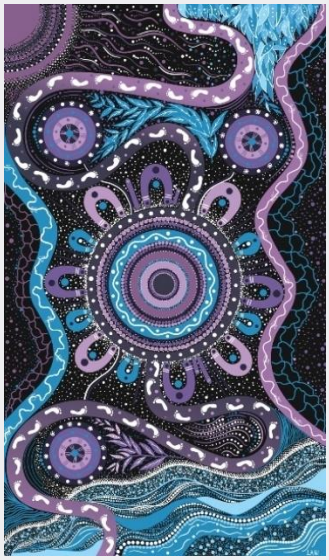
Inverter Management System (Inverter Dispatch) – an upcoming initiative

19 December 2025

High Level Implementation Assessment

Preliminary view for participants on how the initiative may be implemented by AEMO



We acknowledge the Traditional Custodians of the land, seas and waters across Australia. We honour the wisdom of Aboriginal and Torres Strait Islander Elders past and present and embrace future generations.

We acknowledge that, wherever we work, we do so on Aboriginal and Torres Strait Islander lands. We pay respect to the world's oldest continuing culture and First Nations peoples' deep and continuing connection to Country; and hope that our work can benefit both people and Country.

'Journey of unity: AEMO's Reconciliation Path' by Lani Balzan

AEMO Group is proud to have launched its first Reconciliation Action Plan in May 2024. 'Journey of unity: AEMO's Reconciliation Path' was created by Wiradjuri artist Lani Balzan to visually narrate our ongoing journey towards reconciliation - a collaborative endeavour that honours First Nations cultures, fosters mutual understanding, and paves the way for a brighter, more inclusive future.

Important notice

Purpose

AEMO has prepared this document to provide preliminary information about the implementation design of the *Inverter Management System (Inverter Dispatch) project*.

Disclaimer

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Version control

Version	Release date	Changes
0.1	19 December 2025	Initial version for stakeholder feedback

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Contents

Tables

Figures

Definitions

This document uses many terms that have meanings defined in the National Electricity Rules (NER). The NER meanings are adopted unless otherwise specified. Please also see AEMO's industry terminology web page[1] to complement the table below.

Term	Definition
AEMO	Australian Energy Market Operator
DER	distributed energy resources
DNSP	distribution network service provider
DUID	dispatchable unit identifier
EDP	Enterprise Data Platform (interchangeable with EDW)
EDW	Enterprise Data Warehouse (interchangeable with EDP)
EMS	Energy Management System
EMMS	Electricity Market Management System
FCAS	frequency control ancillary services
HLIA	High-Level Implementation Assessment
ICCP	Inter Control Centre Protocol (link)
IRP	Integrated Resource Provider
MW	megawatt/s
NEM	National Electricity Market
NEM DB	National Electricity Market Database
NEMDE	National Electricity Market Dispatch Engine
NER	National Electricity Rules
NMI	National Metering Identifier
NSP	network service provider
PASA	Projected Assessment of System Adequacy
PD/Pre-Processing	Pre-dispatch or other known as 'Pre-Processing' feeds into 'NEMDE'
Post-Processing	Process after 'NEMDE'
SCADA	Supervisory Control and Data Acquisition
TNSP	transmission network service provider

[1] At https://aemo.com.au/learn/industry-terminology.

1 Introduction to Inverter Management System ('Inverter Dispatch') initiative

1.1 Overview of Inverter Management System (Inverter Dispatch)

Background

The National Electricity Market (NEM) is in a period of renewal and transition, with significant change in the generation mix. Retiring synchronous generators are being replaced by a pipeline predominantly made up of inverter-based resources (IBR), such as wind turbines, batteries, and solar, including a large amount of distributed solar and batteries. Irrespective, the technical requirements, and critical importance, of system security are enduring.

Maintaining power system security is a core function of AEMO's, and the need for action by AEMO (in the operational timeframe) is informed by limits advice received from transmission network service providers (TNSPs), which can include the need for inverter management under certain power system conditions[2].

Limits advice from TNSPs is translated into constraints in AEMO's control room systems, which alert controllers if there are too many inverters online for the prevailing power system conditions. To carry out its critical mandatory obligations under the National Electricity Rules (NER), AEMO's control room must manually phone multiple affected IBR and request a reduction in the number of inverters online within 30 minutes to return the power system to a secure operating state. In response, IBR operators take actions to reduce the number of inverters online, under time pressure.

Problem

AEMO considers that the existing manual approach is not sustainable for either IBR operators or AEMO, particularly with the current and expected growth and penetration of large-scale IBR. The existing approach has:

- presented AEMO with difficulties in achieving its core obligation of maintaining a secure power system, and impacted AEMO's ability to return the power system to a secure operating state when managing system strength limits,
- contributed to multiple instances of the power system at risk of not being in a secure operating state for more than 30 minutes (see AEMO webpage on reviewable operating incident reports)[3], and
- drastically increased the volume of manual activity for market participants and AEMO, due to complex limits advice related to inverter management, an increased number of inverters in the power system, and the requirement for multiple phone calls between participants and AEMO.

A change in approach is urgently required to ensure inverter management processes are streamlined for both AEMO and participants.

[2] See https://www.aemo.com.au/energy-systems/electricity/national-electricity-market-nem/system-operations/congestion-information-resource/limits-advice.

[3] At https://www.aemo.com.au/energy-systems/electricity/national-electricity-market-nem/nem-events-and-reports/power-system-operating-incident-reports.

Initiative objectives

The initiative's objectives are to:

- remove the need for AEMO's Real Time Operations (RTO) controllers to conduct manual phone calls to transmission connected IBR to manage power system security, and
- provide IBR operators with the ability to automatically receive inverter limits, and the optionality to implement an automated means for responding to those inverter limitations.

To achieve this, the initiative will apply the following key principles:

- implement a solution that leverages existing standard and well-established processes (for example, by using the NEM Dispatch Engine [NEMDE] and/or constraints), to minimise implementation cost and effort for participants and AEMO,
- seek to reduce the need for participant and/or AEMO manual activity wherever feasible via automation,
- ensure consistency in approach to IBR management across all regions and jurisdictions wherever possible, and
- ensure the initiative meets the requirements of any rule obligations on AEMO and/or participants.

