

Integrated Resource Provider briefing and Q&A

Integrating Energy Storage Systems
Tue 20 February 2024





Welcome

Ulrika Lindholm



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.

Meeting objectives

- This session is aimed at small and mid-sized market participants who are not regular attendees of the NEM Reform Program's Forums and Focus Groups
- And so, aims to provide:
 - An overview of the IESS rule and implementation
 - Background to the IRP registration category
 - Information for your situation, particularly how to:
 - Assess whether you need to or want to transition to IRP category
 - Prepare for the change
 - Participate as an IRP

AGENDA

#	Timing (AEST)	Topic	Presenters
1	11:00-11:05am	Welcome	Ulrika Lindholm
2	11:05-11:10am	Context	Carla Ziser
3	11:10-11:20am	Background – Integrated Resource Provider (IRP)	Carla Ziser
4	11:20-11:25am	IRP Implementation	Emily Brodie
5	11:25-11:45am	Industry Transition and readiness <ul style="list-style-type: none">• Assess• Prepare• Participate• Examples	Emily Brodie
6	11:45-12:00pm	Questions and close	Ulrika Lindholm
A	IESS glossary		
B	AEMO competition law meeting protocol		
C	Summary of IRP transition approaches		
D	Participant support		

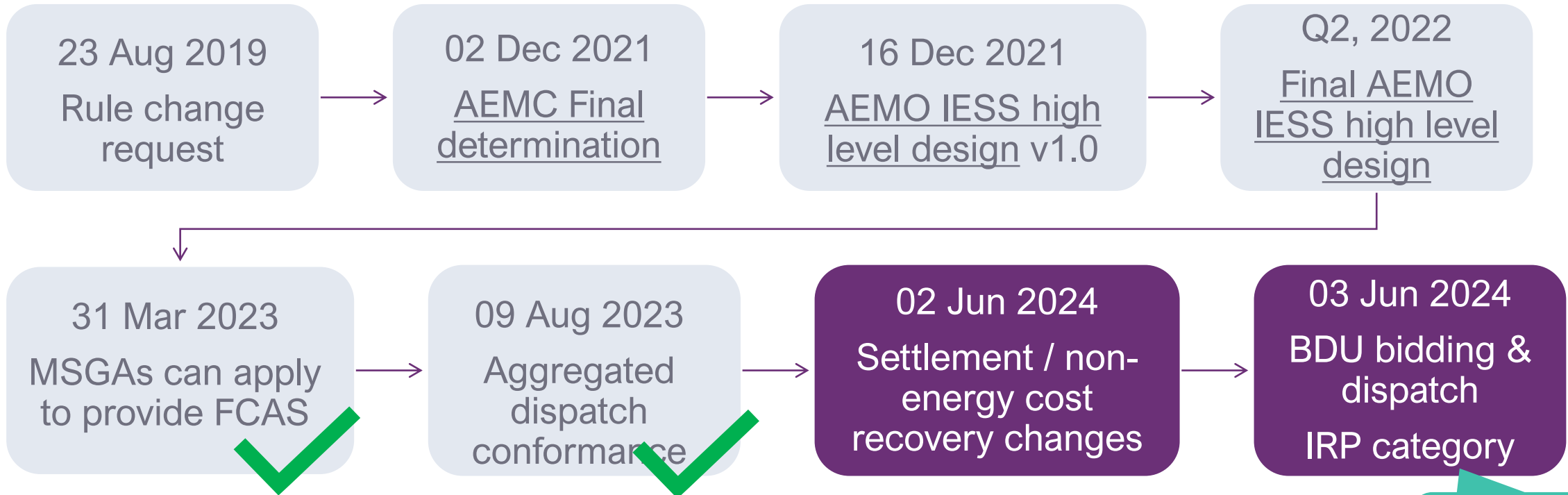
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Context

Carla Ziser



BACKGROUND: IESS high-level Timeline



MSGA	Market small generation aggregator
FCAS	Frequency control ancillary service/s
IRP	Integrated resource provider
BDU	Bidirectional unit

REFERENCES

- [AEMC IESS rule change](#)
- [AEMC Implementing IESS rule change](#)
- [AEMO IESS High Level Design and Implementation Strawperson](#)
- [AEMO IESS Participant Toolbox](#)

Focus of this session

Changes introduced by the IESS rule

IMPLEMENTATION DATE	CHANGE	DESCRIPTION
Sun 02 Jun 2024	IESS retail & 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 (SGAs) On and from Mon 03 Jun 2024 (other)	Registration changes	Introduction of Integrated Resource Provider (IRP) participant type for: <ul style="list-style-type: none"> • IRS Participants (mainly BESS participants) • Small Generator Aggregators • Participants with pumped hydro
Mon 03 Jun 2024	Bidding & dispatch changes	Bidirectional unit (BDU) bidding and dispatch, with impacts for BDU participants and bidding system vendors/developers.

