

IESS Bidirectional unit (BDU) pre-prod & Production Cutover

Integrating Energy Storage Systems
IESS BDU Readiness Focus Group
Wed 12 June 2024





1. Welcome

Luke Barlow

We acknowledge the Traditional Owners of country throughout Australia and recognise their continuing connection to land, waters and culture.

We pay respect to their Elders past, present and emerging.

Introductions

Session objectives

This session is intended to provide:

- A debrief on findings from the IESS Market Trial
- Additional information in preparation for BDU cutovers in production
- An opportunity for discussion and Q&A

Ways of collaborating

- Questions and comments are welcome, either in the chat or by raising your virtual hand. AEMO will answer questions throughout the presentation, as well as during the dedicated Q&A time at the end.
- Please introduce yourself (name & organisation) in any interactions.
- Before attending, participants should become familiar with the appropriate meeting protocol (following slide).

AEMO Competition Law - Meeting Protocol

AEMO is committed to complying with all applicable laws, including the Competition and Consumer Act 2010 (CCA). In any dealings with AEMO, all participants agree to adhere to the CCA at all times and to comply with appropriate protocols where required to do so.

AEMO has developed meeting protocols to support compliance with the CCA in working groups and other forums with energy stakeholders. Before attending, participants should confirm the application of the appropriate meeting protocol.

Please visit: <https://aemo.com.au/en/consultations/industry-forums-and-working-groups>

AGENDA

Please note that this meeting will be recorded by AEMO and may be accessed and used by AEMO for the purpose of compiling minutes. By attending the meeting, you consent to AEMO recording the meeting and using the record for this purpose. No other recording of the meeting is permitted.

#	Timing (AEDT)	Topic	Presenter(s)
1	10:30 -10:35 AM	Welcome	Luke Barlow
2	10:35 -10:50 AM	Debrief on IESS market trial	Chris Fleming
3	10:50 -11:20 AM	Preparing for BDU cutovers in production <ul style="list-style-type: none">• Prerequisites• Pre-cutover• Cutover Day• Post-cutover	Alice Michener
4	11:20 -11:45 AM	Q&A	Alice Michener Luke Barlow Chris Fleming
5	11:45 -12:00 PM	Next steps & close	Luke Barlow

APPENDICES

A	IESS Glossary
B	BDU Readiness Focus Group participation and administration
C	NEM Reform Program Engagement Calendar

Debrief on IESS market trial

Chris Fleming



Simulated BDU cutover – overview

- Pilot cutover held in April and two simulated cutovers held in May 2024 during the Market Trial.
- Over this period 10 BESS Load /Gen unit pairs were cut over to BDUs and 6 Participants engaged in this testing.
- All 10 BESS were successfully cut-over.
- While there was a solid level of Participant engagement, none of the preparatory bidding was at the required standard to support a production cutover.

Simulated BDU cutover – lessons learned

- **Cutover bid submission** requirements were frequently incorrect
 - Non-zero bidding on BDUs ahead of the cutover date/time
 - Non-zero bidding on Load / Gen DUIDs after
 - Some confusion around bidding on the intervals around the cutover timing
- **Bidding** wasn't consistent before and after the cutover
 - e.g. Expect shift from load/gen DUIDs over to BDU DUID with same ramp rates, pricing, etc.
- **Auto-bidding**
 - Auto-bidders rebidding outside of acceptable BDU cutover bidding requirements.
 - Awareness of potential for rebidding by auto-bidder to override manual bids - experienced in pre-prod
 - Some participants turned off auto-bidding for a period after the cutover and bid manually over the transition period to mitigate this issue
- Participants are advised to **ensure access to web portal bidding** interface for manual bidding in advance of cutover.

