type: none"> Aggregate Systems can choose to register for ADC. ADC provides an Aggregate System with the flexibility to conform to its dispatch instructions by dispatching energy at the connection point from any combination of its units (with some restrictions), rather than individually on a unit-by-unit basis. Includes minor changes for Battery Energy Storage Systems (BESS). AEMO will temporarily be using the ADC mechanism to monitor net dispatch conformance for a BESS across its scheduled generating unit/scheduled load pair, as a Target Aggregate.
Sun 02 Jun 2024	IESS retail and settlement changes	Significant changes to the calculation method to be used for Non-Energy Cost Recovery (NECR): <ul style="list-style-type: none"> Recovery calculations are to consider the gross (consumption separate from generation) energy amounts of all participants, rather than current approach using net energy (generation – consumption) of specific participant types. Major settlements database structure changes are required to enable the new calculations, these changes will flow into the Data Model and affect: <ul style="list-style-type: none"> Participant reconciliation and reporting activities. AEMO data provision Embedded network management changes to ensure that the parent has the appropriate gross energy volumes available for settlement.
Sun 02 Jun 2024 (IRP) Mon 03 Jun 2024 (BDU)	Registration, bidding, and dispatch changes	<ul style="list-style-type: none"> Introduction of Integrated Resource Provider (IRP) participant type Bidirectional unit (BDU) bidding and dispatch, with impacts for BDU participants and bidding system vendors/developers.

The IESS program covers the procedural, IT system and market readiness arrangements needed to implement the IESS rule including:

- Procedures – defines and implements the required changes to market procedures.
- Systems – designs, develops, tests, and implements changes to AEMO’s market systems.
- Readiness – coordinates, assists, and prepares AEMO and participants for the transition to IESS.

1.2 Purpose

AEMO’s IESS implementation program has entered the development phase of the project. This document is specific to the component of market readiness for the IESS June 2024 release that introduces the Bidirectional Unit (BDU).

The Integrating Energy Storage Systems (IESS) rule changes how batteries are to be registered, connected, and managed in AEMO systems:

1. A new Integrated Resource Provider (IRP) participant category replaces the current requirement to register separately as both a Market Customer and Market Generator when connecting a battery.
2. A single BDU DUID is to be used in the bidding and dispatch of both the battery charging and discharge, which replaces the current requirement for separate DUIDs for each energy direction from the battery.
3. A single NMI is to be used in the energy settlement, which replaces the current dual NMI configuration that sees the generation and load recorded against different NMIs and separated in the current settlement process.

This IESS Bidirectional Unit Transition and Cutover Plan relates to the transition of the current 2-DUID arrangement to the single (BDU) DUID arrangement and covers items 2. and 3. of the above and is aimed at introducing more certainty for participants’ implementation planning. A separate document, the IESS IRP Transition Plan, will address item 1.

This plan outlines the expected responsibilities, activities, dependencies, and timeframes for AEMO and Participants to successfully transition all grid-scale batteries from a 2-DUID arrangement to a single BDU DUID. It is one of a series of documents that support the IESS rule change.

1.2.1 Reference documents

The following IESS related documents or web pages are relevant to the IESS Bidirectional Unit Transition and Cutover Plan.

Table 2 Reference Documents

DOCUMENT	DESCRIPTION
IESS BDU cutover Fact Sheet	High-level overview of the BDU cutover
IESS NMI cutover Fact Sheet	High-level overview of the NMI cutover activities in the BDU transition & cutover plan
IESS Readiness approach	Outlines the approach to ensure Industry readiness for the IESS June 2024 release.
IESS BDU Readiness Focus Group	Focus group materials cover changes, scope, and transition considerations for transitioning from a 2-DUID arrangement to a single BDU DUID.

DOCUMENT	DESCRIPTION
IESS Industry test and market trial strategy	Industry reviewed Industry Test and Market Trial strategy to support IESS June 2024 release.
IESS Industry testing and market trial plan	The IESS industry testing and market trial plan sets out the approach to developing the plan and defines how and when the IESS industry testing and market trial will be executed.
IESS NMI classification code transition plan	The NCC transition plan sets out the activities, dependencies, and timeframes for AEMO to transition the existing distribution-connected generators (and generation side of distribution-connected storage) to the DGENRATR registration category.
IESS Integrated resource provider transition plan	The plan for transitioning from existing participant categories to the new IRP category.
IESS participant toolbox	A central location for Participants to access useful information around the IESS June 2024 release.

1.3 Scope

The IESS Bidirectional Unit Transition and Cutover Plan focuses on the process to transition from the 2-DUID arrangement to a single DUID.

1.3.1 In Scope

Activities necessary for participants and AEMO to successfully implement BDU bidding and dispatch in alignment with the IESS Rule, including the:

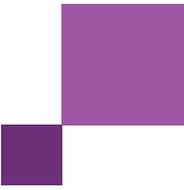
- Approach to establishing the BDU transition timetable
- BDU cutover process and timeline.

1.3.2 Out of Scope

- ‘Business as usual’ bidding and dispatch activities
- Go-live planning for IESS data model and bidding format changes (separate deployment plan for these system changes)
- IRP registration activities for BESS, pumped hydro and SGAs. A separate transition plan (the IESS IRP Transition Plan) will be published for these IRP registration activities
- IESS settlement (NECR) changes.

1.3.3 Where scope is uncertain

AEMO and participants (via the Implementation Forum or the BDU Readiness Focus Group) will assess the issue and recommend next steps for its resolution.



2 Bidirectional Unit Transition

2.1 Transitional arrangements

AEMO has developed a transition approach that provides participants with some flexibility of when their BESS can transition to the new single DUID BDU arrangement.

The transition period covers a 9-month period between Mon 03 Jun 2024 and Mon 03 Mar 2025. Cutover of all grid-scale BESS to the single BDU DUID model will take place throughout this period, such that the transition to BDU bidding and dispatch is manageable and as efficient as possible for both participants and AEMO.

Transitional arrangements are summarised in the below table.

Table 3 Transitional arrangements

PARTICIPANT TYPE	TRANSITIONAL ARRANGEMENT
IRS participants that commence operations from Mon 03 Jun 2024	Expected to begin operations as a single BDU DUID, unless exceptional circumstances apply.
Existing IRS Participant*	Must cutover to the single BDU DUID arrangement between Mon 03 Jun 2024 and Mon 03 Mar 2025.
New IRS Participant*	Must cutover to the single BDU DUID arrangement between Mon 03 Jun 2024 and Mon 03 Mar 2025.

* As defined in NER CI. 11.145.1. Note the arrangements for transitioning to the Integrated Resource Provider Participant category differ to that for BDU cutover and are provided in AEMO’s IESS IRP Transition Plan.

Transitional arrangements have been developed to accommodate participants who have bidding systems developed in-house or rely on a third-party bidding system vendor to provide bidding system capability for their battery. AEMO will take into consideration bidding system vendor dependencies with regard to cutover timing.

Participants will be provided with implementation flexibility where feasible, and where cutover risks are minimised.

2.2 Transitional responsibilities

Participants and AEMO hold responsibilities to support the success of the transition. Key responsibilities are outlined in the table.

Table 4 AEMO and Participant responsibilities in carrying out the transition.

Responsibility	AEMO	Participant
Continued fulfilment of own regulatory and compliance obligations during transition and system cutover periods.	✓	✓
Participants and AEMO are each responsible for their own transition and go-live planning.	✓	✓
Use of the IESS Bidirectional Unit Transition and Cutover Plan as the basis of individual implementation plans that will factor in the key activities and dates.		✓
Communication of any issues with meeting the BDU transition and cutover activities and responsibilities as soon as possible.	✓	✓

2.3 Risk management

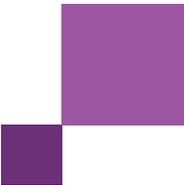
In developing the IESS Bidirectional Unit Transition and Cutover Plan, AEMO seeks to minimise any risks associated with transitioning to the BDU model. To appropriately manage these risks, AEMO is implementing the below mitigations in its cutover planning.

Table 5 Risk Management

RISK AREA	RISK DESCRIPTION	MITIGATIONS
Impact on NEM Operations	BDU Cutover activities either directly impact NEM operations or distract AEMO operational staff from attending to real-time operational issues.	<ul style="list-style-type: none"> Design cutover activities to make use of existing market scheduling process to reduce cutover risks before arrival at cutover dispatch period (e.g., risk of overlap in 2-DUID and 1-DUID dispatch). Include contingency arrangements in AEMO’s IESS Bidirectional Unit Transition and Cutover Plan, should NEM Operational matters require a short-notice deferral. Consider the aggregate BESS capacity when determining which BESS are scheduled to cut over within the same day or week, to mitigate risk of scheduling issues.
Operational capacity	Volume of cutover activities exceeds AEMO/vendors/participants’ capacity to manage them.	<ul style="list-style-type: none"> Ensure a sufficient spread of cutover dates for all existing BESS (on the current 2-DUID arrangement) to move to a single BDU DUID, such that risk of impact to the NEM is reduced. Where practicable, schedule no more than 3/4 cutovers in each week. Where possible to limit the number of participants involved in cutover activities a given week to 1. Where possible limit the number of regions that contain a BESS being cutover on a given day to 1.