Background - Integrated Resource Provider (IRP)



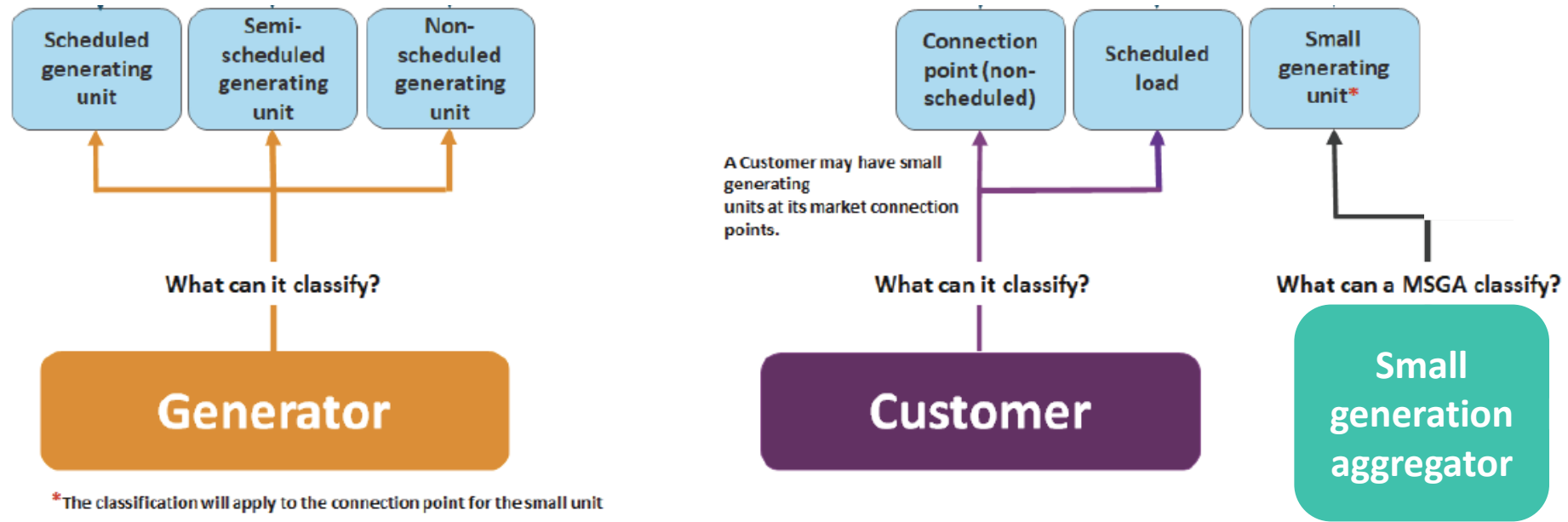
Carla Ziser



Overview: NEM Registration

COMPONENT	DESCRIPTION
Registered participant	<ul style="list-style-type: none"> • The legal entity that holds/will hold the NEM registration for one or more participant categories • A registered participant is reflected in AEMO’s market systems through a Participant ID. Some organisations can have more than one PID.
Participant category	<ul style="list-style-type: none"> • Registered participants can hold one or more registrations for different categories • Different participant categories have different obligations under the NER and can classify different resource types • Registration categories include: <ul style="list-style-type: none"> ➢ Market Generator ➢ Market Customer ➢ Market SGA ➢ Demand Response Service Provider ➢ etc etc.
Classifying resources	<ul style="list-style-type: none"> • AEMO is responsible for approving classification of resources by registered participants • Different categories of Registered Participants can classify different resource types • Classifications include: <ul style="list-style-type: none"> ➢ Scheduled/semi-scheduled/non-scheduled generating unit ➢ Scheduled load ➢ Small generating unit ➢ Market connection points ➢ Wholesale demand response unit ➢ etc etc.

Current Generator, Customer and MSGA classifications



What is the IRP registration category & why is it being introduced?