Simulated BDU cutover – lessons learned

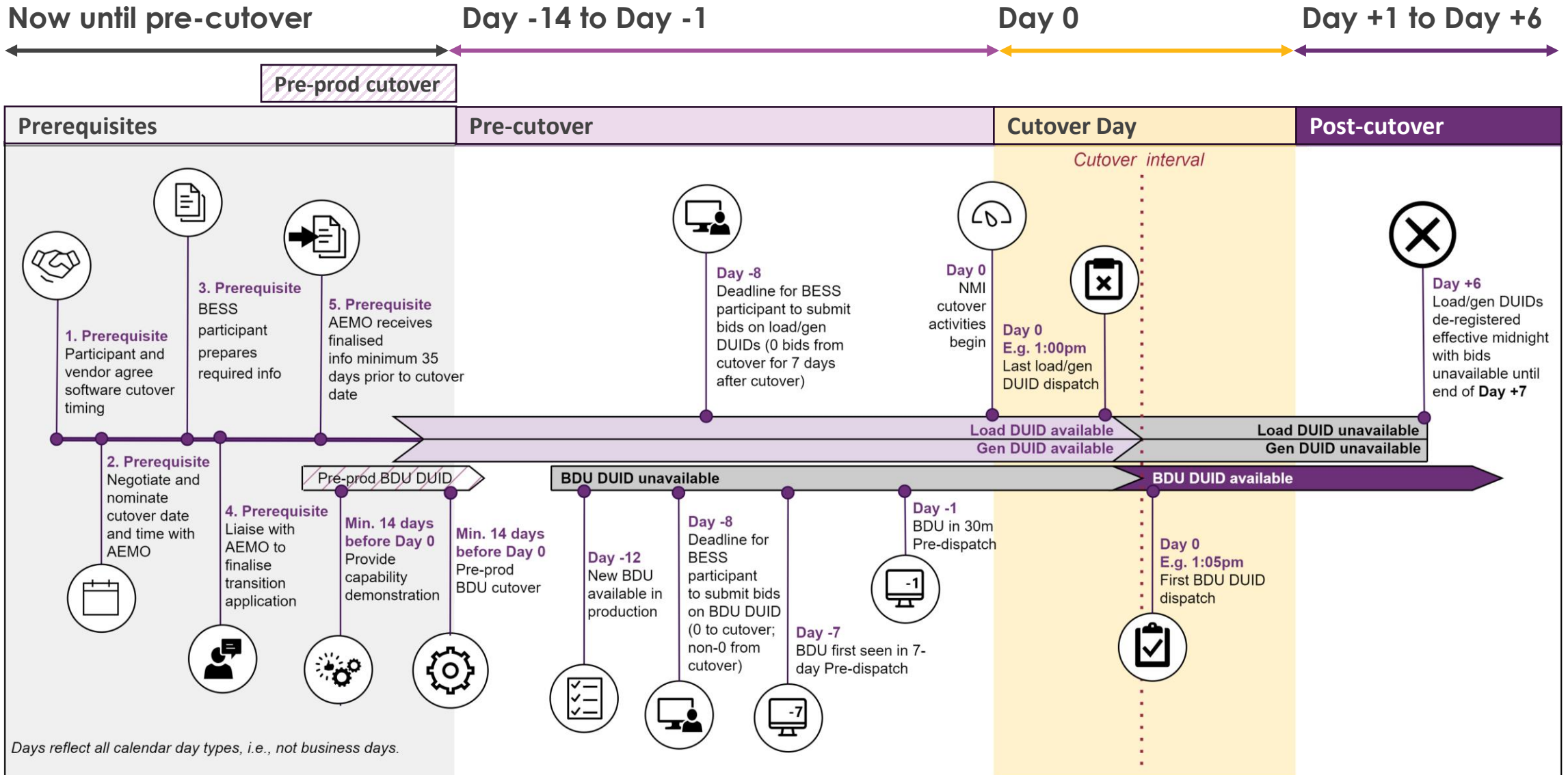
- Participants generally found having the Teams channel useful during the cutover
- Some participants indicated that it would be useful to have greater visibility of AEMO activities during the cutover window
 - Increased visibility on cutover activities will be provided during the production cutovers
- Informing key stakeholders in your organisation
 - Those submitting bids not always receiving required information
 - Recommend reviewing impacts across your organisation to identify processes and groups affected by the cutover (traders, settlements etc)
 - Early and frequent engagement with external parties such as MSPs also necessary
- Cutover time of day
 - Same-time, same-day cutovers not feasible. Need to stagger production cutover times for most same-day BDU cutovers. AEMO to contact participants with proposed times in coming days.