This initiative will help underpin AEMO's ability to navigate the energy transition – securely and efficiently operating the power system today, and the IBR-dominated power system of the future, so the NEM continues to meet the energy needs of households and businesses at least cost, as required by the national electricity objective.

Desired project outcomes/benefits

This project will deliver the following improvements which directly support AEMO's ability to maintain power system security by reducing AEMO's control room error and top operational risks for IBR:

- ensuring AEMO's NEM control room can determine and communicate inverter limits to market participants earlier and in a streamlined consistent way without manual processes and monitoring,
- helping participants respond to inverter limits promptly, by providing an electronic inverter limit and removing the requirement for phone communications from AEMO (which are often delayed when phone calls to several participants are required), and
- helping AEMO and participants with inverter management for planned outages, as inverter limits will be available in pre-dispatch (P30 and P5) reports, allowing participants to better plan for operational adjustments ahead of time.

1.2 Document background and purpose

This High-Level Implementation Assessment (HLIA) has been produced as the first stage of AEMO's Inverter Dispatch initiative under the NEM Reform Program. It provides an indicative and preliminary view to participants on how AEMO may implement the initiative, and outlines the proposed system, process and operational changes and indicative timeline that would likely be required to implement this project.

This HLIA also provides a general assessment of what these changes may mean for affected NEM participants.

By publishing at an early stage and inviting participant feedback, the HLIA is intended to:

- assist and inform affected participants in developing their own implementation timelines and impact assessments,
- enable AEMO and participants to plan for this initiative in the context of the broader implementation roadmap (NEM Reform Implementation Roadmap), specifically looking for bundling opportunities, efficient sequencing and to reduce delivery congestion,
- enable stakeholders to provide input on the early implementation design and timeframes,
- propose key implementation activities and milestones against which progress will be managed and communicated to industry, and
- encourage early adoption by participants who are ready to respond to AEMO's inverter limits in a more streamlined way, and expedite participant preparedness for those that require process changes.

In the case of any inconsistency between the HLIA and the NER, the NER will prevail.

1.3 Key dates

Table 1 HLIA timelines

Activity	Timeline
AEMO to raise item at NEM Reform Electricity Wholesale Consultative Forum (EWCF)	**Tuesday 11 November 2025**
AEMO to engage with affected IBR participants and other relevant stakeholders in one-on-one sessions to introduce project and seek feedback on Inverter Dispatch initiative	**Monday 17 November to Friday 5 December 2025**
AEMO to publish initial HLIA v0.1 to industry	**19 December 2025**
AEMO to conduct further one-on-one stakeholder engagement sessions to seek input and feedback on Inverter Dispatch initiative	**January and February 2026**
Stakeholder feedback on initial HLIA v0.1 closes	**13 February 2026**
AEMO industry briefing on HLIA (if requested by industry stakeholders)	**24 February 2026**
AEMO HLIA v0.2 published	**31 March 2026**

1.4 HLIA stakeholder feedback

AEMO is seeking stakeholder comment on this HLIA. Any comments or feedback should be sent by email to NEMReform@aemo.com.au.

AEMO has presented the proposed Inverter Dispatch initiative at the Electricity Wholesale Consultative Forum (EWCF) and commenced engagement with several IBR participants and stakeholders. AEMO will continue consulting with IBR participants and other impacted stakeholders to gather input and feedback on the proposed Inverter Dispatch initiative and provide updates at upcoming forums and later versions of the HLIA.

AEMO intends to publish an update to this HLIA in Q1 2026, which will consider amendments due to stakeholder feedback received and will provide further, more detailed, information on the system impacts and implementation pathway. The final HLIA will only be updated during project implementation if there is material change in the implementation approach – for example, if detailed design reveals elements that affect the industry's or AEMO's readiness. Stakeholders should refer to the initiative website and initiative updates provided via AEMO's NEM Reform forums for up-to-date implementation information.

1.5 Stakeholder engagement

AEMO intends to keep interested stakeholders up to date on the Inverter Dispatch initiative via the following channels:

- NEM Reform engagement through the regular monthly forums AEMO conducts as part of the NEM Reform Program, including the EWCF, as well as regular forums such as the Intermittent Generator Forum (IGF),
- initiative webpage – https://www.aemo.com.au/initiatives/major-programs/nem-reform-program/nem-reform-program-initiatives/inverter-dispatch, and
- mailbox – NEMReform@aemo.com.au.

2 Design for AEMO's proposed Inverter Dispatch solution

AEMO has observed a consistent increase in the frequency of prevailing power system conditions that require limiting the number of inverters connected to the power system to maintain power system security.

2.1 In lead up to operational timeframe

This section outlines the existing process for developing limits advice relevant to inverter management which TNSPs develop and share with AEMO. AEMO then creates constraint equations reflecting the limits advice and applies these constraints in NEMDE to maintain power system security. This process will remain unchanged by this initiative and is provided for context.

1. TNSPs provide this limits advice to AEMO to implement in its market and power system operations. In accordance with AEMO's published limits advice guidelines[4], TNSPs are required to develop limits advice[5]. This limits advice covers all aspects of power system security reflecting the physical limitations of the power system and its technical envelope for various expected operating conditions. Limits advice generally covers thermal overload, voltage, transient and oscillatory stability, system strength and inverter and turbine limits. It can also reflect control schemes and their impact on the security of the power system.
   - As part of developing this limits advice, TNSPs consider and determine which particular IBR may need to be limited under various power system conditions. AEMO expects this assessment would consider whether an IBR is grid-following or grid-forming (if relevant to the TNSP), alongside other factors such as available system strength and location of the IBR within the TNSP's network.
2. AEMO performs due diligence when limits advice is provided (for any type of power system limit), to verify the limit equation will give a secure outcome[6].
3. AEMO creates constraints required to implement limits advice. These are created in accordance with AEMO's Constraint Formulation Guidelines[7]. Inverter limitations may exist within system normal and/or outage constraints, as determined by TNSPs in their limits advice.

[4] See Limits Advice Guidelines at https://www.aemo.com.au/-/media/files/electricity/nem/security_and_reliability/congestion-information/2025/limits-advice-guidelines.pdf.