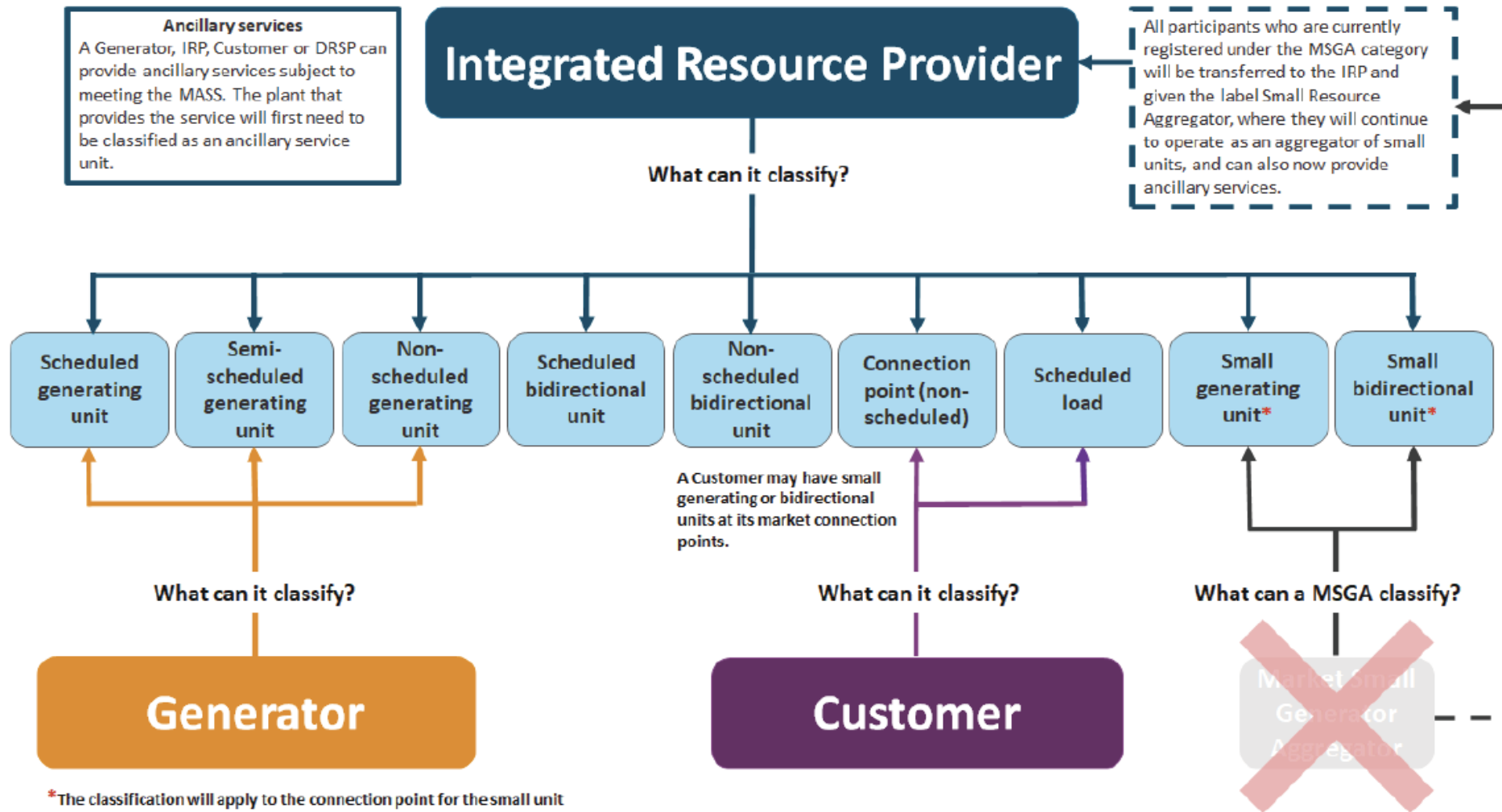
WHAT?

- IRP will be able to take on a range of roles that are currently separated
- IRP will be able to classify storage (bi-directional units), units within hybrid systems, DC-coupled units, aggregated portfolios as well as generating units, scheduled load and even retail load (end user connection points).

WHY?

- Simplifies the registration and classification process
- Accommodates a variety of participants with **bidirectional energy flows** that may offer and consume energy and ancillary services
- Aligns with longer-term direction towards a “two-sided market” which would have a **universal participant category** based on services rather than assets.

AEMC final rule – IRP classifications



IRP implementation

Emily Brodie



Key IESS terms

TERM	SUMMARY OF MEANING		NER REFERENCE
BDU	Bidirectional unit	<p>A production unit that also consumes electricity. Consumption of electricity:</p> <ul style="list-style-type: none"> • includes the use of electricity to charge a production unit or to pump water for a pumped hydro production unit • excludes auxiliary load <p>Clause 2.2.2(b2) provides for the classification of a BDU that is not capable of transitioning linearly from consuming to producing electricity and vice versa e.g. pumped hydro</p>	<ul style="list-style-type: none"> • Chapter 10 Glossary • 2.2.2(b2)
IRS	Integrated resource system	<ul style="list-style-type: none"> • A system comprising one or more bidirectional units (and which may also comprise one or more generating units or other connected plant that is not part of a bidirectional unit) • A system comprising one or more generating units where the connection point for the system is used to supply electricity for consumption on the system side of the connection point. 	Chapter 10 Glossary
IRP	Integrated resource provider	<p>A person that intends to classify any of the following:</p> <ul style="list-style-type: none"> • Integrated resource system • Generating system • Connection point • Small resource connection point 	<ul style="list-style-type: none"> • Chapter 10 Glossary • 2.1B.2
New IRS		IRS registered between 09 Dec 2021 and 02 June 2024	11.145.1 Definitions
Existing IRS		IRS registered prior to 09 Dec 2021	11.145.1 Definitions
Transitioning generating system		<i>Generating system</i> (as defined under the old rules) in relation to which there is also a <i>scheduled load</i> classification (whether for the system or a part of the system, its <i>connection point</i> or for consumption of electricity used by or in relation to the system).	11.145.1 Definitions

Who needs to transition to the IRP category and when?