Preparing for BDU cutovers in production

Alice Michener



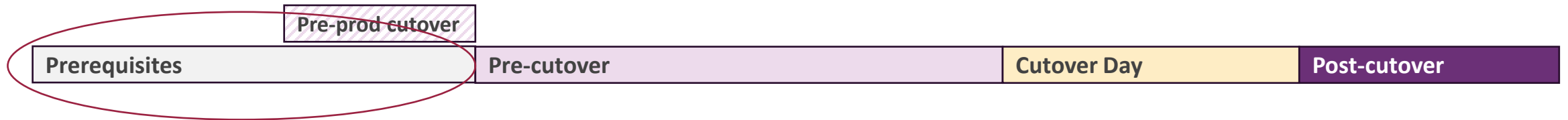
Context



BESS participant high-level checklist

PERIOD	WHAT	WHEN
Prerequisite	Schedule production cutover date and times with AEMO + vendor	ASAP – AEMO to provide times by Fri 21 June
Prerequisite	Externally, contact your MSPs + internally, contact traders and other people involved in the BDU cutover to inform of cutover dates and expected changes	ASAP
Prerequisite	Submit IRP transition application form	By 35 days before prod cutover
Prerequisite	Schedule pre-production cutover date and time with AEMO + vendor	By 35 days before prod cutover (or min. 3 weeks' notice)
Prerequisite	BESS registration change freeze period starts before pre-cutover	3 weeks before prod cutover date - 3 weeks after prod cutover
Pre-prod	Cutover to BDU in pre-production	Between 3 July (3 weeks from now) and 14 days before prod cutover
Pre-prod	Provide capability demonstration in pre-production	Between cutover in pre-prod
Pre-cutover	Provide cutover contacts to AEMO for cutover day real-time activities	By Day -14
Pre-cutover	Notify AEMO when auto-bidding software to switch on for BDU	By Day -8
Pre-cutover	Remove any future auto-bids on load/gen DUIDs for post-cutover period	By Day -8
Pre-cutover	Submit bids adhering to bid submission requirements for BDU cutover when BDU available in prod	By Day -8
Cutover Day	Cutover to BDU in production	Day 0
Cutover Day	Check dispatch instructions received via market systems switched over to BDU from first BDU DUID interval	Day 0

Prerequisites



Prerequisite: Engaging Metering Service Providers (MSP)

- MSPs include:
 - Metering data providers - MDP
 - Metering providers (category B) - MPB
 - Network service providers - DNSP, TNSP, Registered NSPs
- BESS participant to advise MSPs of production BDU cutover date as soon as known
- MSPs are directly involved in a subset of BDU cutover activities to cutover the NMI (see next slide for details)
- AEMO will also reach out to MSPs in the coming weeks to confirm:
 - affected NMIs
 - expected changes
 - change dates

Prerequisite: MSP activities

The following activities will occur from the BDU cutover day onwards.

		PARTICIPANTS			
		Metering Providers Category B (MPB)	Meter Data Providers (MDP)	DNSP, TNSPs and Registered Network Service Providers	Financially Responsible Market Participants (FRMP)
	AEMO				
Responsibility	<ul style="list-style-type: none"> ✓ AEMO will consolidate NMI data streams, moving load data streams over to the gen NMI. 	<ul style="list-style-type: none"> ✓ Consolidate the meter(s) and register(s) from the load side over to the gen side 	<ul style="list-style-type: none"> ✓ Send data to AEMO for the retained NMI only from midnight on the cutover day (retrospectively). 	<ul style="list-style-type: none"> ✓ Ensure that changes applied by AEMO are reflected in their systems, and AEMO changes are not overridden ✓ Awareness of no change to TLFs 	<ul style="list-style-type: none"> ✓ Update their systems to reflect changes applied by AEMO ✓ Review their settlement statements after cutover