[5] See https://www.aemo.com.au/energy-systems/electricity/national-electricity-market-nem/system-operations/congestion-information-resource/limits-advice#:~:text=Limit%20advice,22/04/2020.

[6] See Constraint Formulation Guidelines Section 3.2 at https://www.aemo.com.au/energy-systems/electricity/national-electricity-market-nem/system-operations/congestion-information-resource.

[7] At https://www.aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2022/cfg-and-scvpf/final/constraint-formulation-guidelines-v12---final_.pdf.

2.2 Operational timeframe

As described in Section 2.1, the need for inverter management by AEMO is informed by limits advice received from TNSPs. This NSP limits advice is translated to network constraints in AEMO's systems that alert AEMO operators when there are too many inverters online for the prevailing power system conditions.

When such a constraint violates in the dispatch timeframe, due to too many inverters online, the power system is no longer secure and AEMO must take action in line with its NER obligations to return the power system to a secure operating state as soon as a possible and in all cases within a maximum of 30 minutes.

Figure 1 below provides an example of the existing inverter dispatch process, compared to the proposed target future process. This example is in the case of a credible contingency, whereby the contingency results in an outage constraint set being invoked in the dispatch and pre-dispatch timeframe. Inverter limitations, including constraint equations that reflect them, are invoked within the outage constraint set.

In the example below, the target future state process includes the following:

- Automated sending of the maximum number of inverters online, from AEMO to all IBR – these numbers would be sent via both AEMO's market systems and SCADA on a per-dispatch unit identifier (DUID) basis (see Section 4 for further information). AEMO will not provide any additional ramping limits with the provided inverter caps. Participants are expected to appropriately bid and ramp the output of their plant as required within the existing dispatch system. Part of this process will be implemented early in 2026, for participants interested in early adoption of an automated solution (see Section 4.2).
- Automated receipt and response from the IBR operator, to reduce the maximum number of inverters online – this is one potential future updated process for an IBR operator. AEMO understands there may be several possible configurations for an IBR operator – an alternative could be automated receipt of inverter limitations from AEMO, accompanied by a manual process to reduce the number of inverters online (as per current process).

Inverter limitations are reflected in constraints that generally take the format "REGIONxxSTRxx_I" and are visible in AEMO's Plain English Constraint Equation converter.[8]

The number of inverters online is monitored via existing SCADA signals. Per the existing process, this SCADA feed is an input to constraints, determining whether a reduction in the number of inverters online is necessary.

Inverter limitations will be provided across dispatch, 5-minute pre-dispatch, and 30-minute pre-dispatch time horizons, to provide IBR operators with a forward view of inverter limits. The Inverter Limit request (maximum number of inverters online) will be sent to the participant at every 5-minute interval (see Section 4 for more on system implementation). Inverter limits will align with the megawatt (MW) target/cap on an IBR; that is, the energy target will not exceed that of the maximum output achievable for a given inverter limitation. All inverters in excess of the limit provided to the participant must be either blocked or disconnected[9] by the participant as soon as possible after receiving an updated inverter limit to

[8] AEMO has developed a tool, the Plain English Constraint Equation converter, which allows registered participants to view constraint equations IDs belonging to a constraint set ID, along with "Plain English" descriptions of the constraint equations. This tool is available to market participants via the EMMS Web Portal: http://mms.prod.nemnet.net.au/mms/login.aspx

[9] For definitions of these standard terms, see Section 3.3.3 of AEMO published Limits Advice Guidelines, at: https://www.aemo.com.au/-/media/files/electricity/nem/security_and_reliability/congestion-information/2025/limits-advice-guidelines.pdf

meet the requirements of TNSP limits advice/AEMO constraints. This is to allow AEMO to meet its core NER obligation to return the power system to a secure operating state within a maximum of 30 minutes.

Figure 1 Inverter dispatch current and target future state summary, in a credible contingency scenario

2.2.1 Exceptions handling

AEMO anticipates that introduction of this automated process would greatly reduce manual efforts for both AEMO and IBR operators.

To maintain visibility of IBR participants' responses to inverter limitations, monitoring capability will be established to compare an IBR's response with any request to reduce the number of inverters in service. Conformance monitoring of IBR response to inverter limit requests is planned for delivery as part of this initiative and uses similar naming to the

conformance process for energy dispatch for ease of use by participants, but different trigger thresholds and timing, reflecting AEMO's power system security obligations.

To conform with the inverter limit provided by AEMO, participants must ensure that the number of inverters online at their plant is at or below the provided limit (by ensuring that any inverters in excess of the provided limit are disconnected or blocked[10]). Participants are expected to conform with the provided inverter limit as soon as possible. However, if participants do not respond, AEMO will take action by issuing a clause 4.8.9 instruction to the relevant TNSP to disconnect affected IBR via the high voltage (HV) circuit breaker, before the full 30 minutes has elapsed. This is for AEMO to maintain a secure power system within 30 minutes, as per its NER obligations.

AEMO will establish an internal process for inverter non-conformance, including alarm monitoring and communication to TNSPs and IBR operators (if required), in addition to the new inverter limits and conformance signal. Information on the non-conformance process will be included in Dispatch Procedure SO_OP_3705[11] and communicated in relevant industry forums.

2.3 Potential rule change

While the existing manual process for inverter management is in accordance with the terms set out in the NER (for both AEMO and participants), AEMO is currently considering whether a rule change is required to provide clarity for AEMO and participants as to compliance obligations in this area. This includes NER 4.9.2 (Instructions to Scheduled Generators and Semi-Scheduled Generators) and NER 5.2.6.1 which sets out the remote monitoring and control requirements for connections.

[10] For definitions of these standard terms, see Section 3.3.3 of AEMO published Limits Advice Guidelines at https://www.aemo.com.au/-/media/files/electricity/nem/security_and_reliability/congestion-information/2025/limits-advice-guidelines.pdf.