AEMO will not charge a registration fee for participant types transitioning to the IRP category via NER 11.145.2, 11.145.3 and 11.145.4

TRANSITIONING PARTICIPANT TYPE	EXAMPLE	IESS RULE	TRANSITION TIMING
Small generation aggregators	Small generation aggregator	11.145.4	On <u>Sun 02 Jun 2024</u> , aligning with IESS settlement commencement Under NER 11.145.4 and from IESS commencement, these participants will be “taken to be registered as an Integrated Resource Provider” for the <i>small generating units</i> for which it was the SGA immediately prior to IESS commencement.
New IRS participants	BESS or pumped hydro registered from 09 Dec 2021	11.145.3	On <u>Mon 03 Jun 2024</u> Under NER 11.145.3, these participants will be “taken to be registered as an Integrated Resource Provider in relation to the integrated resource system” from IESS commencement.
Existing IRS	BESS or pumped hydro registered prior to 09 Dec 2021	11.145.2 (c)	From <u>Mon 03 Jun 2024</u> to 03 Dec 2024 Must apply to register as an IRP by 03 Sep 2024 and must have completed IRP registration by 03 December 2024.
Non-transitioning generating systems	Semi-scheduled generator with non-scheduled battery	11.145.2 (f)	Optional , from <u>Mon 03 Jun 2024</u> to 03 Dec 2024 If choosing to transfer registration, these participants should apply to register as an IRP by 03 Sep 2024 and must have completed IRP registration by 03 December 2024.

How is the IRP category being implemented?

PARTICIPANT TYPE	IRP REGISTRATION APPROACH	TIMING
Small generation aggregators	<p>Detailed information on how and when these participants will transition to the IRP category is explained in the IRP transition plan</p> <p>A summary of the IRP transition plan is also included in Appendix C to this slide pack</p>	<p>AEMO will automatically transfer existing SGAs to the IRP category for Sun 02 Jun 2024</p>
New IRS participants		<ul style="list-style-type: none"> AEMO will automatically transfer New IRS participants to the IRP category for Mon 03 Jun 2024. However if a New IRS wishes to participate in the IESS market trial, please apply by 08 Mar 2024.
Existing IRS participants		<p>Existing IRS participants need to apply to transfer registration to IRP category either by:</p> <ul style="list-style-type: none"> 08 Mar 2024 in time for participation in the IESS market trial, or A minimum of 35 business days prior to your BDU cutover date, or 03 Sep 2024 at latest (NER requirement).
<p>Future IRP participants</p> <p>Registrations completing on and from 03 Jun 2024</p>		<p>The IRP registration form will be available from mid-May 2024.</p> <p>Future IRP participants who wish to start the registration process before the form is available should contact the AEMO Onboarding team to discuss their situation: onboarding@aemo.com.au</p>

Industry transition and readiness

Emily Brodie



Registering as an IRP

ASSESS

- Regulatory assessment
- Business impact assessment

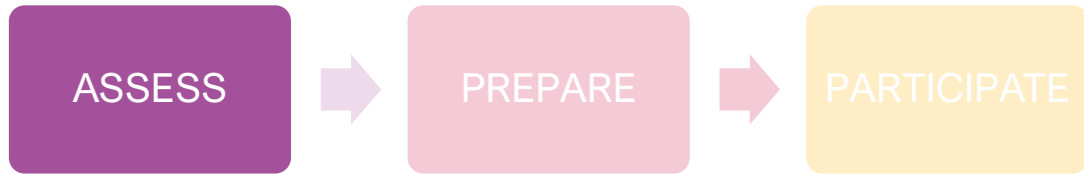
PREPARE

- Complete required documentation
- Pay registration fee (where applicable)
- Update relevant business processes or system

PARTICIPATE

- Once registered and resources have been classified, operate resources in compliance with NER and AEMO's procedures

Registering as an IRP: Assess

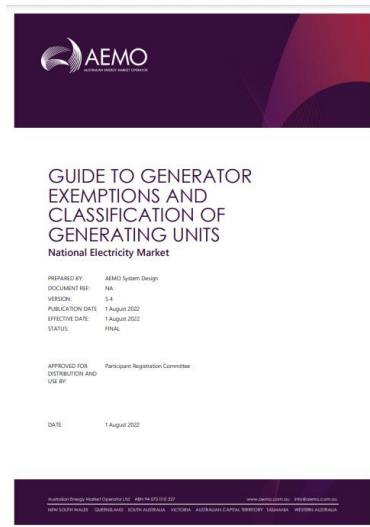


Links to key resources have been consolidated in a slide below

ACTION	CURRENT PARTICIPANTS	FUTURE PARTICIPANTS
Regulatory assessment	<ul style="list-style-type: none"> Is transitioning to the IRP registration category mandatory, voluntarily or not applicable for your resource types? 	<ul style="list-style-type: none"> Which registration category is applicable for your resource types?
Business impact assessment	<ul style="list-style-type: none"> What does a change in registration category mean for your business processes or contracts? What updates are needed to your systems? e.g. registration category dependencies or standing data changes? 	<ul style="list-style-type: none"> What does an additional registration category mean for your systems, business processes or contracts?