Prerequisite

Prerequisite: Registration requirements

- Complete IRP transition application form by 35 days prior to production cutover
 - Confirm new fields for the BDU, and
 - Nominate an IRP effective date
 - New IRS = must be 3 June (transition complete)
 - Existing IRS = must be between 3 June and at least 15 days prior to the BDU cutover date
- Registration change freeze period for BESS
 - From 3 weeks prior to prod BDU cutover to 3 weeks after BDU prod cutover, no registration changes can be made effective for the BESS
 - Applications that are in flight at 3 weeks prior to prod BDU cutover will require new data. Please contact your AEMO Onboarding Case Manager
 - Registration changes made effective between 3 June 2024 but prior to the registration change freeze period will follow the current transition process: i.e., a supporting document will be reissued to the participant with updated BDU data reflecting the registration change and what will be configured against the BDU post-cutover

Prerequisite: Schedule pre-production cutover

- Every participant cutting over a BESS to BDU operations will be transitioned in pre-production before being transitioned in production.
- This is necessary to provide the capability demonstration.
- This is consistent with every registration of a scheduled unit.
- It ensures that participants can demonstrate capability to manage the unit in pre-production before progressing to production.
- Min. 3 weeks' notice required to schedule pre-prod BDU cutover, and no later than 35 days prior to production cutover.
- Schedule between 3 July (3 weeks from now) and 14 days prior to production BDU cutover latest.

Email Alice Michener (Alice.Michener@aemo.com.au)

cc: NEM Reform (NEMReform@aemo.com.au)

Include: preferred date + time (between 10:00 – 13:00 AEST)

Pre-prod cutover



Pre-production BDU cutover scope

BDU transition & cutover plan being updated to include comprehensive scope, similar to the Market Trial plan.

BDU OPERATIONS AND CUTOVER	MARKET TRIAL: APR-MAY 2024	PRE-PRODUCTION FROM 03 JUNE 2024	COMMENTS
TEST CAPABILITY			
Simulated BDU cutover: i.e., switch over from last load/gen DUID interval and first BDU interval via bidding and constraints	✓	✓	Indicate a preference, once the simulated cutover is complete, for either: <ul style="list-style-type: none"> • whether to continue to test on the BDU in pre-production, or • for AEMO to revert the BDU back to 2DUIDs so that pre-production mimics production until the production cutover.
Participants to adhere to bidding requirements on new BDU	✓	✓	
Participants to confirm dispatch instructions and review submitted bids for BDU	✓	✓	
NMI cutover: i.e., associating Actual NMI with the new BDU DUID from cutover day.	x	x	
Load/gen DUIDs deactivated in pre-prod	x	✓	
AVAILABLE AEMO SUPPORT			
AEMO BDU cutover manager	✓	Reduced support	Point of contact for individual BDU participant.
Support Hub	✓	✓	
Daily Market Trial stand ups	✓	x	
Practitest support	✓	x	

Pre-prod cutover

Pre-production: Capability demonstration

- Demonstrate capability to use AEMO's systems and follow bidding submission requirements via pre-production, in readiness for BDU cutover in production.
- Submitting bids 8 days prior to:
 - the pre-prod cutover date for those yet to cutover in pre-prod, or
 - a selected day in pre-prod for those who participated in market trial that follow the 'bidding submission requirements'
- AEMO recommends involving people who will be managing the bidding in production to get familiar with the BDU bidding requirements, if possible.
- Bid submission requirements for the capability demonstration are the same as the production bid submission requirements.
- **Failure to adequately demonstrate capability in pre-prod will result in a 'No Go' decision for production BDU cutover.** It will not result in pre-prod cutover reschedule.