[11] At https://www.aemo.com.au/-/media/Files/Electricity/NEM/Security_and_Reliability/Power_System_Ops/Procedures/SO_OP_3705 Dispatch.pdf

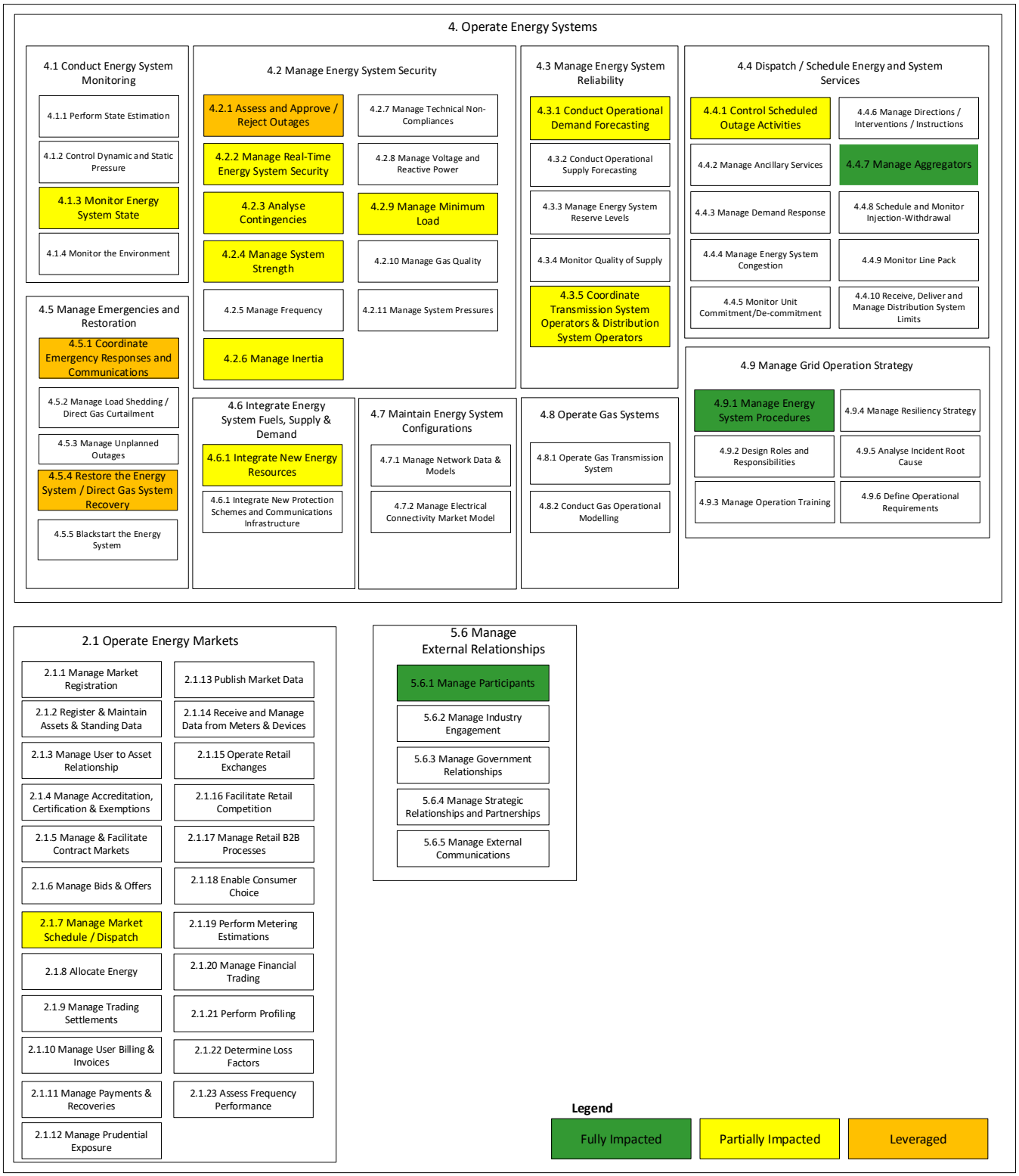
3 AEMO impacts

The section provides the key impacts to AEMO's processes, systems and interfaces from the Inverter Dispatch initiative.

3.1 Business Capability Model Impact

The below figure provides the impact complexity of the Inverter Management Systems project and the outcomes of a high-level Business Capability Model (BCM) mapping exercise conducted by AEMO.

Figure 2 Business Capabilities Model impact (heatmap)



Notes:

- Fully Impacted – Business Capabilities subjected to major changes due to proposed methodology and solution.
- Partially Impacted – Business Capabilities subjected to moderate changes due to proposed methodology and solution.
- Leveraged – Business Capabilities being leveraged while delivering the proposed methodology and solution.

For further details of AEMO's Business Capability Model impact assessment, see Appendix A2.

3.2 AEMO systems impact

Table 2 summarises key system impacts for the initiative.

Table 2 Summary of AEMO systems impact

System	System description	Impact description	Impact (H, M, L)
EMMS	The Electricity Market Management System (EMMS) is the NEM wholesale system. EMMS provides such system functions as ancillary services, dispatch, market information, NEM reports, offers and submissions, settlements and prudentials, and trading facilities.	Calculation of Inverter Limits based on constraints Right Hand Side (RHS) and writing it back to NEM DB	M
EMS	An Energy Management System (EMS) is a sophisticated software platform designed to monitor, control, and optimise the performance of the electrical power grid in real time. It integrates advanced power system applications to ensure the reliability, efficiency, and stability of electricity supply.	New application for automation of inverter limit communications to Participants	H
ICCP	Network link between TNSP and AEMO	Configuration changes for sending the inverter limits to TNSP	L
NEM Reports	EMMS NEM Reports	Inclusion of Inverter limits and conformance information for NEM reports to be shared with participants	M
Market Portal	Market Portal is a gateway to information published by AEMO for participants. Participants can login to the portal to access various information relevant for them related to schedule and dispatch.	Inclusion of the Inverter limits for each Dispatch Interval	L

3.3 Procedure impacts

AEMO is currently assessing impacts of this initiative to its procedures and/or guidelines. Current impacts identified include:

- Pre-Dispatch Procedure SO_OP_3704[12] – changes to introduce the limits on inverter numbers online/available in Unit Specific data (see Section 4.2),
- Dispatch Procedure SO_OP_3705[13] – changes to introduce the limits on inverters online/available for semi-scheduled generating units, and AEMO's proposed conformance monitoring arrangements (see Section 2.4 and Section 3),
- potential impacts to connection documentation to clarify that connecting IBR must respond to provided inverter limits, and
- if required, minor/administrative amendments to AEMO's constraint guidelines to clarify how inverter limits are implemented via constraints and applied in AEMO's dispatch processes, including the Constraint Implementation Guidelines (CIG)[14].