RISK AREA	RISK DESCRIPTION	MITIGATIONS
Preparedness	AEMO/Participant inadequately prepared to execute cutover activities.	<ul style="list-style-type: none"> Plan cutover dates in advance between all parties to optimise likelihood of all parties being adequately prepared to execute cutover activities.
Staff/Resource availability	Lack of availability of resources prevents/reduces ability to carry out pre and post cutover activities.	<ul style="list-style-type: none"> Select mid-week business days: Tuesdays, Wednesdays and Thursdays as preferred transition days. This allows for pre and post cutover activities to be done during business hours. Reduced cutover volumes to be scheduled on weeks with public holidays. Avoid scheduling of cutovers during typical December/January office shutdown periods. Actual cutover time will be negotiated with participants to be on the half-hour or hour boundary between 10:00 and 13:00 market time (AEST), unless exceptional circumstances require otherwise.
Cutover delays	Planned cutovers are delayed due to unforeseen circumstances.	<ul style="list-style-type: none"> Cutover dates to be scheduled prior to February 2025. 1st February to 3rd March 2025 to be set aside for contingency transitions.
Unforeseen Circumstances	Due to circumstances unable to be planned for, a cutover cannot go ahead	<ul style="list-style-type: none"> Where an issue occurs that results in a decision to cease progressing a 2-DUID to single BDU DUID transition, a rollback may be invoked.

AEMO may identify additional risks and associated mitigations to apply when finalising the IESS Bidirectional Unit Transition and Cutover Plan, as required.



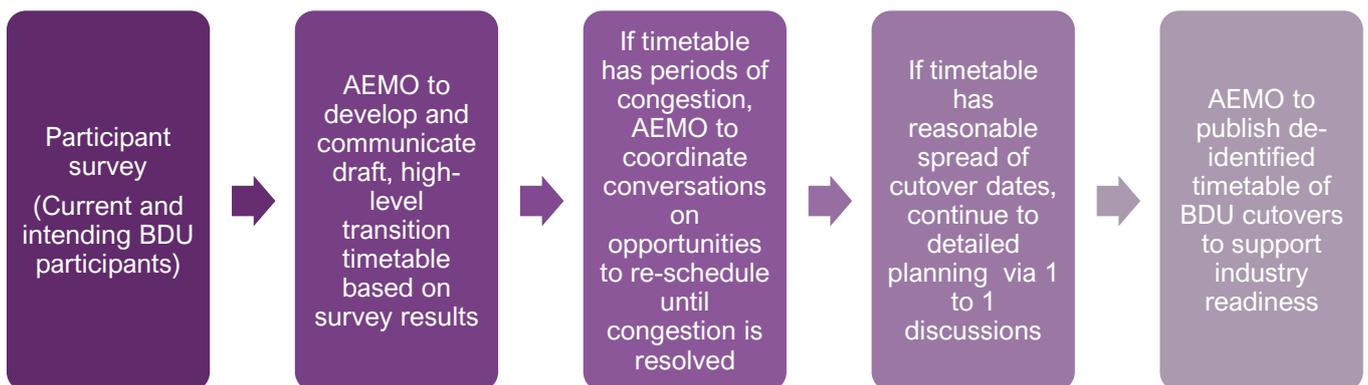
2.4 Bidirectional Unit transition schedule

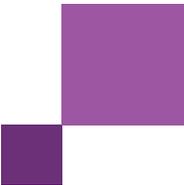
The following table shows all dates with a BDU cutover scheduled in production as at July 2024. While changes to this table are expected to be infrequent, AEMO will endeavour to republish this table when and if changes arise. “BDU cutover date” refers to “Day 0” in the [BDU cutover activities](#).

Scheduled production BDU cutover date	Volume of cutovers
16 July 2024	2
24 July 2024	2
30 July 2024	4
21 August 2024	1
27 August 2024	2
18 September 2024	4
24 September 2024	2
2 October 2024	2
8 October 2024	2
16 October 2024	2
22 October 2024	1
12 November 2024	1
Approx. end Nov/early Dec	1
Total	26

The BDU transition schedule has been developed based on the below process flow.

Figure 1 Process for developing BDU transition schedule.





Timeframes to complete each step of the process are provided in the table.

Table 6 Timeframe to complete process of developing BDU transition schedule.

PROCESS ITEM	TIMEFRAME	STATUS (AS AT 31 JAN 2024)
Participant survey of current affected participants*	12 October to 26 October 2023	Completed
AEMO to develop and communicate draft, high-level transition timetable based on survey results	November 2023	Completed – refer Figure 3
If timetable has periods of congestion, AEMO to coordinate conversations on opportunities to re-schedule until congestion is resolved	December 2023 – January 2024	Completed
If timetable has reasonable spread of cutover dates, continue to detail planning via 1 to 1 discussion	December 2023 – January 2024	Completed
AEMO to share de-identified timetable of BDU cutovers to support industry readiness	February 2024	Completed

*Affected participants include those with existing and new BESS that will cut over from existing 2-DUID arrangement to a single DUID operation; and those with new BESS and a dependence on vendor readiness to support a single BDU DUID operation.

Finalisation of the BDU cutover schedule will require AEMO, BESS participants, and (where appropriate) vendor engagement to resolve periods of congestion. AEMO plans to seek endorsement of BDU cutover dates from participants in February 2024. Participants and AEMO hold responsibility for their readiness to undertake cutover activities – as described in [Chapter 3](#) of this document – in accordance with the endorsed BDU cutover date.

3 Bidirectional Unit (BDU) Cutover

The BDU cutover approach has been developed with mitigating risk of disruption to NEM operations as the primary consideration.

The process developed involves parallel visibility of both the 2-DUID arrangement and single BDU DUID (for each BESS) in AEMO's production systems for a period of several days. Participants will submit bids for the existing 2-DUID arrangement for dispatch intervals throughout the post-cutover period. In advance of the cutover day, participants will also submit bids on the new single BDU DUID for dispatch intervals that occur both before and after the cutover date and time.

Participants will be responsible for submission of bids that reflect zero MAX and PASA availability on the new BDU DUID until the cutover time; and submission of bids that reflect zero MAX and PASA availability on the existing 2-DUID arrangement from and after the cutover time.

The reasons for adopting this approach include:

- Providing visibility of the single BDU DUID in AEMO's 7-day pre-dispatch and day-ahead pre-dispatch. This will allow AEMO and Participants to ensure bid and dispatch functionality is appropriate prior to the dispatch timeframe.
- Allowing capability for the cutover dispatch interval to occur during business hours (noting that registration changes come into effect at midnight). This is needed to ensure AEMO resourcing is available to carry out cutover activities and monitor dispatch throughout the cutover period.
- Allowing for short-notice deferral of the cutover day should NEM Operations require.
- Both Participant and AEMO will be able to monitor operation of the BDU DUID for a short period post the cutover day, ensuring no issues or defects arise prior to registration of the 2-DUID arrangement becoming inactive.

There are four phases of the cutover process, each with defined activities for participants and/or AEMO to complete:

1. **Prerequisites:** Preparatory activities required before the cutover schedule can commence.
2. **Pre-cutover:** Activities required over the period prior to cutover day, primarily to allow visibility of the single BDU DUID in pre-dispatch.
3. **Cutover day:** The day when BESS bidding and dispatch from the 2-DUID arrangement ceases and BDU bidding and dispatch commences.
4. **Post-cutover:** Activities required to complete the cutover process and cease operation of the 2-DUID arrangement.

A diagram is provided in Figure 4 IESS indicative bidirectional unit cutover timeline that illustrates the indicative timing for each step of the cutover from existing 2-DUID arrangement to single BDU DUID; the sequence of steps and the planning required to transition a BESS from the existing 2-DUID arrangement to the single (or BDU) DUID model.

3.1 Prerequisites for cutover

In February 2024, AEMO made available the necessary BDU Transition forms for completion by participants. The information provided in these forms will be used to establish the single BDU DUID in AEMO's pre-production and production systems.

Participants are required to submit these forms in respect of each BESS, and where applicable submit a complete application to transition to the Integrated Resource Provider participant category¹ a minimum of 35 calendar days prior to the preferred BDU transition date. In deciding when to submit these forms, participants need to consider their intention to participate in the IESS Market Trial, as outlined in [Chapter 4](#).

IESS Market Trial is planned to commence on 2 April 2024. Participants wishing to participate in Market Trial will need to submit finalised pre-requisite information by (indicatively) **8 March 2024**, so that AEMO can process this information in time for 'Market Trial Phase 3: Bidirectional unit bidding and dispatch' (as set out in AEMO's Industry Testing and Market Trial Strategy).

Participants are expected to consult with AEMO and agree an appropriate cutover date and time for each BESS prior to submission of these forms, taking into consideration cutover timing preferences as described in [Section 2.4](#).

Once AEMO has confirmed its acceptance of all information provided, the single BDU DUID will be established in AEMO's pre-production environment, where the BDU DUID's ability to bid and be dispatched will be confirmed via the 'capability demonstration' and pre-production cutover, see [Section 3.1.5](#).

The following sections outline specific areas that participants need to consider in planning for their BDU cutover/s.

3.1.1 SCADA

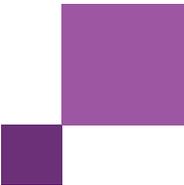
AEMO is engaging with BDU participants and (if applicable) Network Service Providers throughout Q2 2024 regarding potential introduction of new Inter-Control Centre Communications Protocol (ICCP) IDs for a BDU's Market Management System (MMS) SCADA² signals. Based on participant preferences of whether new ICCP IDs are introduced, AEMO will carry out actions specified in [Section 3.2](#) relevant to SCADA.

3.1.2 Conformance monitoring

For conformance monitoring, participants will need to plan an update to their systems from 2-DUID/Target Aggregate Dispatch Group (ADG) to BDU for the participant dispatch conformance report. Currently, the existing 2-DUID arrangement is represented as a "Target Aggregate Dispatch Group (ADG)" in AEMO's system so conformance is monitored in aggregate. In future, conformance will be monitored via the single BDU DUID. The status of the three DUIDs in the conformance report will change during the pre-cutover, cutover and post-cutover periods as illustrated in the table below.