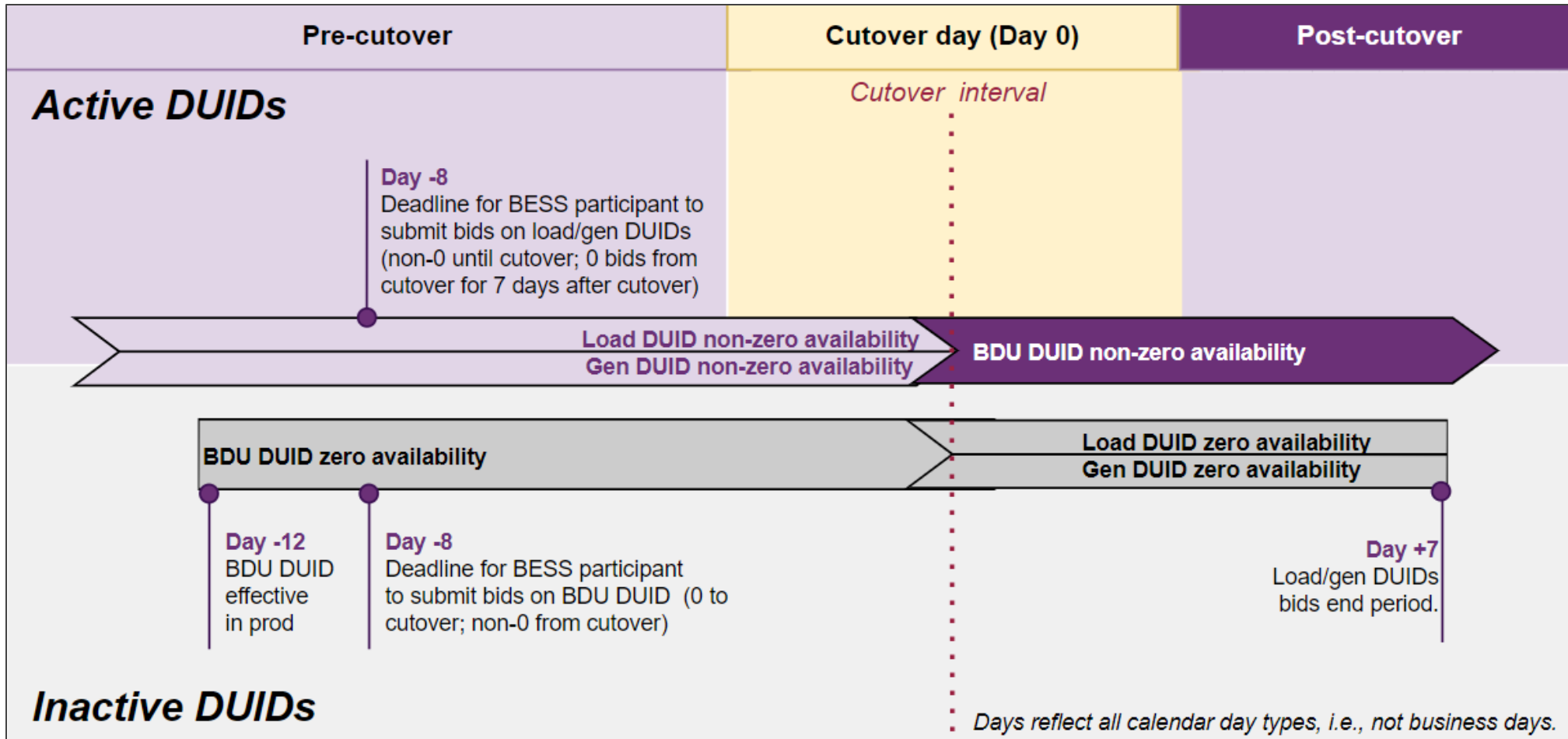
Pre-cutover



Pre-cutover: Production BDU cutover bid submission

- Correct bidding in production is critical to the success of your BDU cutover.
- Failure to adhere to the production bidding submission requirements will result in a ‘No Go’ decision for the production BDU cutover and reschedule.
- The ‘bid submission requirements’ will be available in the BDU cutover fact sheet.
- Ensure the right people receive the bid submission requirements and understand them in full prior to the production pre-cutover period commences.