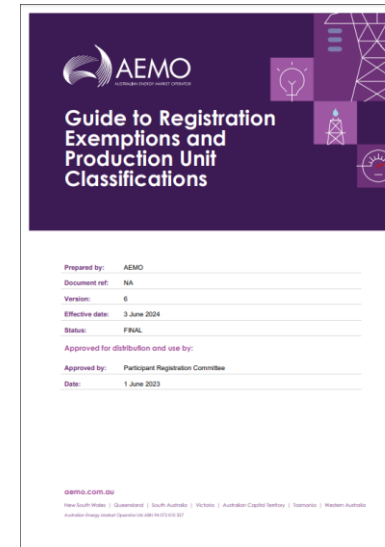
Registering as an IRP: Assess Updated classification guide

Current classification guide



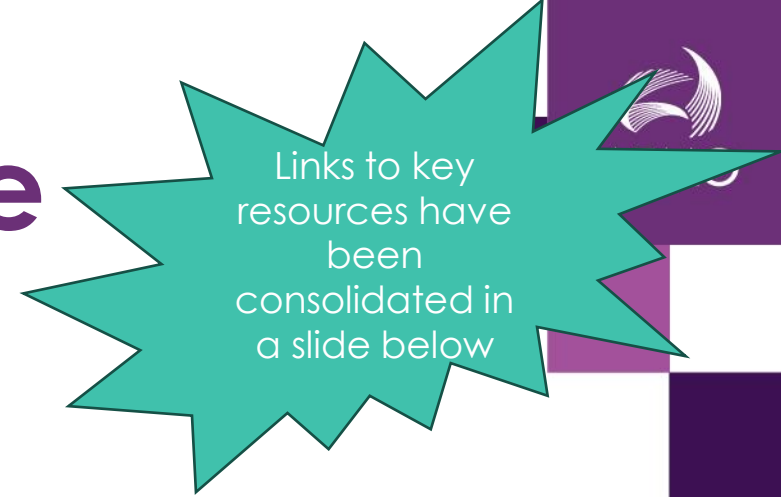
Link: https://aemo.com.au/-/media/files/electricity/nem/participant_information/new-participants/generator-exemption-and-classification-guide.pdf?la=en

Classification guide from IESS commencement (03 Jun 2024)



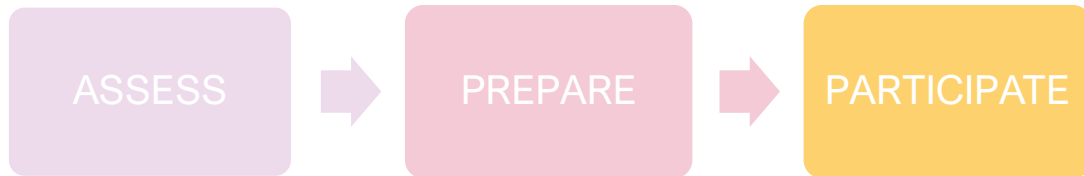
Link: <https://aemo.com.au/en/consultations/current-and-closed-consultations/guide-to-generator-exemption-and-classification-of-generating-units-consultation>

Registering as an IRP: Prepare



ACTION	CURRENT PARTICIPANTS	FUTURE PARTICIPANTS
Complete required documentation	<ul style="list-style-type: none"> • Existing IRS and New IRS will receive IRP transfer of registration documentation via email to complete in Feb 2024. • SGAs do not need to complete an application form. They will be automatically transitioned to the IRP registration category on Sun 02 Jun 2024. 	<ul style="list-style-type: none"> • The IRP registration form will be available from mid-May 2024. • Future IRP participants who wish to start the registration process before the form is available should contact the AEMO Onboarding team to discuss their situation: onboarding@aemo.com.au
Pay registration fee (where applicable)	<ul style="list-style-type: none"> • AEMO will not charge a registration fee for participant types transitioning to the IRP category via NER 11.145.2, 11.145.3 and 11.145.4 	For information on registration fees, see the <i>Fee schedule of new registrations</i> in the AEMO FY Budget and Fees document (published annually)
Update/develop relevant business processes or system	Refer to AEMO's: <ul style="list-style-type: none"> • Registration forms and guides • Market IT information, including technical specifications • Market procedures • IESS project's readiness information • IESS project's market industry testing and market trial information 	Refer to AEMO's: <ul style="list-style-type: none"> • Registration forms and guides • Market IT information • Market procedures

Registering as an IRP: Participate



Links to key resources have been consolidated in a slide below

ACTION	CURRENT AND FUTURE PARTICIPANTS
Maintain IRP registration	<ul style="list-style-type: none"> • Ongoing understanding of compliance obligations, including but not limited to: <ul style="list-style-type: none"> • NER • AEMO’s market procedures • Advise AEMO of relevant changes in accordance with Registered participant’s NER or procedure obligations.