[12] At https://www.aemo.com.au/-/media/files/electricity/nem/security_and_reliability/power_system_ops/procedures/so_op_3704-predispatch.pdf?la=en.

[13] At https://www.aemo.com.au/-/media/Files/Electricity/NEM/Security_and_Reliability/Power_System_Ops/Procedures/SO_OP_3705 Dispatch.pdf.

[14] At https://www.aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2023/constraints-implementation-guidelines/final-constraint-implementation-guidelines-v3.pdf?la=en.

AEMO will consider whether any fact sheets or guides are warranted as part of this initiative, to support stakeholder understanding of inverter management in the NEM. AEMO will endeavour to provide drafts of any changes to invite stakeholder feedback.

Further information regarding procedure impacts will be provided in future updates to this HLIA, and at AEMO's NEM Reform EWCF[15].

[15] See https://www.aemo.com.au/consultations/industry-forums-and-working-groups/list-of-industry-forums-and-working-groups/electricity-wholesale-consultative-forum.

4 Proposed system solution

As noted above, AEMO control room operators and IBR participants rely on a manual process to manage inverter limits and maintain power system security. This approach contributes to power system risks, operational inefficiencies, communication delays, and limited traceability. The lack of automation and real-time visibility also makes it challenging to enforce inverter constraints and monitor compliance effectively.

This manual burden is a key driver for the implementation of the Inverter Dispatch initiative, to enhance AEMO's ability to maintain and manage power system security, streamline communication, automate provision of inverter limits and provide near real-time monitoring of inverter responses.

In line with the initiative's objectives, AEMO considered several options for inverter management. The proposed solution, using existing SCADA and market systems for sending Inverter Limit requests to market participants via Market Management System and SCADA Inter-Control Centre Communications Protocol (ICCP) systems, was selected for being able to deliver maximum value by:

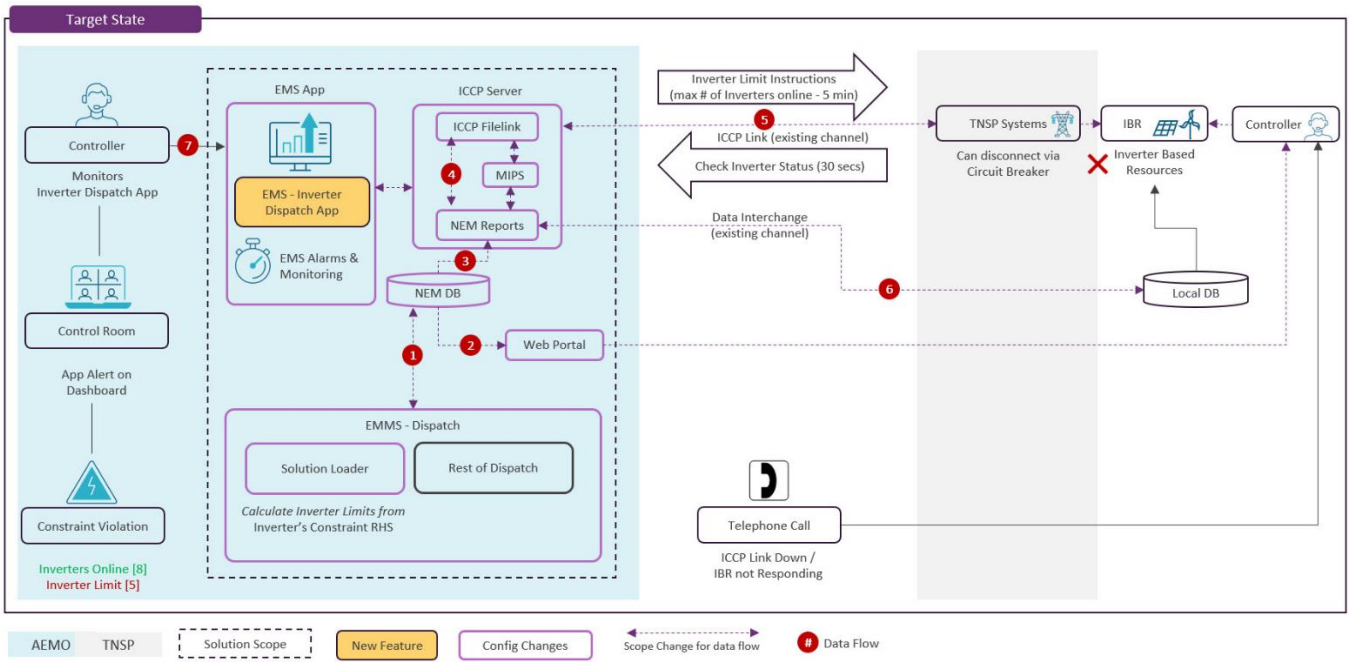
- using proven methodology for solution delivery using existing functional blocks (in constraints and NEMDE) to minimise implementation costs,
- addressing issues and reducing risks related to maintaining AEMO's core obligations, and
- allowing for maximum coverage of the IBR in the NEM.

4.1 Context diagram

Figure 3 below provides a high-level solution of the proposed 'Target State' of the Inverter Management System including process and data flows between AEMO's NEM Control Rooms and IBR and TNSP systems.

Table 3 provides a description of each component included in the proposed Inverter Dispatch solution.