Pre-cutover: Production BDU cutover bid submission



Pre-cutover: Bid submission requirements summary

Bids must be submitted at least **8 days prior** to the production BDU cutover date.

	PRE-CUTOVER			POST-CUTOVER		
	MT PASA	ENERGY BID	FCAS BIDS (if registered)	MT PASA	ENERGY BID	FCAS BIDS (if registered)
BESS BDU DUID	Unit state of 'Inactive reserve' and zero availability	Zero availability	Zero availability	An MT PASA availability profile	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	An MT PASA availability profile	Non-zero availability	Non-zero availability	Unit state of 'Retired' and zero availability	Zero availability	Zero availability
BESS GEN DUID	An MT PASA availability profile	Non-zero availability	Non-zero availability	Unit state of 'Retired' and zero availability	Zero availability	Zero availability

Available Energy bids must demonstrate:

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

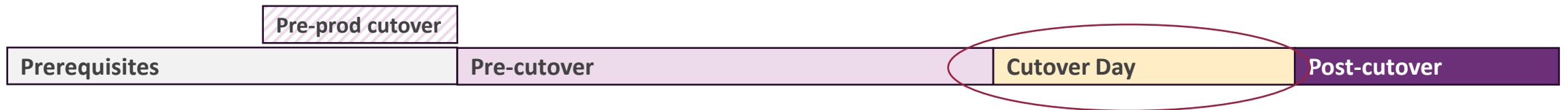
**The application of loss factors resulting in Market Price Cap (MPC) and Market Price Floor (MFP).

Pre-cutover

Pre-cutover: What to expect leading up to production cutover

- In the lead up to cutover, communications via AEMO cutover manager – Alice Michener
- Next point of communication is 8 weeks prior to BDU cutover to schedule a pre-production cutover date + confirm IRP transition application form on track
- Regular communications thereafter, especially from 19 days prior to cutover (1 week before BDU available in production) when AEMO kick off internal cutover activities
- Please contact AEMO if you would like to schedule a 1to1 call to discuss your cutover

Cutover Day



Cutover day: What to expect during real-time cutover

AEMO and the participant will communicate directly during cutover via a MS Teams chat (established by AEMO)

AEMO's key cutover activities:

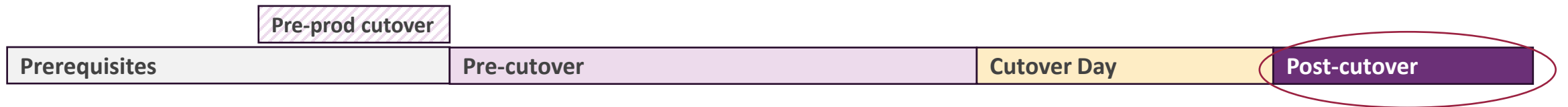
- In the last load/gen interval:
 - Manually switching SCADA over to the BDU
 - Unsuspending the BDU for compliance monitoring and suspending the load/gen units
- In the first BDU interval:
 - Monitoring system response to the cutover for any anomalies warranting rollback in relation to bids, demand totals, compliance monitoring, and so on.

Cutover day: Participant cutover success metrics

What participants should look for immediately following cutover:

- Check NEM Reports for non-0 targets and FCAS enablement on the BDU in the first active interval for the BDU.
- Acknowledgement of bids in new format are valid.
- Corresponding dispatch under those DUIDs
 - No availability and no dispatch coming through for old DUIDs
 - Availability and dispatch targets received on new BDU DUID.
- SCADA changes look as expected, e.g. SCADA signals received on new ICCP IDs if elected.

Post-cutover



Post-cutover: What to expect after a successful cutover

- AEMO will send formal comms confirming successful cutover status and declaring rollback is not required.
- From Day +1 to Day +4 AEMO and MSPs will continue working on the NMI cutover activities.
 - NMI cutover activity commencement is triggered by confirmation that a rollback is not required.
- Day +6 load/gen DUIDs are deactivated, i.e., end dated/removed from market systems.