Registering as an IRP: Resources

ASSESS	PREPARE: SGAs, new & existing IRS	PREPARE Future IRPs	PARTICIPATE
<p>Familiarity with IRP registration category</p> <ul style="list-style-type: none"> • Relevant sections of the National Electricity Rules • IESS final determination & rule • Implementing IESS final determination & rule • AEMO's IESS toolbox for registration, classification and bidding changes 	<p>AEMO's Market IT systems</p> <p>AEMO's IT change and release management (includes technical specifications)</p> <p>Registration forms and guides</p> <ul style="list-style-type: none"> • Guide to Guide to Registration Exemptions & Production Unit Classifications • Application for transitioning to an Integrated Resource Provider and supporting materials – sent via email to Existing and New IRS participants in Feb 2024 <p>IESS readiness information</p> <ul style="list-style-type: none"> • IRP transition plan for SGAs and new and existing IRS participants • BDU transition and cutover plan • NMI classification code transition plan • IESS June 2024 Go-live plan <p>Testing and market trial information</p> <ul style="list-style-type: none"> • IESS industry testing & market trial strategy • IESS industry testing & market trial plan 	<p>AEMO's Market IT systems</p> <p>AEMO's IT change and release management (includes technical specifications)</p> <p>Registration forms and guides</p> <ul style="list-style-type: none"> • Guide to Guide to Registration Exemptions & Production Unit Classifications • AEMO FY Budget and Fees document <p>Please contact AEMO's onboarding team if you are ready to start the application process before the Application for registration as an Integrated Resource Provider is published.</p>	<p>AEMO's Market IT systems</p> <p>National Electricity Rules</p> <p>AEMO's market procedures</p>

IRP registration: Simple example

- Ken is excited that his energy company DojoCasaHouse Pty Ltd successfully tendered to develop, own and operate an 800MW / 1,600MWh BESS in a renewable energy zone.
- The facility is expected to be registered by Q1, 2026 - after the IESS rule has commenced.
- The BESS is considered a *scheduled bidirectional unit* under the NER and only participants holding an IRP registration can classify this resource type.
- As a new entrant to the NEM, DojoCasaHouse therefore needs to apply to AEMO for:
 - Registering as an *Integrated Resource Provider*
 - Classifying the BESS as a *scheduled bidirectional unit*

IRP registration: Complex example



REGISTERED PARTICIPANT	CURRENT REGISTRATION CATEGORIES	IESS REGISTRATION CATEGORIES
Barbieland Pty Ltd	<ul style="list-style-type: none"> Market Generator Market Customer Market Small Generation Aggregator 	<ul style="list-style-type: none"> Market Generator Market Customer Integrated Resource Provider

PARTICIPANT ID	FACILITY	CURRENT CLASSIFICATION	CURRENT ASSOCIATED REGISTRATION	IESS CLASSIFICATION	IESS ASSOCIATED REGISTRATION	ACTION	
FLATFEET	600MW gas peaker	Scheduled Generating Unit	Market Generator	Scheduled Generating Unit	Market Generator	No mandatory registration activity	
DRMHSSGA	Commercial batteries and solar generation	Small Generating Unit	Market SGA	Small resource connection point	IRP	AEMO updates registration category for 02 Jun 2024	
KENERGY	500MW BESS	Scheduled Generating Unit	Market Generator	Bidirectional Unit	IRP	Barbieland works with AEMO to: <ol style="list-style-type: none"> Submit IRP application form by 08 Mar 2024 Transfer registration to IRP prior to its BDU cutover date 	
		Scheduled Load	Market Customer				
	850MW wind farm	Semi-Scheduled Generating unit	Market Generator	Semi-Scheduled Generator	Market Generator		No registration activity. Market Generator registration is retained against this PID
	Electricity retailer	Retail - market connection points	Market Customer	Retail - market connection points	Market Customer		No registration activity. Market Customer registration is retained against this PID

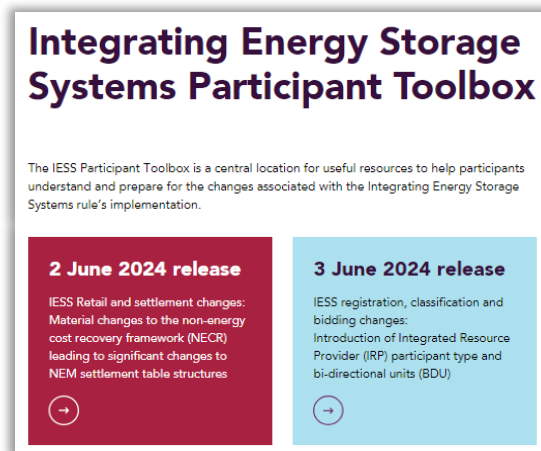
Questions & Close

Ulrika Lindholm



FAQs

Note that FAQs are available through the IESS Participant Toolbox at AEMO's website. These are updated on an ongoing basis.