Figure 3 High Level Solution – Inverter Management System using SCADA and Market Systems



Data Flow Details

1. Bi-directional data exchange between NEMDB and EMMS (Solution Loader) for calculating Inverter Limits
2. Sending Inverter Limits to Web Portal
3. Extract, format and publish the relevant information in the NEM reports to be available for participants
4. Real-Time data transfer from NEM Reports to ICCP
5. Sending Inverter limits to TNSPs and IBRs over ICCP links via EMS SCADA
6. Sharing the Inverter Limit operational data from NEM reports in a structured format over Data Interchange
7. AEMO Control Room Operator logging into EMS Application

Table 3 Description of solution components

Component name	Component Description
EMS – Inverter dispatch app	This new application is proposed to be built to provide AEMO's control room with monitoring capability, for visibility of inverter limits in place via AEMO's EMS, and a conformance monitoring display and alarms based on 'Timers' (see Section 4.1.1 below).
EMMS - Dispatch	The dispatch process will calculate the maximum number of inverters allowed online based on the constraints invoked. Dispatch results are then written back to the NEM DB.
NEM DB & NEM Reports	Data from AEMO's internal database 'NEM DB' is extracted, formatted, and published as structured outputs in NEM Reports, which are made available to market participants and stakeholders via AEMO's reporting platforms. This data is planned to include the maximum number of inverters to be online, as well as conformance monitoring information. Reports are published to the Participant File Server, where they are accessed by participant-side tools for replication into local databases.
Market Portal	The maximum number of inverters to be online, to be published for each DUID via Market Portal for each trading interval.
Data Interchange	Operational data from NEM Reports is extracted and formatted for structured export via the Data Interchange (DI) system and communicated to participants.
SCADA / ICCP Link between AEMO, TNSPs & IBR operators	Inverter limits will be transmitted over existing ICCP links via EMS SCADA to TNSPs and IBR to support monitoring, control, and coordination for IBR. SCADA signals will operate in the same way as existing MW targets and the Semi-Dispatch cap which are already sent out. This already includes transmission of the number of inverters online 'Inverter status' (from participant to AEMO) and is proposed to also include (if applicable) 'Inverter limits' (from AEMO to participant) on the number of inverters online.
Participant systems	Participant-side tools retrieve and load data, from both the DI and (optionally) ICCP Link into their local databases for operational use.
Telephone call	By exception, telephone calls are used for communication (for example, in the event of non-conformance or if other communication channels are not working).

4.1.1 Non-conformance system implementation

As set out in Section 2.2.1, conformance monitoring of IBR response to IBR limitations is planned for delivery as part of this initiative, and uses similar naming to the conformance process for energy dispatch for ease of use by participants, but different trigger thresholds and timing, reflecting AEMO's power system security obligations. The inverter limitations are a maximum limit on the number of inverters online, and the conformance process will check that the number of inverters online (provided by existing SCADA signals) is equal to or less than the current applicable limit.

Conformance status will be communicated via NEM Reports, with similar status format to that of energy dispatch[16].

4.2 Interim solution

Given the urgency of the solution and potential for participants to want to adopt a more streamlined approach early, AEMO has adopted an interim measure, delivering part of the above-described solution early.

As part of the interim solution, AEMO intends to provide inverter limits via market systems (MMS Data Model), by March 2026. Relevant Data Model updates went into AEMO's Production environment on 19 November 2025 – please refer to EMMS Technical Specification – Data Model v5.6 – November 2025[17]. As listed in Sections 11.19, 20.17 and 22.14, these inverter limits would be issued every five minutes and for dispatch, 5-minute pre-dispatch, and 30-minute pre-dispatch.

AEMO has begun a series of one-on-one engagements with affected participants and stakeholders to seek their feedback on the existing manual inverter dispatch approach and on AEMO's proposed interim solution for Inverter Dispatch. AEMO will work with interested participants to support adoption of the interim solution. When interested market participants are ready to adopt the interim solution, AEMO will rely on them responding to inverter limits sent to them via Market Systems, removing the need for communications via phone call.

Any participants interested in adopting the interim solution are encouraged to reach out to AEMO by email to NEMReform@aemo.com.au.

[16] At https://www.aemo.com.au/-/media/Files/Electricity/NEM/Security_and_Reliability/Power_System_Ops/Procedures/SO_OP_3705 Dispatch.pdf.

[17] At https://di-help.docs.public.aemo.com.au/Content/Data_Model/MMS_Data_Model.htm.

5 Participant impacts

This section focuses on the impacts to external stakeholders from AEMO's proposed Inverter Dispatch solution.