¹ Note that a Participant must transition to the IRP category prior to cutover to the single BDU DUID, as only an IRP can classify a BDU. Information regarding transition to the IRP category is provided in AEMO's DRAFT Integrated Resource Provider Transition Plan.

² Supervisory Control and Data Acquisition.



The following STATUS will be observed in the participant dispatch conformance report:

Status	Pre-cutover	Cutover	Post-cutover
BDU DUID	'SUSPENDED'	AEMO lifts 'SUSPENDED' status, immediately changes to 'NORMAL' & can move to other statuses	One of active statuses ('NORMAL', 'OFF-TARGET', 'NOT RESPONDING', 'NC-PENDING', 'NON-CONFORMING')
2-DUID & Target ADG	2-DUID: ('NORMAL', 'OFF-TARGET') ADG: One of active statuses ('NORMAL', 'OFF-TARGET', 'NOT RESPONDING', 'NC-PENDING', 'NON-CONFORMING')	2 DUIDs and ADG are 'SUSPENDED' by AEMO	'SUSPENDED' (until deregistration of 2 DUIDs, after which DUIDs and ADG are removed from reporting)

DUIDs in SUSPENDED status will be visible but with zero actuals, targets and errors.

No carry-forward of non-compliances to BDU DUID when 2-DUID is SUSPENDED or deregistered.

3.1.3 Metering

Participants need to engage with their Metering Service Providers (MSP) regarding NMI cutover arrangements, including and once a cutover date has been agreed with AEMO. Further information regarding NMI cutover arrangements is outlined in [Section 3.3](#).

3.1.4 Registration requirements

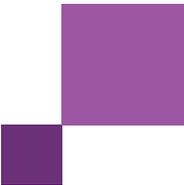
In February 2024, AEMO made available the necessary BDU Transition forms for completion by participants. These forms are available in the [IESS participant toolbox](#). The information provided in these forms will be used to establish the single BDU DUID in AEMO's pre-production and production systems.

Participants are required to submit these forms in respect of each BESS, and where applicable submit a complete application to transition to the Integrated Resource Provider participant category³ a minimum of **35 calendar days** prior to the preferred BDU production cutover date.

In regard to nominating the IRP effective date specified in the form, if under the Rule you are a:

- “New IRS” participant, this must be 3 June.
- “Existing IRS” participant, this must be between 3 June and at least 15 days prior to the production BDU cutover date.

³ Note that a Participant must transition to the IRP category prior to cutover to the single BDU DUID, as only an IRP can classify a BDU. Information regarding transition to the IRP category is provided in AEMO's DRAFT Integrated Resource Provider Transition Plan.



3.1.4.1 Registration change freeze period for BESS

In the window from 3 weeks prior to the production BDU cutover date to 3 weeks after the production BDU cutover date, no registration changes can be made effective for the BESS.

Registration changes made effective between 3 June 2024 but prior to the registration change freeze period commencement will follow the current transition process: i.e., the “Supporting document” accompanying the IRP transition application form will be reissued to the participant with updated BDU data reflecting the registration change and what will be configured against the BDU post-cutover.

Applications that are in flight at 3 weeks prior to prod BDU cutover will require new data. Please contact your AEMO Onboarding Case Manager for further information.

3.1.5 Pre-production BDU cutover

Each BESS must cutover in pre-production at least 14 days prior to the production cutover.

- Participants must nominate a date, and time of day, between **3 June and at least 14 days prior to the prod BDU cutover** date for each BESS to cutover in pre-prod.
- AEMO requires 21 calendar days (3 weeks) notice to schedule in pre-prod BDU cutover dates.
- At the latest, pre-prod BDU cutover dates must be finalised 35 calendar days prior to production cutover (on the same date the application form is required).
- If a date is not nominated by the participant, AEMO will schedule this in within the 30-day window prior to the production BDU cutover and will notify you of such.
- AEMO highly recommends scheduling this in earlier than the latest date (14 calendar days prior to cutover) so that there is comfortably enough time for participants to submit their capability demonstration – see below ‘[Capability demonstration](#)’.
- Similar scheduling principles apply to pre-prod as prod, such as resource availability, avoiding operational conflicts, participant drivers and the additional need to avoid days where BDU cutovers are occurring in production.

3.1.5.1 Pre-prod BDU cutover activities

This table details the activities for pre-production BDU cutover. All times are Market Time (AEST). These activities are based on the production BDU cutover. Not all activities from the production cutover plan can be executed in pre-production, however, there may be internal activities executed by AEMO that are not depicted below that AEMO will contact the participant about if necessary.

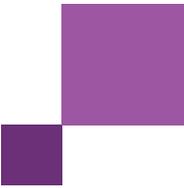
AEMO will work directly with participants to schedule their individual cutover intervals.

Note:

- AEMO will utilise the checkpoints in this table to assess the capability demonstration outlined in ‘[Capability demonstration](#)’.
- In this table only, “Day” refers to the day in relation to the **pre-production** cutover date, not production.

Period	Day	Activity/Action	Description	Dependencies	Participant Responsibility
Pre-Cutover	-12	BDU available in pre-production	AEMO will promote BDU to Pre-production environments as active/effective -12 days prior to the pre-prod cutover day.	Registration complete to allow BDU establishment in Pre-production.	Participant notified via Market Notice.
Pre-cutover	-12	AEMO Notification BDU Bid submission can commence.	To control Pre-dispatch and Dispatch instructions, AEMO associates zero target constraints to BDU until the agreed cutover time on cutover day. Post completion AEMO notifies the Participant BDU Bid submission can commence.	Not Applicable.	Receipt AEMO notification as precursor that cutover has commenced i.e., execute cutover activities.
Pre-cutover	-12	Participant BDU bid submissions opens to provide capability demonstration	Participants can commence BDU bid submission. See ‘ Capability demonstration ’ for allowable bid combinations.	Participants receive notification bidding can commence.	Participants commence bidding as per ‘ Capability demonstration ’
Pre-cutover	-8	First AEMO bidding checkpoint	AEMO confirm submitted bids appearing correctly per capability demonstration requirements. Participant advised where corrections required. This is the earliest point AEMO will assess the capability demonstration requirements, providing participants with two further checkpoints to correct in case of any errors.	Participant has submitted bids.	Participant advised of required corrections.
Pre-cutover	-7	First 7-day Pre-dispatch and ST PASA runs for cutover day	Continuous Pre-dispatch runs inclusive of BDU for cutover day.	Not Applicable	Consume 1 st Pre-dispatch and ST PASA instruction and confirm outcome as expected, report to AEMO any concerning anomalies.
Pre-cutover	-5	Second AEMO bidding checkpoint	AEMO confirm submitted bids appearing correctly per capability demonstration requirements. Participant advised where corrections required. This is second checkpoint at which AEMO will assess the capability demonstration requirements, providing participants with one further checkpoint to correct in case of any errors.	Participant has submitted bids.	Participant advised of required corrections.
Pre-cutover	-1	First Pre-dispatch and PD PASA runs	AEMO confirm Pre-dispatch and PD PASA for cutover day runs inclusive of BDU. If sufficient non repairable anomalies and errors are present in Pre-dispatch AEMO may make a ‘No Go’ decision.	Not Applicable	Consume Pre-dispatch and PD PASA instruction and confirm outcome as expected, report to AEMO any

Period	Day	Activity/Action	Description	Dependencies	Participant Responsibility
					concerning anomalies.
Pre-cutover	-1	Last AEMO bidding checkpoint	<p>AEMO confirm submitted bids appearing correctly per capability demonstration requirements. Participant advised where corrections required.</p> <p>This is the last point at which participants may correct their bids in order to meet the capability demonstration requirements. Failure to do so will result in a 'no go' decision for the production BDU cutover and the need to reschedule.</p>	Participant has submitted bids.	Participant advised of if capability demonstration met or not.
Cutover day	0	First P5min Pre-dispatch	Continuous P5min runs inclusive of BDU.	Not Applicable	Consume P5min Pre-dispatch instruction and confirm outcome as expected, report to AEMO any concerning anomalies.
Cutover day	0	Invoke zero constraints on existing Load and Gen, non-zero on BDU	At agreed cut overtime (e.g., 13:00), AEMO confirm the transition of zero constraint targets to existing Load and Gen DUIDs, non-zero for BDU (switch over) was successful.	Not Applicable	N/A awareness only.
Cutover day	0	Review first dispatch post cutover of 2 exiting to new single BDU.	AEMO confirm dispatch instruction behaving as expected.	Not Applicable	Consume BDU dispatch instructions, report to AEMO any concerning anomalies.
Post Cutover	+1	Monitor Dispatch and Pre-dispatch	Participant and AEMO continue to monitor Dispatch, Pre-dispatch, PASA and network security in the post-cutover period with view to confirm operating as expected.	Not Applicable	Report to AEMO any concerning anomalies.



3.1.5.2 Capability demonstration

The following information is required to demonstrate your capability to use AEMO's systems, via pre-production, in readiness for BDU cutover in production.

The capability demonstration is a key input to AEMO's assessment of your readiness to go ahead with your scheduled BDU cutover in production.

Please note that while failure to adequately demonstrate capability in pre-production may result in a 'no go' decision in **production**, it will not require the pre-production cutover be rescheduled. AEMO has several checkpoints within the pre-production BDU cutover activity process (or capability demonstration process) to work with participants to correct bids as required to ensure this requirement is met.

While adequate demonstration of capability in pre-production increases the likelihood of a successful BDU cutover in production, checkpoints throughout the production cutover process will allow AEMO to call a 'no go' decision if bidding instructions are not strictly adhered to.