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.

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	3 June 2024 release IESS registration, classification and bidding changes: Introduction of Integrated Resource Provider (IRP) participant type and bi-directional units (BDU)
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Link: <https://aemo.com.au/initiatives/major-programs/integrating-energy-storage-systems-project/integrating-energy-storage-systems-faqs>

Or contact the project directly at IESS@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

AEMO Competition Law – Meeting Protocol



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>

APPENDIX C

Summary of IRP transition approaches for:

1. SGAs
2. New IRS participants
3. Existing IRS participants (including pumped hydro)

SGA transition approach

Affected participants: all SGAs
Number of affected participants: ~40



- Under NER 11.145.4 and from IESS commencement, these participants will be “taken to be registered as an Integrated Resource Provider” for the small generating units for which it was the SGA immediately prior to IESS commencement.
- Participants do not need to apply to AEMO to re-register as an IRP, however AEMO may require some information from participants to implement the transition
- AEMO will update their registration category to IRP in its market systems in for IESS commencement
- AEMO will:
 - Enable affected participants to undertake test activities under the new registration category (this is optional for participants)
 - Update affected participants’ registration category to IRP in its market systems (subject to receiving satisfactory and complete information) for Sun 02 Jun 2024
 - Notify the participant immediately beforehand that registration category change is occurring
 - Notify the participant immediately after that change is complete.

New IRS participant transition approach

Affected participants: only BESS have been identified
Number of affected participants: ~14



- Under NER 11.145.3, these participants will be “taken to be registered as an Integrated Resource Provider in relation to the integrated resource system” from Mon 03 June 2024 onwards
- Participants do not need to apply to AEMO to re-register as an IRP
- AEMO will update their registration category to IRP in its market systems in for IESS commencement
- AEMO may require some information from participants to complete this activity. In particular, storage capacity information is required to establish the single BDU DUID.
- AEMO will:
 - Enable affected participants to undertake test activities under the new registration category (this is optional for participants)
 - Update affected participants’ registration category to IRP in its market systems (subject to receiving satisfactory and complete information) for Mon 03 Jun 2024
 - Notify the participant immediately beforehand that registration category change is occurring
 - Notify the participant immediately after that change is complete.

NOTE: BESS participants must transition to the IRP category before cutting over to single BDU DUID operations.

Proposed transition approach for Existing IRS and non-customer load participants

AFFECTED PARTICIPANTS	#	APPROACH
BESS	~ 9	<ul style="list-style-type: none"> <i>Must</i> apply to register as an IRP by 03 Sep 2024 and must have completed IRP registration by 03 Dec 2024.
Pumped hydro	~ 2	<ul style="list-style-type: none"> AEMO to prepare registration documentation and make available to affected participants Participant to complete and submit registration documentation on or before 03 Sep 2024
Non-customer load participants*	1	<ul style="list-style-type: none"> AEMO will: <ul style="list-style-type: none"> Enable affected participants to undertake test activities under the new registration category (this is optional for participants) Re-register the participant (subject to receiving satisfactory and complete information) Notify the participant immediately beforehand that re-registration is occurring Notify the participant immediately after that re-registration is complete <p>NOTE: BESS participants must transition to the IRP category before cutting over to single BDU DUID operations.</p>
Non-transitioning generating systems	TBC, if any	<p><i>May</i> apply to register as an IRP by 03 Sep 2024 and must have completed IRP registration by 03 December 2024.</p> <p>Need to self-identify to AEMO if seeking to move into the IRP registration category.</p>

*Note non-customer load participants may register as either an IRP **OR** a Customer.