5.1 Impacted external stakeholders

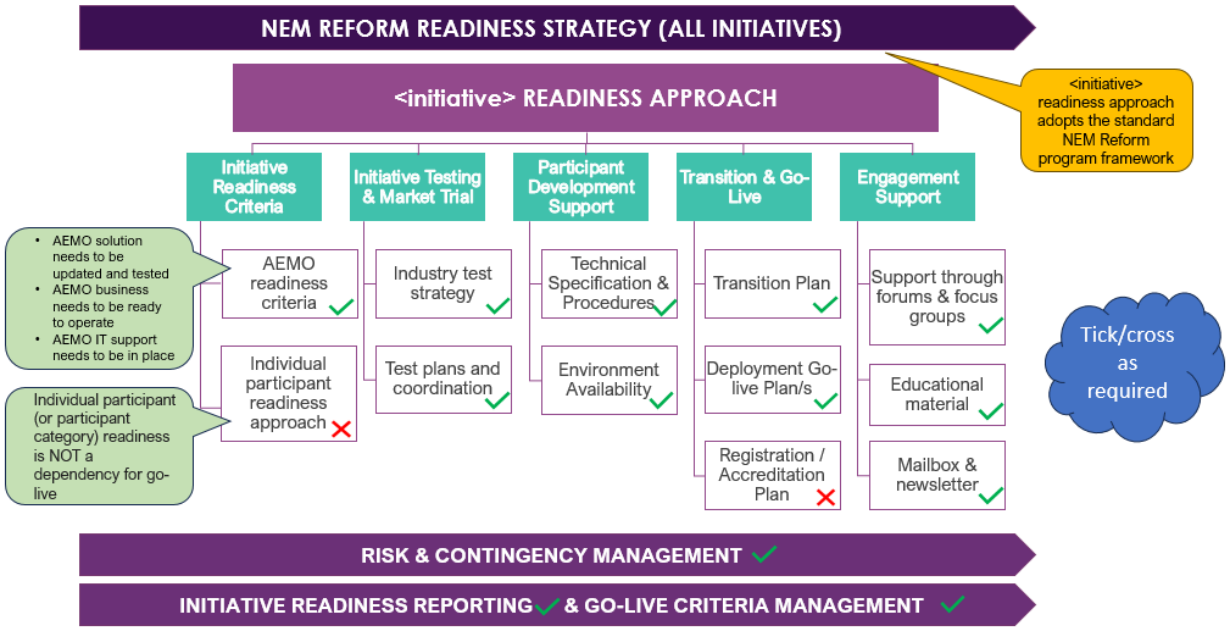
Table 4 Impacted external stakeholders

Participant category	Potential impact description
Participants	• Change in the way the participant receives inverter limits from AEMO. • System changes to electronically receive inverter limits from AEMO. • Process, system, and potentially control system changes may be required to respond to inverter limits. The degree of change will depend on current IBR control system and software system arrangements, and participant decision of degree of automation chosen. • AEMO is investigating whether potential changes to Generator Performance Standards for new and existing participants are required as part of the proposed Inverter Dispatch solution. • Potential changes with external service providers, for example in the use of third-party vendors for interface between participant and AEMO. • Potential process changes to ensure conformance with inverter limitations.
TNSPs	• Change to information TNSP receives from AEMO, to include inverter limit SCADA signal over existing ICCP. • Some process and system changes may be required.

5.2 Readiness approach

This initiative will adopt a readiness approach that is consistent with AEMO's NEM Reform Readiness Framework (see Figure 4). AEMO will propose a readiness approach for this initiative within the next version of this HLIA.

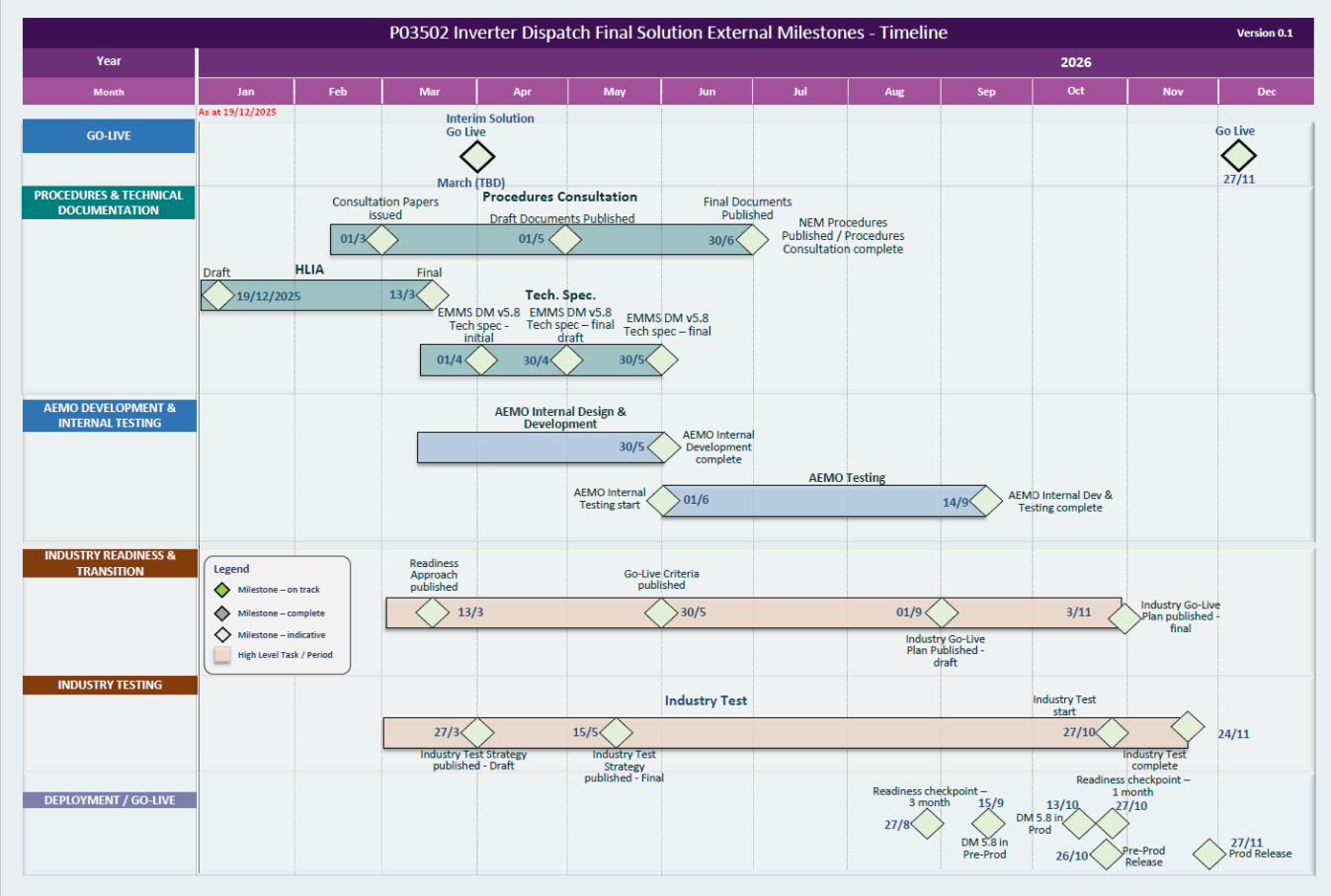
Figure 4 AEMO's NEM Reform Readiness Framework – to be completed for this initiative



6 Indicative implementation timeline and risks

The figure below provides an indicative implementation pathway for the Inverter Dispatch initiative. AEMO will provide updates to this timeline in future updates to this HLIA and via its NEM Reform forums[18].

Figure 5 Indicative project implementation timeline



[18] See https://www.aemo.com.au/consultations/industry-forums-and-working-groups/list-of-industry-forums-and-working-groups.