For those who cutover previously in pre-production as part of AEMO's market trial:

Capability demonstration is still required, however, the "cutover" date and time can be selected by the participant to use in the context of the bidding instructions, such as the 'cutover time' and 'cutover intervals'. Note that cutover activities will not be redone, this task only requires bidding submission.

To meet the capability demonstration:

Correct bidding must be followed as outlined under 'Energy and FCAS requirements' in '[Bidding instructions](#)'.

Bids must be submitted in pre-production:

- **At least 8 calendar days prior to the cutover date**, through to at least 7 calendar days after cutover.
- For ALL markets the BDU is registered in at the time of pre-production cutover/capability demonstration, noting that dispatch results for each will also be assessed.
- Using auto-bidding software if the participant intends to use the auto-bidder during the production cutover, to adequately demonstrate ability to use auto-bidder prior to production cutover.
 - In the lead up to capability demonstration, AEMO will request information about when you plan to turn your auto-bidder on/off to assist with assessment.

Cutover activities as outlined in [Section 3.2](#) can commence after these prerequisite activities have completed.

3.1.6 Bidding instructions (prod + pre-prod)

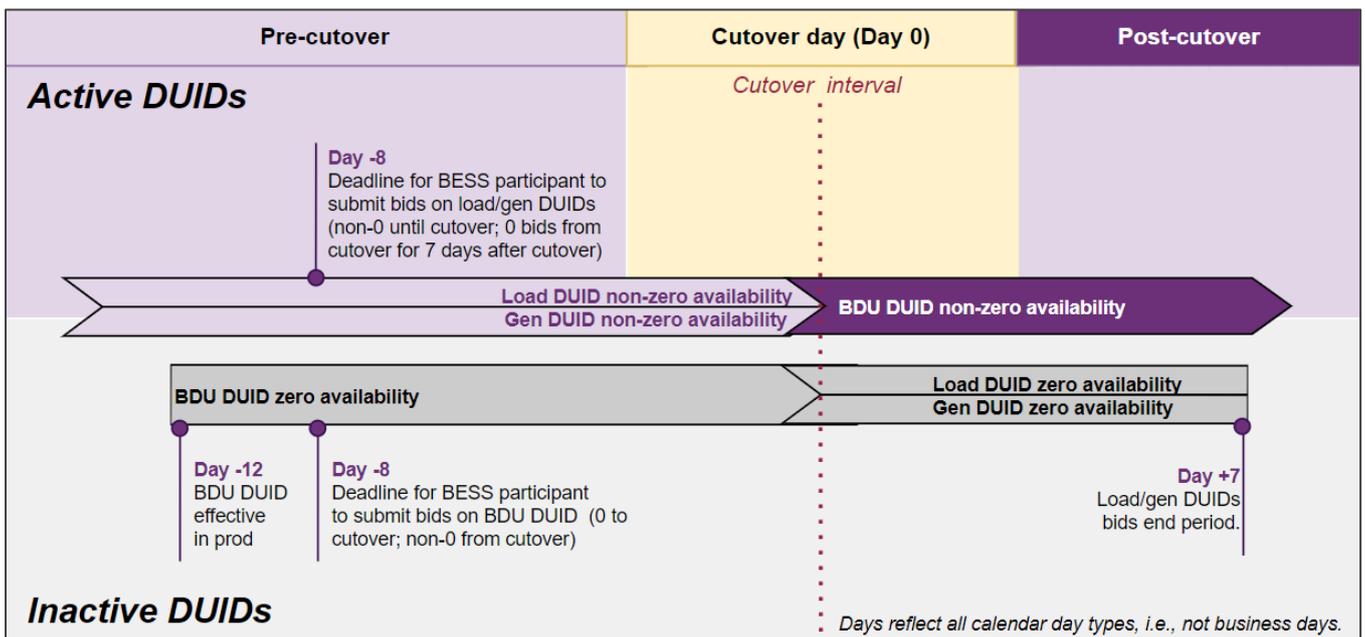
Overview

The following instructions for *Energy and FCAS bids* apply to both **production** and pre-production (see: '[capability demonstration](#)'). Instructions for MT PASA apply to production only.

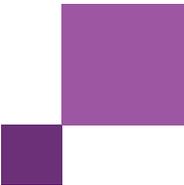
In order to go ahead with production BDU cutover, participants must manage the availability of their BESS, such that while the old two-DUID model and the new single BDU model are effective in parallel, they do not concurrently provide available services at the same time.

AEMO will invoke generic constraints to manage outcomes in scheduling to ensure zero targets: in the pre-cutover period for the BDU DUID, and in the post-cutover period for the two load/gen DUIDs. However, participants are required to appropriately manage their availability to ensure that incorrect availability is not recorded. AEMO reserves the right to call a 'no go' decision for your production BDU cutover in the event that all three units are not bid correctly at least **8 days prior to BDU cutover**. See 'bidding instructions' on the following page for full detail.

Figure 1 High level visual of expected bidding behaviour



Note: the term “non-zero” availability represents actual availability, e.g., actual availability against the BDU DUID post-cutover may be zero MW, however, non-zero is used to simplify the depiction of the switch from old two-DUID model to BDU model.



Before cutover:

- AEMO requires bids be submitted **by COB Day -8 prior to cutover day**, from this time, through to at least **Day +7 from cutover day** per the requirements in Table 7 below.
- Please login to the Web Portal Bidding Interface prior to cutover day to ensure that you can submit bids for cutover day manually in the case this is required. If you do not have access, your organisation’s Participant Administrator (PA) can assist.
- AEMO will be monitoring the bids in the lead up to, during, and after cutover as a key input to production Go/No-go decisions.
- Please ensure auto-bidders have been tested to ensure they can meet the cutover bidding instructions.
- Please ensure bidding instructions are provided to the resources responsible for submitting bids during pre-production and production BDU cutovers.
- Ensure you are subscribed to the latest version of the Data Model and reports to get consistent BDU data.

3.1.6.1 Energy and FCAS requirements

The following table outlines the requirements for bid submissions during the cutover process for all three DUIDs (load, gen, BDU). Cutover day intervals can be determined based on your schedule confirmed with AEMO, i.e., which interval is the last load/gen DUID interval, and your first BDU DUID interval, on cutover day.

Table 7 Energy and FCAS bidding requirements table

	Pre-cutover		Post-cutover	
	ENERGY BID	FCAS BIDS (if registered)	ENERGY BID	FCAS BIDS (if registered)
BESS BDU DUID	Zero availability	Zero availability	Non-zero availability or a bid with availability you are likely to submit post-cutover Available energy bids must demonstrate convexity* + loss factors resulting in MPC and MFP**	Non-zero availability or a bid with availability you are likely to submit post-cutover
BESS Load DUID	Non-zero availability	Non-zero availability	Zero availability	Zero availability
BESS Gen DUID	Non-zero availability	Non-zero availability	Zero availability	Zero availability

“Available Energy bids” for the BDU must demonstrate:

*Prices increasing monotonically (convexity) with an increase in available capacity (please see [‘Bidirectional unit price band validation’ Fact Sheet](#) for further information)

**The application of loss factors resulting in Market Floor Price (MFP) and Market Price Cap (MPC).

Note:

- Note: the term “non-zero” availability represents actual availability, e.g., actual availability against the BDU DUID post-cutover may be zero MW, however, non-zero is used to simplify the depiction of the switch from old two-DUID model to BDU model.
- Pre-cutover refers to the period before the first available BDU interval.
- Post-cutover refers to the period commencing from the first available BDU interval.
- Example: if the last interval of the BESS load/gen DUIDs is 13:00, the period in the days leading up to 13:00 on cutover day are the pre-cutover period; and if the first interval of the BESS BDU DUID is 13:05, the period commencing from 13:05 on cutover onwards is the post-cutover period.

For production only: After successful cutover (after rollback is declared not required), please ensure that auto-bidding software is no longer rebidding against old load/gen DUIDs before COB the Friday following cutover day. This will ensure AEMO can deactivate these units per cutover plan in production.

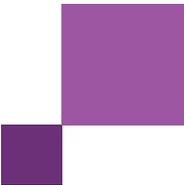
Bidding tips

This info is provided for context when reviewing the bidding instructions required for BDU cutover, in the case of any inconsistency, this information is superseded by: [NEM Energy, FCAS and MNSP Bids](#).

- For Energy bids, availability is managed via MAX AVAIL and PASA AVAIL.
- For FCAS bids, availability is managed via MAX AVAIL.
- While zero bids for minimum enablement of FCAS are valid, please be aware these values represent what was previously the load side of the BESS and generally reflected as zeros, therefore these may now be negative values.
- Bid validations specific to the management of BDU cutover bidding requirements are NOT implemented to cater for BDU cutover bidding scenarios. i.e., the bidding validations are the same in both pre- and post-cutover periods and the system will not enforce zero bids against the BDU in the pre-cutover bid, nor for load/gen units in the post-cutover bids, hence the importance of following these requirements.
- Band avails must comply with the existing rules (i.e., total bands must \geq maximum capacity, and individual band must \leq maximum capacity).
- Please note, as per the usual bid process, price structures must be submitted before bid validation prevents changing prices at 12:30 PM the day prior to cutover day.

Viewing bids:

- For initial bids, zero bid data will be published in the Web Portal, as well as available in the report the day after their effective date. However, zero bid data will not be received via Data Interchange, consistent with current approach for generators and loads.