APPENDIX D

IESS – Participant support

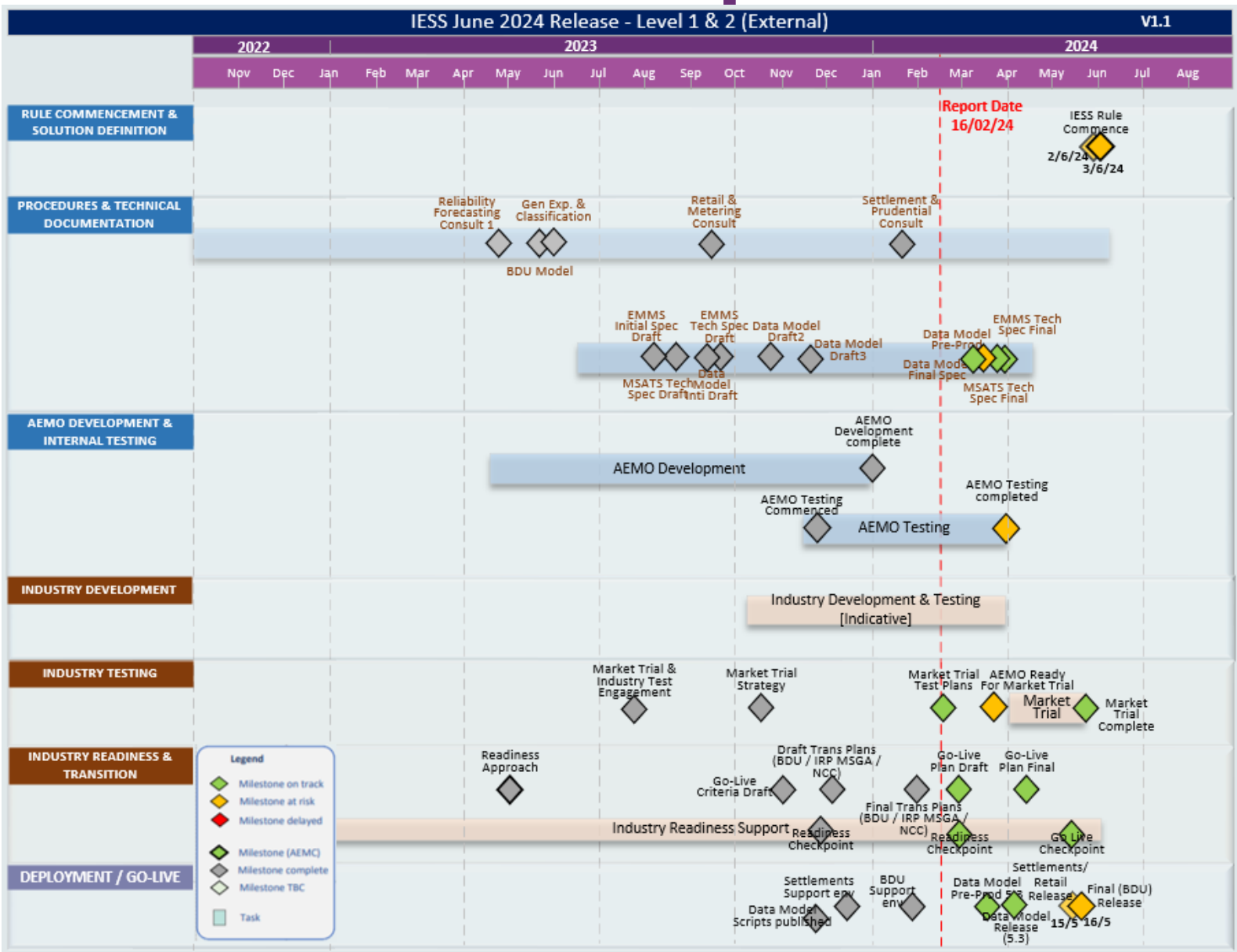


Key areas of participant support

- ✓ Engagement via forums, workshops, 1to1 discussions etc
- ✓ Technical documentation*
- ✓ Transition, test and go-live plans*
- ✓ Participant development support environment
 - PDSE is a non-production environment scaled to support interface development testing
 - [PDSE fact sheet](#) explains what is and is not available in the environment
 - Please note the PDSE is not a substitute for IESS industry testing and market trial activities in pre-production. There only will be one code drop to the PDSE and the code will not be maintained.
- ✓ Market trial (pre-production) from 02 Apr to 24 May 2024

*Publication dates and links available on following slide and via monthly [Implementation Forum](#)


IESS timeline update @ 16 Feb 2024



IESS milestones are monitored and discussed monthly via the [Implementation Forum](#) and [Program Consultative Forum](#)

- Nominate via email to nemreform@aemo.com.au

NEM Reform Program engagement

Forums	Forum focus 	Cadence	Approach
Executive Forum	Program overview and status update	Three times yearly	Nomination
Reform Delivery Committee (RDC)	Long term strategic perspective	Quarterly	Nomination
Program Consultative Forum (PCF)	Inflight initiatives status & co-ordination	Monthly	Open
Implementation Forum	Implementation of reforms	Monthly	Open
Electricity Wholesale (EWCF) & Electricity Retail (ERCF) Consultative Forums	Procedures working groups	Monthly	Open
Testing working group	Testing	Monthly	Open
Working groups	Initiatives	As appropriate	As appropriate

Focus/working Groups for initiatives include:

Initiative working groups

Strategic and foundational focus groups (IDX/IDAM/PC)



To learn more and get involved, please visit

- [AEMO | NEM Reform Program Stakeholder Engagement](#)
- [AEMO | Industry meeting calendar](#)
- or contact the program at NEMReform@aemo.com.au.