6.1 Risk impact ratings and mitigation strategies

Table 5 Initial assessment of the Inverter Dispatch key implementation risks

Identified risk	Current rating	Mitigation strategies	Residual rating
Participant preparedness to make relevant process and systems changes	Medium	• Early engagement and clear communication of indicative timeframes to drive awareness with participants and enable consideration of system and process changes. • Resource initiative for high levels of stakeholder engagement. • Provision of interim solution for early adopters.	Low
Initiative unable to be delivered in time to meet urgent need for a less-manual approach, so that AEMO can manage power system security	Medium	• AEMO planning for a 2026 implementation date. • AEMO introducing interim approach to accommodate early adoption, potentially by participants most affected by current manual arrangements. • Where possible, leverage existing systems and processes to minimise implementation complexity for participants and AEMO.	Low

See Appendix A1 for description of impact ratings.

A1. Impact ratings

Table 6 Description of AEMO's reform impact ratings for industry systems, processes and documentation

Impact rating	Description	Comments
No impact	• No change's to AEMO or industry systems, processes, guidelines, or procedures • Stakeholder consultation not required	• No changes
Immaterial	• Immaterial impact to AEMO or industry systems, process, guidelines, or procedures • Stakeholder feedback sought	• Immaterial administrative changes to AEMO procedures and/or guidelines, purposes of consistency • Immaterial changes or additions to existing business processes and/or technology systems • Stakeholder consultation not required
Low	• Low impact to AEMO or industry systems, processes, guidelines, or procedures • Stakeholder consultation may be required, or feedback sought	• Minor changes, additions, or updates to AEMO procedures and/or guidelines, purposes of consistency • Minor changes, additions, or updates to existing business processes and/or technology systems • Stakeholder consultation not anticipated but may be required
Medium	• Medium impact to AEMO or industry systems, processes, guidelines, or procedures • Stakeholder consultation required	• Material changes or additions to AEMO procedures and/or guidelines • Significant changes or additions to existing business processes and/or technology systems • Stakeholder consultation required
High	• High impact to AEMO or industry systems, processes, guidelines, or procedures • Stakeholder consultation required	• Significant changes, additions, or creation of new AEMO procedures, and/or guidelines • Significant changes, additions, or the creation of new business processes and/or technology systems • Stakeholder consultation required
Very High	• Large impacts to AEMO or industry systems, processes, guidelines or procedures • Stakeholder consultation required	• Large changes, additions or creation of new AEMO procedures and/pr guidelines • Major changes, additions or creation of new business processes and/or technology systems • Stakeholder consultation required

A2. Details of AEMO Business Capability Model

AEMO BCM (Business Capability Model) is AEMO's internal capability matrix that aligns the processes and functionalities of different teams and departments to AEMO's business value chain. Table 7 lists the AEMO business capabilities impacted by the Inverter Management System (Inverter Dispatch) work.

The impact is highlighted to different dimensions:

- process – impact on the current processes and methodology,
- technology – impact on the solution, tools, systems and technological components,
- data – impact on the various operational parameters, information and insights which support decision-making, and
- people – impact on the individuals and their skills, and ability to execute the activities.

Table 7 Business Capability Impacts (for People/Process/Technology/Data)

Business capability	Type of impact (direct/ partial/leveraged)	Impacted dimension (people, process, technology, data)	Impact description
2.1.7 Manage Market Schedule / Dispatch	Partially Impacted	Process, Data	To analyse and optimise inputs, according to agreed parameters and schedule dispatch of energy within the physical network. The impact also includes functions to monitor, control and manage generation capacity and availability (including DER assets) to meet energy needs in synchronisation with other recipients.
4.1.3 Monitor Energy System State	Partially Impacted	Process, Data	Impact on the network topology and the grid parameters at nodal level.
4.2.1 Assess and Approve/Reject Outages	Leveraged	Process	The assessment of the outages to decide its approval/rejection and respond to those outages accordingly.
4.2.2 Manage Real-Time Energy System Security	Partially Impacted	Process, Data	Assessment of the current state of the power system to identify potential issues in the event of a disturbance and recommend possible mitigations (for example, operating limits, activate protection schemes, procure additional services, issue instructions/directions).
4.2.3 Analyse Contingencies	Partially Impacted	Process, Data	Assessment and handling of planned or unplanned contingencies while maintaining the power system secure and stable.
4.2.4 Manage System Strength	Partially Impacted	Process	Assessment of the end-to-end activities associated with management of system strength such as modelling, monitoring, and analysing with consideration to IBR.
4.2.6 Manage Inertia	Partially Impacted	Process	Impact assessment for inertia requirements for each inertia sub-network in accordance with the inertia requirements methodology.
4.2.9 Manage Minimum Load	Partially Impacted	Process, Data	Impact assessment from power system conditions associated with minimum load including voltage, fault levels (system strength), synchronous generator operating levels, and under-frequency load shedding scheme effectiveness.

Business capability	Type of impact (direct/ partial/leveraged)	Impacted dimension (people, process, technology, data)	Impact description
4.3.1 Conduct Operational Demand Forecasting	Partially Impacted	Process, Data	Assessment of the short-term forecasting capability to primarily manage demand at 5-minute intervals also linking to communication with scheduled generation for achieving dispatch targets.
4.3.5 Coordinate Transmission System Operators & Distribution System Operators	Partially Impacted	Process	An ability to coordinate with TNSP and DNSP.
4.4.1 Control Scheduled Outage Activities	Partially Impacted	Process	Capability to plan, communicate, co-ordinate, schedule and respond to planned outages including notification to external and internal stakeholders.
4.4.7 Manage Aggregators	Fully Impacted	Process	Capability to monitor, forecast and schedule the assets owned by utilities/third party and its operational activities.
4.5.1 Coordinate Emergency Response & Communications	Leveraged	People, Process	Capability to respond to emergency situations and associated correspondence with relevant departments, participants and authorities.
4.5.4 Restore the Energy System	Leveraged	Process	Impact on the capability of coordination with power stations to be restarted and connected following a major supply interruption.
4.6.1 Integrate New Energy Resources	Partially Impacted	Process, Technology	Integrating new energy resources (with different technical and geographical attributes) into existing energy generation mix without compromising system reliability and security.
5.6.1 Manage Participants	Fully Impacted	People, Process, Technology	Capability focusing on the service element of the operations management including interaction with participants (outside of connections and registration).