After cutover

- Immediately after a successful cutover, participants should check their NEM Reports for non-0 targets (if actual availability reflected non-zero availability) and FCAS enablement on the BDU in the first active interval for the BDU.
- Please continue bidding on all three DUIDs as per instructions for a minimum of 7 calendar days from the cutover day to complete the simulated testing.
- In order to deactivate the old load/gen DUIDs in the days after successful cutover, no auto-bids can be submitted against old load/gen DUIDs. Please ensure auto-bidding software is not submitting any auto-bids against these DUIDs by no later than COB the Friday following cutover day.

Learnings from market trials:

- While participants can set their own bid values if they meet the bid instruction requirements for BDU cutover, realistic bids during testing BDU cutover demonstrated a seamless shift from the old load/gen DUIDs over to the new BDU DUID. For example, bids on the BDU from the first BDU interval reflected a similar structure to that of the old load/gen DUIDs in the last load/gen DUID intervals prior to the first BDU interval. E.g., pricing, availability and ramp rates on the BDU after cutover were similar to those values in the last intervals of the old load/gen DUIDs.
- Auto-bidding software may erroneously rebid BDU DUIDs as non-zero in pre-cutover intervals – this must be accounted for to ensure bids are not incorrectly submitted.

3.1.6.2 MT PASA requirements

The MT PASA offer submission requirements on this page are only required in production, not in pre-production (i.e., not required for the capability demonstration). Participants are required to appropriately manage their MT PASA availability to ensure that incorrect availability is not recorded. AEMO reserves the right to call a ‘no go’ decision for your production BDU cutover in the event that all three units are not submitted with correct MT PASA availability **by at least 8 days prior to your BDU cutover** in production for the period outlined in the requirements table below.

The following table outlines the requirements for MT PASA offer submissions during the cutover process for all three DUIDs (load, gen, BDU). While all three units will be operational across different parts of the cutover day, MT PASA offers should only reflect availability on the BDU for cutover day, and no availability on the load/gen DUIDs.

Table 8 MT PASA requirements table

	Pre-cutover	Cutover day	Post-cutover
BESS BDU DUID	Unit state of ‘Inactive reserve’ and zero availability	An MT PASA availability profile	An MT PASA availability profile

	Pre-cutover	Cutover day	Post-cutover
BESS Load DUID	An MT PASA availability profile	Unit state of 'Retired' and zero availability	Unit state of 'Retired' and zero availability
BESS Gen DUID	An MT PASA availability profile	Unit state of 'Retired' and zero availability	Unit state of 'Retired' and zero availability

3.2 Bidirectional Unit (BDU) cutover activities

This section outlines the pre-cutover, cutover day and post-cutover activities required to transition a BESS to the single BDU DUID arrangement. These activities are to be undertaken on and around an agreed cutover date and prior to the transition period end date of 03 March 2025. These activities can commence once the prerequisites under [Section 3.1](#) have been met. This section is intended for the following audience:

- BESS participants
- BESS software vendors
- Other stakeholders for context, as needed.

The cutover time, as negotiated and schedule with AEMO per BESS, occurs on cutover day and reflects:

- The last dispatch interval containing the last dispatch instruction⁴ for the existing 2-DUID arrangement.
- Immediately followed by the first dispatch interval containing the first dispatch instruction⁵ for the BDU DUID.

Participant bids (across energy, PASA and FCAS services) for the existing 2-DUID arrangement and new BDU DUID must reflect actual physical availability of the unit for any given period, as appropriate and as set out in the cutover schedule, ensuring no duplication across each of the DUID arrangements, per '[bidding instructions](#)'.

Period	Day	Activity/ Action	Description	Dependencies	Participant Responsibility
Pre-cutover	-28 to -16 window	Participant establishes new ICCP IDs for SCADA	If required, based on Network Service Provider preferences indicated to AEMO prior to this step (see 3.1), new ICCP IDs will be established. BESS participant and NSP to program the new ICCP IDs at the Remote Terminal Unit and link to the NSP master station, once advised by AEMO.	AEMO has established new ICCP IDs for SCADA on AEMO side.	Participant required to program new ICCP IDs for SCADA.
Pre-cutover	-28 to -16 window	Participant tests new	AEMO will coordinate testing between BESS participant, NSP and AEMO to	Participant has programmed the	Participant required test new ICCP IDs for SCADA with AEMO and

⁴ That reflects the physical capability and market intentions for the BESS.

⁵ That reflects the physical capability and market intentions for the BESS.

Period	Day	Activity/ Action	Description	Dependencies	Participant Responsibility
		ICCP IDs for SCADA	test the establishment of the new ICCP IDs for SCADA.	new ICCP IDs for SCADA.	their Network Service Provider, coordinated by AEMO.
Pre-cutover	-19 (approx.)	AEMO Notification BDU cutover pending	AEMO notifies BESS participant of what to expect on cutover day.	Pre-cutover period has commenced.	Receipt AEMO notification as precursor that cutover has commenced i.e., execute cutover activities.
Pre-cutover	-12	Implement BDU in Production	Based on the agreed cutover day for BDU, AEMO will establish the BDU in the Production with an active/effective date of -12 days.	Registration information completed and BDU established in Pre-production to AEMO's satisfaction.	Participant notified.
Pre-cutover	-12	AEMO Notification BDU Bid submission can commence	AEMO notifies the Participant BDU Bid submission can commence.	BDU available in production and AEMO has associated zero target constraints to BDU until the agreed cutover time on cutover day.	Receipt AEMO notification as precursor that cutover has commenced i.e., execute cutover activities.
Pre-cutover	-12	Participant BDU bid submissions commence.	Participants to commence BDU bid submission following the 'bidding instructions' in Section 3.1.6 .	Participants notification bidding can commence.	Participants to commence BDU bid submission as described in 'bidding instructions' in Section 3.1.6 .
Pre-cutover	-12	MT PASA offers submissions commence	In period -10 to -8 days preceding the cutover (i.e., week before the MT PASA offer week relevant to cutover), the participant to submit weekly offers for the BDU and amend offers for existing 2 DUIDs per the 'bidding instructions' in Section 3.1.6 .	Participants notification bidding can commence.	Participant to submit and amend MT PASA offers as described in 'bidding instructions' in Section 3.1.6 .
Pre-cutover	-8	First participant cutover day bid submission checkpoint	AEMO check to confirm participants to ensure bids adhere to 'bidding instructions' in Section 3.1.6 . This is the last point at which participants may correct any erroneous bids. Failure to do so will result in a 'no go' decision for the <u>production</u> BDU cutover and the need to reschedule.	Not Applicable	Participants to ensure bids structured appropriately on and around cutover time per 'bidding instructions' in Section 3.1.6
Pre-cutover	-7	First ST PASA run for cutover day	Continuous Pre-dispatch runs inclusive of BDU.	Participant submits bids in line with 'bidding instructions' in Section 3.1.6 .	Consume first ST PASA instruction and confirm outcome as expected, report to AEMO any concerning anomalies.
Pre-cutover	-6	First 7-day Pre-dispatch run for cutover day	Continuous Pre-dispatch runs inclusive of BDU.	Participant submits bids in line with 'bidding instructions' in Section 3.1.6 .	Consume first pre-dispatch instruction and confirm outcome as expected, report to AEMO any concerning anomalies.

Period	Day	Activity/ Action	Description	Dependencies	Participant Responsibility
Pre-cutover	-1	Participant cutover day bid submission checkpoint	Participants to ensure no changes to compliant bids (including those submitted using auto-bidding functionality) for existing 2-DUID arrangement and single BDU DUID are structured appropriately to ensure PASA availability accurately reported; and to ensure ability to meet dispatch instructions on and around cutover time.	Not Applicable	Participants to ensure bids structured appropriately on and around cutover time per 'bidding instructions' in Section 3.1.6
Pre-cutover	-1	First Pre-dispatch and PD PASA runs	AEMO confirm Pre-dispatch and PD PASA for cutover day runs inclusive of BDU. (If sufficient non-repairable anomalies and errors are present in Pre-dispatch AEMO may make a 'No Go' decision).	Not Applicable	Consume Pre-dispatch and PD PASA instruction and confirm outcome as expected, report to AEMO any concerning anomalies.
Pre-cutover	-1	Preliminary 'Go or 'No Go' decision confirmation from AEMO.	AEMO review cutover day variables and ensure consistent with expectations for a successful cutover i.e., Bids, Pre-dispatch and NEM operational conditions reflect success path. AEMO communicates the preliminary 'Go' or 'No Go' decision with Participant. In the case of a no-go decision: BESS participants must contact their MSPs to notify of the decision outcome and when the cutover date is rescheduled. None of the tasks proceeding this one will take place until a new cutover date is scheduled by AEMO and BESS participant and a go-decision is reached.	The outcome of the go/no-go decision feeds into NMI cutover go/no-go activity.	Receipt AEMO 'Go' or 'No Go' notification and execute cutover day activities and plan accordingly. Notify MSPs in the case of a 'No Go' decision and intent to reschedule.
Cutover day	Cutover start time (approx.)	Final 'Go or 'No Go' decision confirmation from AEMO.	At the start of the real-time cutover meeting, AEMO will make a final 'Go or 'No Go' decision based on operational conditions. AEMO communicates the preliminary 'Go' or 'No Go' decision with the Participant. In the case of a no-go decision: BESS participants must contact their MSPs to notify of the decision outcome and when the cutover date is rescheduled. None of the tasks proceeding this one will take place until a new cutover date is scheduled by AEMO and BESS participant and a go-decision is reached.	The outcome of the go/no-go decision feeds into NMI cutover go/no-go activity.	Receipt AEMO 'Go' or 'No Go' notification and execute cutover day activities and plan accordingly. Notify MSPs of the 'Go' or 'No Go' decision outcome and intent to reschedule.
Cutover day	From successful cutover declaration to 5pm approx.	Participant, Plant, and associated MSP's action NMI	See Section 3.3 for NMI cutover activities.	See Section 3.3 for NMI cutover activities.	See Section 3.3 for NMI cutover activities.