Post-cutover: What to expect after an unsuccessful cutover

- AEMO will send formal comms declaring a rollback is required.
- AEMO will be in direct, immediate contact if rollback required.
- Rollback process is variable depending on the BESS and activities that have occurred.
- AEMO will coordinate timing to:
 - AEMO will reverse changes to reactivate the load/gen DUIDs.
 - Participant will be required to reverse the bids back to the pre-cutover state:
 - i.e., Zeros on the BDU and non-zeros on the old load/gen DUID.
 - Other variable activities as required.

Resources

Available:

- [BDU bid validation fact sheet](#)

Soon to be available:

- BDU cutover fact sheet
 - Includes production bidding submission requirements
- NMI cutover fact sheet
- BDU transition & cutover plan – updated to include:
 - Pre-production cutover information
 - Capability demonstration requirements
 - Updated production bid submission requirements
- Deidentified BDU cutover schedule incl. specific dates

New webpage

AEMO • INITIATIVES • MAJOR PROGRAMS • INTEGRATING ENERGY STORAGE SYSTEMS PROJECT • INTEGRATING ENERGY STORAGE SYSTEMS PARTICIPANT TOOLBOX

Integrating Energy Storage Systems project

Integrating Energy Storage Systems Participant Toolbox

March 2023 release

August 2023 release: Aggregated dispatch conformance

June 2024 Retail and Settlement release

June 2024 Registration, classification, and bidding release

Integrating Energy Storage Systems FAQs

BDU transition and cutover

Integrating Energy Storage Systems procedure changes

Integrating Energy Storage Systems Participant Toolbox

The IESS Participant Toolbox is a central location for useful resources to help participants understand and prepare for the changes associated with the Integrating Energy Storage Systems rule's implementation.

Bidirectional unit (BDU) transition and cutover

Information for participants with a BESS transitioning to BDU.

FAQs

This page contains frequently asked questions across the IESS June 2024 releases.

3 June 2024 release

2 June 2024 release

INTEGRATING ENERGY STORAGE SYSTEMS PROJECT • INTEGRATING ENERGY STORAGE SYSTEMS PARTICIPANT TOOLBOX • BDU TRANSITION AND CUTOVER

Bidirectional unit (BDU) transition and cutover



The Participant Toolbox is a central location for useful resources to help market participants understand and prepare for the changes associated with the Integrating Energy Storage Systems rule's implementation. This page pertains to the bidirectional unit (BDU) transition and cutover for grid-scale BESS.

Resources are added to this page progressively over the course of AEMO's preparation and implementation of the changes.

Access resources for other IESS releases

Fact sheets

31/05/2024 **BDU bid validation Fact sheet** 376.12 KB





Q&A

Luke Barlow, Chris Fleming & Alice Michener



Next steps



Next steps

TIMING	ACTION	RESPONSIBLE
ASAP	Participant to engage MSPs, traders, settlement teams, anyone involved in cutover for awareness of impacts and dates.	BESS participant
Friday 21 June 2024	AEMO will reach out to MSPs to confirm NMI cutover information.	AEMO
-8 weeks before prod cutover	AEMO will remind participants 8 weeks from production cutover to submit transition application forms and schedule their pre-production cutover.	AEMO

- For pre-production and production BDU cutover enquiries please contact the AEMO cutover manager directly: Alice.Michener@aemo.com.au
- Please continue to cc: NEMReform@aemo.com.au



IESS contact and information

Integrating Energy Storage Systems Participant Toolbox

The IESS Participant Toolbox is a central location for useful resources to help participants understand and prepare for the changes associated with the Integrating Energy Storage Systems rule's implementation.