Period	Day	Activity/ Action	Description	Dependencies	Participant Responsibility
		cutover actions			
Cutover day	One hour prior to the first dispatch period post cutover.	First P5min Pre-dispatch	Continuous P5min runs inclusive of BDU.	Not Applicable	Consume P5min Pre-dispatch instruction and confirm outcome as expected, report to AEMO any concerning anomalies.
Cutover day	At agreed cutover time	Monitor SCADA instructions and signals working as expected	At the agreed cutover time, participant to monitor SCADA instructions and signals working as expected. If new ICCP IDs have been created, then the new ICCP IDs are active and the old IDs inactive. Switch and start receiving MMS backup signals from new ICCP IDs. If existing ICCP IDs retained, then monitor existing ICCP IDs working as expected against the BDU.	AEMO have made old load/gen SCADA points inactive and new BDU SCADA point active.	Monitor SCADA instructions and signals working as expected. Switch and start receiving MMS backup signals from new ICCP IDs. Report to AEMO if any issues arise.
Cutover day	At agreed cutover time	Participant update system for conformance monitoring	At the agreed cutover time, participant to update system to cutover from 2-DUID/Target ADG to BDU monitoring (see Section 3 “Conformance monitoring”) for the participant dispatch conformance report.	AEMO have updated from 2-DUID/Target ADG to BDU monitoring.	Update system to cutover from 2-DUID/Target ADG to BDU for participant dispatch conformance report.
Cutover day	First dispatch interval post cutover	Review first dispatch period post cutover.	AEMO confirm dispatch instruction behaving as expected.	Not Applicable	Consume BDU dispatch instruction via existing mechanisms, respond as dispatched.
Post Cutover	Cutover time and day to + 4 days	Monitor Dispatch and Pre-dispatch.	Participant and AEMO continues to monitor Dispatch, Pre-dispatch, PASA and network security in the post cutover period with view to confirm operating as expected. If anomalies detected in consultation with all affected parties a ‘Rollback’ may be declared. If no or manageable anomalies detected (insufficient to declare a ‘Rollback’), then existing load and Gen DUIDs to be deregistered at +4 days.	Cutover has occurred.	Alert AEMO of anomalies or internal issues detected to allow assessment if rollback required.
Post Cutover	+4 days	NMI and Metering Standing Data (MSATS) updates.	Post confirmation a Rollback event was not declared (refer Section 3.3.2): AEMO will complete MSATS NMI updates as per Section 3.3 NMI cutover.	Cutover has occurred and Rollback has not been declared.	MSPs to action activities outlined in Section 3.3 NMI cutover.

Variations to the schedule of cutover activities may eventuate based on agreement between participants and AEMO and as relevant.

3.3 National Meter Identifier (NMI) Cutover

The NMI cutover is a subset of activities as part of the wider BDU cutover process outlined in [Section 3.2](#), triggered by a preliminary ‘go decision’ the day prior to the scheduled BDU cutover date. This section is intended for the below audiences.

Those with direct involvement as outlined in cutover activities in [Section 3.3.1](#):

- BESS participants
- Metering Service Providers:
 - Meter Data Provider (MDP)
 - Metering Provider Category B (MPB)
 - Financially Responsible Market Participant (FRMP)

Those indirectly involved for awareness:

- Metering Service Providers:
 - Distribution Network Service Provider (DNSP)
 - Transmission Network Service Provider (TNSP)
 - Registered Network Service Provider (NSP)

Each battery storage facility is currently assigned two NMIs, one for the load side of the battery and one for the generation side. As part of the BDU cutover, in most cases:

- Only one NMI is required for each BDU.
- The NMI currently used for generation (“retained” NMI) will be retained and assigned to the BDU.
- The NMI currently used for load (“virtual” NMI) will be made extinct effective after the cutover date.
- Where there is one Transmission Node Identifier (TNI) for load and other TNI for generation, one of these TNIs will be retained.

To ensure that meter reads are treated correctly in downstream settlement processes, the NMI consolidation will occur on the retained NMI and NMI configuration of the site will be altered. NMI consolidation and configuration changes will take place from the scheduled BDU cutover day onwards.

NMI consolidation

To ensure that both load and generation datastreams are available on the retained NMI, the load datastream will be consolidated over to the retained generation NMI.

Changes to NMI configuration

Changes to NMI configuration are reflected only in how data is captured and will not result in any change to the metering installation at the site.

NMIs and Genset IDs are currently associated one-to-one. A new Genset ID will be created and associated with the new BDU, which will be associated to an existing NMI at the station.

3.3.1 NMI cutover activities

This section outlines the NMI cutover activities that take place from cutover day into the post-cutover period. These activities are to be undertaken from the agreed BDU cutover date and prior to the transition period end date of 03 March 2025.

BESS participants should engage with their MDPs and MPBs throughout the BDU cutover process to advise activities occurring and timing, such as:

- Communicating in advance the nominated BDU cutover date.
- Articulating when they expect to see changes in the NMI, as part of the planning process.
- Communicating regularly throughout the NMI cutover process as activities begin and complete (per BDU cutover and transition plan).
- Confirming the result of go/no-go decision in the lead up to cutover day, and (if applicable) any rescheduled cutover dates.

A diagram is provided in Figure 4 IESS indicative bidirectional unit cutover timeline

Figure 4 IESS indicative bidirectional unit cutover timeline that illustrates the indicative timing for each step of the NMI cutover from existing 2-NMI arrangement to single NMI arrangement; the sequence of steps and the planning required to transition a BESS from the existing 1-NMI arrangement to a single NMI model.

Please note that all AEMO updates take place in market systems, and participants are required to update their own systems to accommodate these changes.

Period	Day	Activity/ Action	Description	Dependencies	Responsible party	Informed	Notified via
Pre-cutover	-1	Notified of preliminary 'Go' 'No Go' decision outcome in BDU cutover activities	<p>As per the Bidirectional Unit Cutover in Chapter 3.</p> <p>As part of the BDU cutover activities, the day before planned cutover day, a go/no-go decision will be made by AEMO in conjunction with the BESS participant. Impacted participants will be notified by AEMO and BESS participant of the decision outcome.</p> <p>In the case of a no-go decision: participants will be notified by AEMO and BESS participants. None of the tasks proceeding this one will take place until a new cutover date is scheduled by AEMO and BESS participant and a go-decision is reached.</p>	BDU cutover activities go/no-go decision (Section 3.2).	BESS participant	MSP	Email notification (manual)

Period	Day	Activity/ Action	Description	Dependencies	Responsible party	Informed	Notified via
Pre-cutover	-1	Notified of expected changes to SCADA:DUID mapping	Notified to expected changes to SCADA:DUID mapping relevant to the SCADA MDFF file. See the MSATS technical specification for further information.	BDU cutover go decision reached (Section 3.2).	AEMO	MSP	Email notification (manual)
Cutover day	12am	Genset ID associated to the retained NMI	If a preliminary 'Go' decision is received the day before cutover day (-1), this activity will take place: At midnight on cutover day the new BDU GENSETID is now associated with the retained NMI for the BDU. This can be seen in the EMMS Data Model and results in changes to settlement, where metering data is received on the retained NMI only from this point onwards (retrospectively).	Go decision.	AEMO	N/A	N/A
Cutover day	Cutover start time (approx.)	Final 'Go or 'No Go' decision confirmation from AEMO.	When the real-time cutover starts, AEMO will make a final 'Go or 'No Go' decision based on operational conditions. AEMO communicates the final 'Go' or 'No Go' decision with Participant and MSPs to start preparing. In the case of a no-go decision: BESS participants must contact their MSPs to notify of the decision outcome and when the cutover date is rescheduled. None of the tasks proceeding this one will take place until a new cutover date is scheduled by AEMO and BESS participant and a go-decision is reached.	The outcome of the go/no-go decision feeds into NMI cutover go/no-go activity.	BESS participant	MSP	Email notification (manual)
Cutover day	1-2 hours following cutover – 5pm window	NMI datastreams consolidated	After cutover has occurred, it will be deemed successful or unsuccessful. If unsuccessful, a rollback will be required. AEMO waits until this decision is declared until notifying MSPs to go ahead with NMI cutover activities. Metering raise CR against retained NMI to consolidate datastreams and update NCC.	Go decision.	AEMO Metering	MDP NSP	MSATS CR (auto – CR 5101)

Period	Day	Activity/ Action	Description	Dependencies	Responsible party	Informed	Notified via
Post-cutover	+1 to +4 window	MDPs and NSPs notified of datastream consolidation	Metering notify the MDPs and NSPs via manual email that the datastreams have been consolidated to the retained NMI in MSATS. MDP/NSP activity required is determined by MDP/NSP, Metering inform only.	AEMO consolidated datastreams.	AEMO Metering	MDP NSP	Email notification (manual)
Post-cutover	+1 to +4 window	MDP notified of SCADA changes	AEMO notify MDP of change in SCADA mappings via manual email.	AEMO update SCADA mappings.	AEMO Metering	MDP	Email notification (manual)
Post-cutover	+1 to +4 window	MSATS CR to extinct Virtual NMI	Metering raise CR to make Virtual NMI extinct in MSATS. The MPB and LNSP is notified. Participant will see change in MSATS the next day.	AEMO consolidated datastreams.	AEMO Metering	MSP	MSATS CR (auto)
Post-cutover	+1 to +4 window	AEMO notification to MPB	After AEMO Metering have made the Virtual NMI extinct, they will notify the MPB to consolidate meter(s) and register(s) from the Virtual NMI to the retained NMI via manual email and the automated MSATS CR.	AEMO raised CR to extinct Virtual NMI.	AEMO Metering	MPB	Email notification (manual)
Post-cutover	+1 to +4 window	MPB consolidates NMI	MPB retro updates NMI to consolidate all meter(s) and register(s) from Virtual NMI over to the retained NMI only.	AEMO notification to consolidate received.	MPB	N/A	N/A
Post-cutover	+1 to +4 window	AEMO notification to MDP	Notify MDP that MPB has gone ahead with changes to consolidate meter(s) and register(s) from Virtual NMI over to the retained NMI only via manual email. MDP activity required is determined by MDP, Metering only inform.	MPB consolidated NMI.	AEMO Metering	MDP	Email notification (manual)