- FAQs**
This page contains frequently asked questions across the IESS June 2024 releases.
- 3 June 2024 release**
IESS registration, classification and bidding changes:
Introduction of Integrated Resource Provider (IRP) participant type and bi-directional units (BDU)
- 2 June 2024 release**
IESS Retail and settlement changes:
Material changes to the non-energy cost recovery framework (NECR) leading to significant changes to NEM settlement table structures
- 9 August 2023 release**
Aggregate systems can opt-in to aggregated dispatch conformance (ADC)

IESS project information

[Participant toolbox](#)

IESS market procedure updates

[Indicative change program](#)

Tech spec information

[IT change & release management](#)

BAU IESS queries

NEMReform@aemo.com.au

General IESS queries

Support.Hub@aemo.com.au

Session close



IESS@aemo.com.au



[AEMO | IESS Participant toolbox](#)



APPENDIX A

Glossary



IESS Glossary

Term	Definition
5MPD	5-minute pre-dispatch
ADC	Aggregated Dispatch Conformance
ADG_ID	Aggregate Dispatch Group identifier for an Aggregate System
AGC	Automatic generation control
ASL	Ancillary service load
ASU	Ancillary service unit
B2B	Business-to-business
B2M	Business-to-market
BDU	Bidirectional unit
BESS	Battery energy storage system
CR	Change request
CRMP	Cost recovery market participant
DRSP	Demand response service provider
DUID	Dispatchable unit identifier
FRMP	Financially responsible market participant
IESS	Integrating Energy Storage Systems rule
IRP	Integrated resource provider

Term	Definition
IRS	Integrated resource system
MSATS	Market settlements and transfer solutions
MSGA	Market small generation aggregator
MT PASA	Medium-term PASA
NCC	NMI classification code
NECR	Non-energy cost recovery
NEM	National electricity market
NEMDE	National electricity market dispatch engine
NMI	National metering identifier
PAE	Profiling and allocation engine
PASA	Projected assessment of system adequacy
PD	Pre-dispatch
PDM	Participant Data Model
PMS	Portfolio management system
SCADA	Supervisory control & data acquisition
SoC	State of charge
UFE	Unaccounted for energy
WDRU	Wholesale demand response unit

APPENDIX B

BDU Readiness Focus Group participation and administration



Participation and administration

Participation



The last regular meeting with the Focus Group occurred in March 2024, however AEMO maintains the contact list as needed throughout the industry transition period.

- Aimed at participants with existing and planned grid scale batteries and bidding system vendors, that are affected by the IESS rule and will transition from dual to a single DUID.
- Nominees with suitable experience and expertise, for example regulatory managers, trading and product managers.
- A detailed understanding of the IESS reform initiative and authority to participate in discussions about implementation activities is required.
- One primary and one alternative contact to be nominated

Format



- Short term Focus Group under NEM Reform Implementation Forum (IF)
- Readiness and transition related risks and issues escalated to IF. Outcomes from Focus Group reported back to IF.
- Collaborative and consultative rather than a decision-making group
- Focus on readiness-related matters rather than debating specific policy.

Meetings



- Video conference
- Monthly cadence (last 2023 meeting in Nov, recommence Feb 2024)
- 1-1.5hr duration
- Additional meetings as required.

Administration



- Meeting material distributed prior
- Minutes and presentations made publicly available.

Feedback on the approach is welcome.

APPENDIX C

NEM Reform Program Engagement calendar



Upcoming Engagements

June						
M	T	W	T	F	S	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

July						
M	T	W	T	F	S	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

August						
M	T	W	T	F	S	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

September						
M	T	W	T	F	S	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

NEM Reform Program Committees/Forums

- Executive Forum
- Reform Delivery Committee
- Reform Delivery Committee Collaborative Workshop
- Program Consultative Forum
- Electricity Wholesale Consultative Forum
- Implementation Forum
- Industry Testing Working Group

NEM Reform Briefings

- Information session and Q&A: IESS Bidirectional unit (BDU) pre-prod and production cutover
- IESS Post Go-live Q&A

Other Forums

- Electricity Retail Consultative Forum

Other

- National Public Holiday
- State/Territory Public Holiday

Note:

- RDC and Executive Forum are in the process of being rescheduled with new invitations issued soon.