Period	Day	Activity/ Action	Description	Dependencies	Responsible party	Informed	Notified via
Post-cutover	+6 (approx.)	Possible AEMO notification to MDP if meter data errors received	<p>AEMO confirm if MDP has successfully completed:</p> <ul style="list-style-type: none"> Data stream consolidation to the retained NMI; and Sending the correct data to AEMO. <p>Correct data = whole day data on retained NMI from first trading interval on cutover day onwards. No data sent through on extinct NMI from first trading interval on cutover day.</p> <p>If any errors identified by AEMO, MDP notified of requirement to resolve by COB same day.</p>	AEMO checking metering data week following cutover day.	AEMO Metering	MDP	Email notification (manual)

3.4 Contingency arrangements

3.4.1 'No Go' Declared

The final AEMO 'No Go' decision is made early cutover day (if not called earlier) if final prerequisites for a successful cutover have not been achieved.

PERIOD	DAY	ACTIVITY/ACTION	DESCRIPTION	DEPENDENCIES	STAKEHOLDER RESPONSIBILITIES
Pre-Cutover or Cutover	Variable	'No Go' Decision Notification Received	<p>Unknown variables may influence a 'No Go' at any time in the Pre-cutover period.</p> <p>The final AEMO 'Go' and 'No Go' decision is made on the morning of a cutover day (or earlier).</p> <p>In event 'No Go' decision being declared:</p> <ul style="list-style-type: none"> • AEMO will roll back the zero target constraints allocation for cutover i.e., zero target constraints allocated to Load/Gen DUIDs at cutover time rolled back to non-zero, BDU non-zero rolled back to zero. • Participant existing Load and Gen DUIDs return to BAU bid characteristics, BDU DUID to reflect zero availability. • AEMO and Participant to reschedule cutover. • AEMO will not action NMI and data stream MSATS updates. • MDP and MPB do not action their 'Go' activities described in Section 3.1.4 	Participant and MSPs informed of 'No Go' decision.	Stakeholders execute their 'No Go' processes and plans.

3.4.2 Rollback

When considering a rollback, an assessment will be made to determine the severity of the issue and whether there are remediation options to address the problem. Where it is not possible to remediate, a rollback may be declared in accordance with the relevant participant or participants.

A rollback may be:

- Temporary in nature until underlying anomalies corrected, then single BDU DUID returned to operation
- Permanent until anomalies are corrected and a new BDU cutover date can be established.

Where it has been determined that a rollback is required, AEMO will issue communications to affected stakeholders as soon as practicable.

Period	Day	Activity/Action	Description	Dependencies	Participant Responsibility
Post Cutover	Cutover time and day to + 4 days.	'Rollback' Decision Notification Received	<p>AEMO to negotiate a Rollback time directly with participant and plant, then communicate with all affected.</p> <p>Rollback generally described as, at the negotiated time:</p> <ul style="list-style-type: none"> • AEMO Invoke BDU zero constraint targets (from non-zero) • AEMO revoke zero constraints target for existing LOAD and GEN DUIDs (from zero). 	Participant, Plant and MSPs informed of 'Rollback' decision	Stakeholders execute their 'Rollback' processes and plans.

Period	Day	Activity/Action	Description	Dependencies	Participant Responsibility
			<ul style="list-style-type: none"> Participants to resume bid submission using 2-DUID arrangement and pause bid submission using the BDU DUID. As required, MSATS data streams and metering data delivery to be rolled back to original pre BDU configuration changes (dependant if rollback is temporary or permanent in nature). 		

4 Development and testing with AEMO's systems

IESS Market Trial is planned to commence on 2 April 2024. Participants wishing to participate in Market Trial will need to submit finalised pre-requisite information by (indicatively) **8 March 2024**, so that AEMO can process this information in time for 'Market Trial Phase 3: Bidirectional unit bidding and dispatch' (as set out in [AEMO's Industry Testing and Market Trial Strategy](#)).

AEMO is also making available a test environment (additional to AEMO's pre-production) called the Participant Development Support Environment (PDSE) to better support participants' development, internal testing, and market readiness for the IESS Rule changes. Unlike IESS Market Trial, there is no dependency on Participants to submit finalised pre-requisite information to make use of the BDU functionality in the PDSE. This is a temporary environment that is planned to be available with BDU functionality, from 22 January 2024 until 3 June 2024. Refer to [AEMO's IESS Participant Development Support Environment Fact sheet](#) for further information regarding the PDSE.⁶

For participants with new BESS that will be registered after 3 June 2024, AEMO suggests the following with regards to development and testing:

- (Optional) Use of the PDSE to assist with development of participants' solutions (prior to 3 June 2024)
- If an existing participant with other grid-scale assets (such as a scheduled generator), (optional) participation in AEMO's Market Trial Phase 2 - Settlements & Prudential Calculations, and
- As part of the AEMO's Registration process, use of AEMO's pre-production environment to perform required activities for completion of the Registration process. Please refer to [AEMO | Registration](#) for further information.

AEMO encourages Participants interested in the IESS Market Trial to ensure they are represented at [AEMO's Industry Testing Working Group \(ITWG\)](#).

⁶ Note that the IESS Market Trial scope is inclusive of testing the transition from the current 2-DUID BDU to single BDU DUID arrangement. This activity will not be supported by AEMO in the PDSE environment.

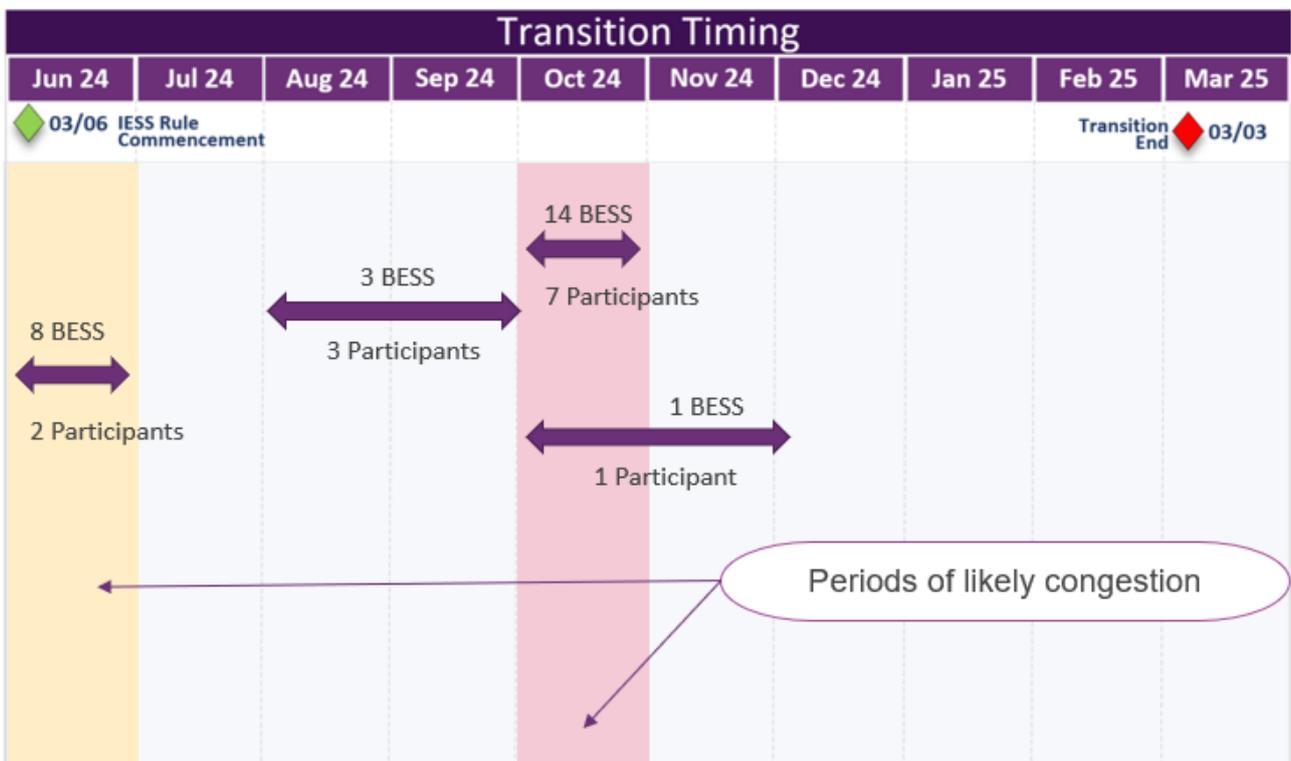
A1. Indicative BDU transition timetable

The figure below represents initially indicated preferred cutover times, as reported by Participants and/or based on vendor-provided information.

AEMO will engage with participants and vendors impacted by the identified periods of likely congestion throughout December 2023 and January 2024.

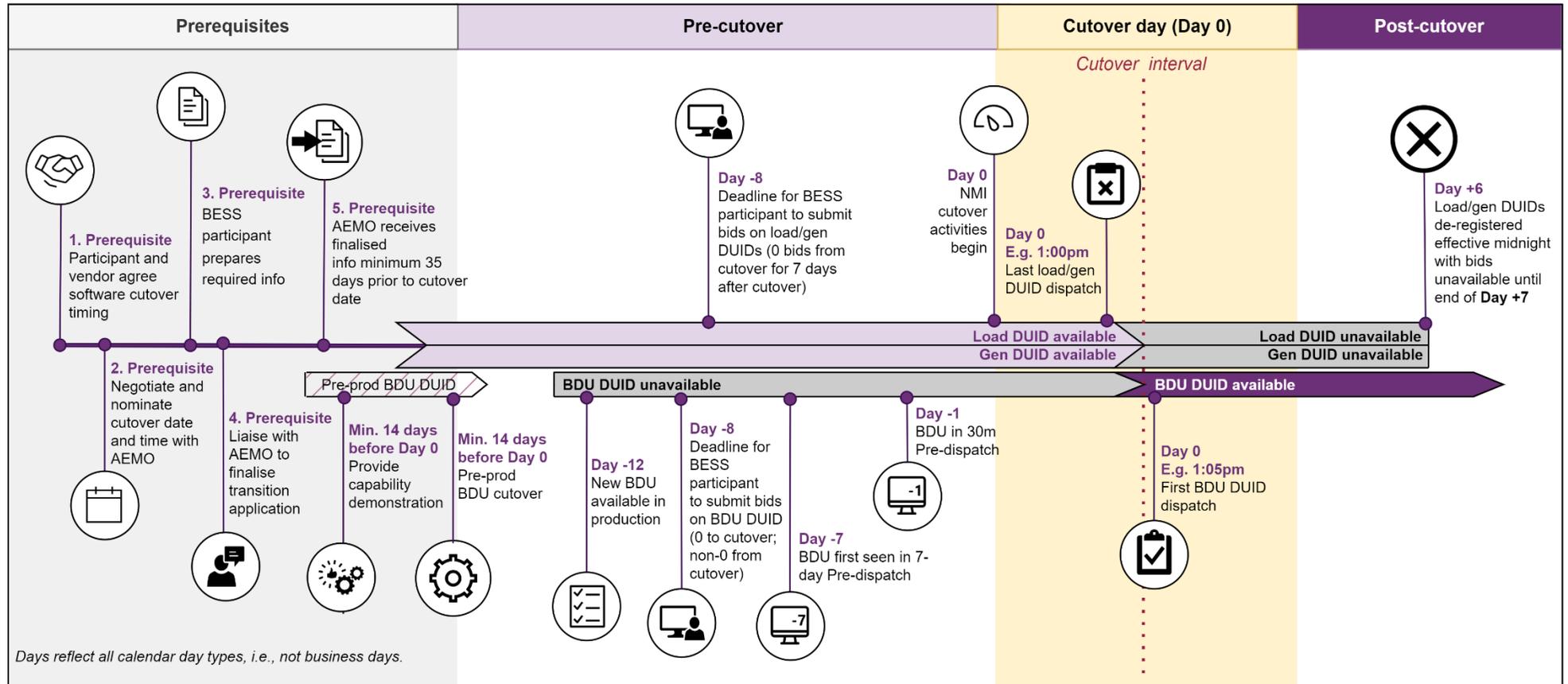
Future iterations of the BDU transition table, that address the below identified periods of congestion, will be communicated as and when appropriate at relevant AEMO stakeholder forums.

Figure 3 Indicative BDU transition timetable, as at November 2023



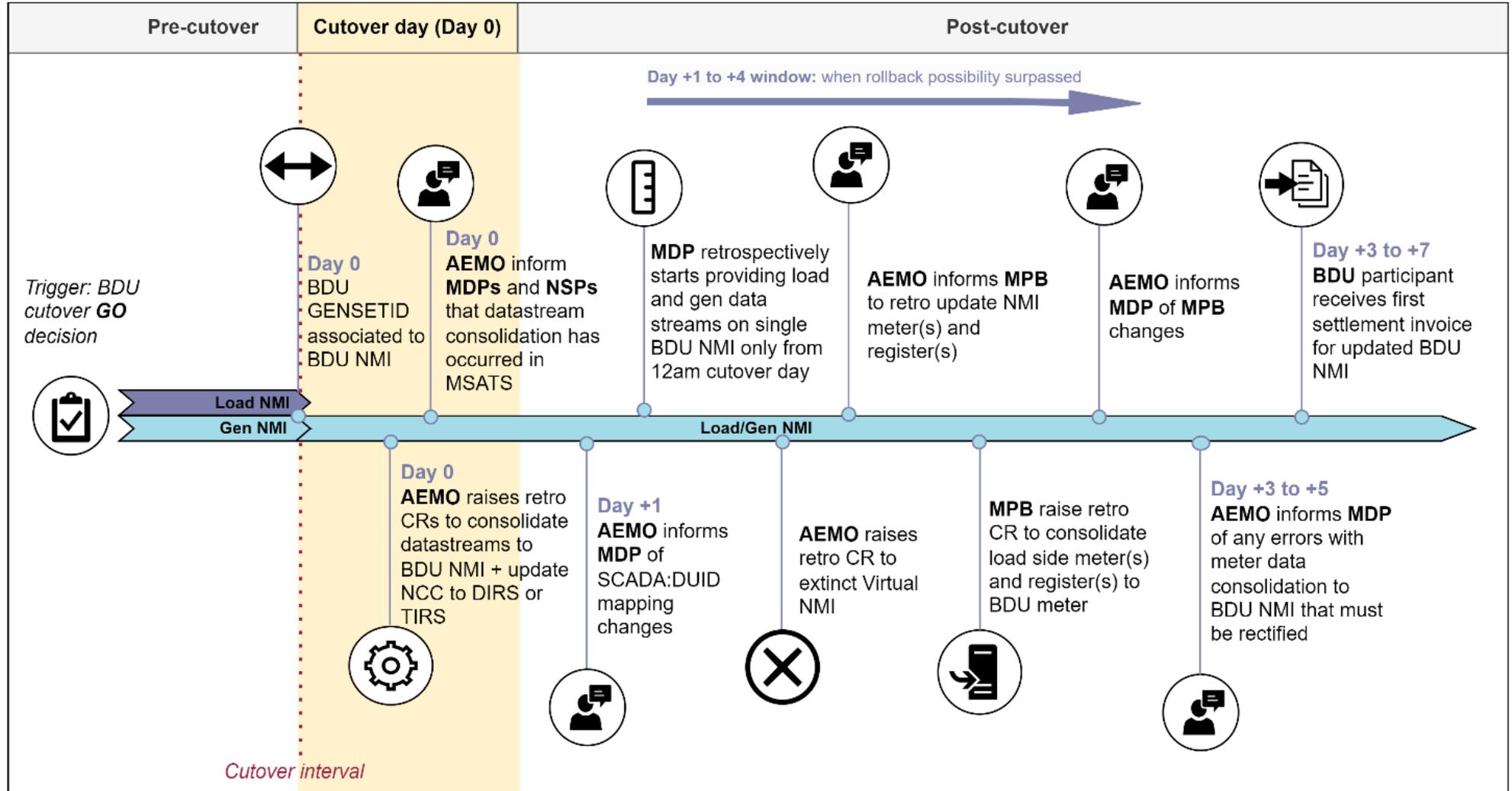
A2. IESS indicative bidirectional unit cutover timeline

Figure 4 IESS indicative bidirectional unit cutover timeline



A3. IESS indicative NMI cutover timeline

Figure 5 IESS Indicative NMI cutover timeline



Glossary

This document uses many terms and acronyms that have meanings defined in the National Electricity Rules (NER). The NER meanings are adopted unless otherwise specified.

TERM	DEFINITION
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
BDU	Bidirectional Unit
BESS	Battery Energy Storage System
CR	Change Request (MSATS)
Cutover	System or process implementation event
DNSP	Distribution Network Service Provider
DUID	Dispatchable Unit Identifier
EMMS	Electricity Market Management System
FCAS	Frequency Control Ancillary Service
FRMP	Financially Responsible Market Participant
ICCP	Inter Control Centre Protocol Link
IESS	Integrating Energy Storage Systems rule
Industry testing	Informal, uncoordinated testing by participants in AEMO's IT environments. Self-testing of functionality such as connectivity, and/or coordinated multi-party testing of functional scenarios.
IRP	Integrated Resource Provider
IRS	Integrated Resource System
ITWG	Industry Testing Working Group
Market testing	Umbrella term covering industry testing, invitation industry testing and market trials
Market trials	Formal, industry coordinated test activities between participants' and AEMO's IT environments. Involves coordinated multi-party end-to-end testing of business process scenarios.
MDP	Metering Data Provider
MMS	Market Management System
MPB	Metering Provider (Category B)
MSATS	Market Settlements And Transfer Solutions
MSP	Metering Service Provider
MT PASA	Medium Term Projected Assessment of System Adequacy
NCC	NMI Classification Code
NECR	Non-Energy Cost Recovery
NEM	National Electricity Market
NEMDE	National Electricity Market Dispatch Engine
NER	National Electricity Rules
NMI	National Metering Identifier
NSP	Network Service Provider
PASA	Projected Assessment of System Adequacy
PDSE	Participant Development Support Environment

TERM	DEFINITION
RTU	Remote Terminal Unit
SCADA	Supervisory Control and Data Acquisition
SGA	Small Generation Aggregator
TNI	Transmission Node Identifier
TNSP	Transmission Network Service Provider
Transition	Process of shifting from current to future operating state