AusNet

Transmission Revenue Reset

TRR (2027-32)

Revised Proposal Addendum:
Advanced Energy Management System (AEMS)

Date: 1 September 2026

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Document history

DATE	VERSION	COMMENT
30/07/2026	V1.0	Draft business case addendum
18/08/2026	V2.0	Updated to incorporate SME review
30/08/2026	V3.0	Final Revised Proposal

Related documents

DOCUMENT	VERSION	AUTHOR
4.2.09 AusNet - Revised Digital NPV model - 1 Sep 2026 - SOCI ACT PROTECTED	V2.0	AusNet Services
4.2.12 AusNet - Wipro - Other Programs Cost Basis Report - 1 Sep 2026 - SOCI ACT PROTECTED	V1.0	Wipro
Appendix 4E Instrument of Delegation	V1.0	AEMO

Approvals

POSITION	DATE
Digital & Technology – Strategy, Regulatory and Partner Management	August 2026
Digital & Technology – Architecture	August 2026
Transmission – Network Operations	August 2026
Transmission – Strategy and Regulation	August 2026

Executive Summary

The Advanced Energy Management System (AEMS) is a technology platform used by AusNet to monitor and control the transmission network in real time, manage planned and unplanned outages, and optimise decision making. It is critical to managing network operations, to prevent the risk of network outages that would cause widescale disruption to Victorians. It is also essential for AusNet to undertake planned outages in an efficient way to ensure that market prices can be as low as possible for customers.

In our initial Regulatory Proposal, we identified the need to enhance AusNet's Advanced Energy Management System (AEMS) capabilities during the 2027–32 regulatory period to support the reliable and secure operation of the Victorian transmission system. Our assessment recognised that increasing penetration of inverter-based renewable generation, together with a growing volume of planned outages associated with network augmentation and asset replacement, will significantly increase operational complexity.

Based on a capability gap assessment and benchmarking against peer transmission businesses, we identified four priority areas for investment: enhancing emergency and contingency response, improving network visibility and operational decision-making, strengthening controller capability through improved tools and training, and modernising outage planning and switching management systems.

The AER's Draft Determination recognised the need for AEMS investments and approved the expenditure associated with the majority of AusNet's proposed AEMS program. However, the Draft Determination did not approve the expenditure associated with some proposed initiatives. The AER's Draft Decision adjusted the proposed capex as set out in **Table 1** below.

Table 1 – AusNet's initial proposal and AER's Draft Decision expenditure ($m, real 2027)

Cost item	AusNet Initial Proposal	AER Draft Decision	AER Adjustment
Capex	81.4	59.1	-27%
Opex	15.9	8.8	-45%

The AER's Draft Determination identified issues with the proposed benefits for certain initiatives. AusNet's Revised Proposal has sought to address these concerns as set out in **Table 2**. We note that AER staff also provided additional feedback to AusNet after the Draft Determination on their concerns with particular initiatives, which we have addressed as part of this Revised Proposal.

Table 2 – AER Draft Decision feedback and how AusNet has addressed feedback in this Revised Proposal

AER Draft Decision Feedback	How this has been addressed in AusNet's Revised Proposal
AusNet included unclear or tenuous benefits in its analysis that may not be realised by customers, for example for the initiatives 'passive knowledge management', 'UAV inspection', and 'security cameras for network purposes'.	We have sought to re-assess the benefit of each initiative that has been included in the Revised Proposal, and provide more clarity on the basis for the benefits and the methodology used to calculate them. As a result of this updated assessment, three initiatives have been deferred to the next period: • PMU data for incident response and investigation • TASM Phase 3 • UAV/Drone Inspection
A number of benefits were double-counted where they overlapped between items, for example we consider the benefits for 'load forecast by feeder' and 'DPV forecasts for modelling' duplicate those for 'connection asset demand management'.	We have provided further information on the 'load forecast by feeder' and 'DPV forecasts for modelling' initiatives, seeking to demonstrate where the benefits of these programs relate to mitigating the risk of load shedding of highly utilised transmission feeders, as opposed to opportunities for demand management.

Relevantly, since our Initial Proposal, the Australian Energy Market Operator (AEMO) released the draft Transmission System Operational Capability Framework (TSOCF). The TSOCF has been developed collaboratively with Transmission Network Service Providers (TNSPs) to establish a common framework and expectations for the operational capabilities required to securely operate the National Electricity Market (NEM) as the energy transition accelerates. Following the release of the draft TSOCF, we have confirmed alignment with the vast majority of the proposed AEMS initiatives with reference to the TSOCF capability expectations.

In our Revised Proposal we have incorporated the AER's feedback and assessment of the draft TSOCF. From this assessment, our Revised Proposal incorporates 5 of the 8 initiatives removed in the AER's Draft Determination, with further benefit justification provided to support these items and address the AER's specific concerns.

Additionally, since our Initial Proposal, we have been subject to a new regulatory requirement with the Instrument of Delegation between AEMO and AusNet services made under Clause 4.3.3 of the National Electricity Rules replaced on 1 July 2026. The revised delegation provides AusNet Transmission with the expectation and authority to take whatever action is necessary to restore or maintain the transmission network in Victoria to a satisfactory operating state while there exists a breakdown in all communications facilities between AusNet's control centre and the AEMO coordinating control centre. To meet this new regulatory obligation of control functionality in the absence of AEMO, our Revised Proposal also includes investment in secure and direct data connection between AusNet and other TNSPs and DNSPs.

Based on these assessments and new requirements, AusNet's Revised Proposal for the AEMS program includes $73.9m capex and $13.8m opex ($real 2025, with all costs 100% transmission allocated). This represents a $0.1m capex increase and $1.3m opex decrease relative to AusNet's Initial Proposal. The expenditure profile through the 2027-32 regulatory period is detailed in **Table 3** below.

Table 3 - Forecast expenditure for AusNet's Revised Proposal ($m real 2025, transmission network allocated costs)

Cost item	RY2028	RY2029	RY2030	RY2031	RY2032	Total
Capex	10.5	18.6	14.3	14.0	16.5	**73.9**
Project Implementation Opex ("propex", non-recurrent opex)	2.0	0.0	0.0	0.0	0.0	**2.0**
Ongoing Licences & Support Opex (recurrent opex)	0.4	1.3	2.3	3.7	4.0	**11.8**
Total	**12.9**	**20.0**	**16.6**	**17.7**	**20.5**	**87.7**

1. AusNet's proposal and AER Draft Determination

The Advanced Energy Management System (AEMS) is a technology platform used by AusNet's transmission business to monitor and control the transmission network in real time to minimise the risk of system blacks or station blacks that could cause widescale outages for Victorians. The AEMS is also essential for AusNet to manage outages and undertake planned outages in an efficient way to ensure that market prices can be as low as possible for customers.

This section summarises AusNet's initial 2027-32 regulatory period proposal for AEMS initiatives s, AusNet's responses to AER information requests, and the AER's Draft Decision findings and subsequent specific feedback to AusNet on its Draft Decision.

1.1. Initial Proposal summary

In our initial proposal, AusNet identified a need to further enhance our AEMS capabilities in the TRR 2027-32 period to maintain the reliability and security of the national electricity system, consistent with the National Electricity Objective. A key driver of enhanced capabilities was the need to mitigate the increasing risk of system and station blacks associated with increasing renewables on the power system. A further driver was the need to more efficiently manage a growing number of planned outages in the TRR 2027-32 period as we undertake upgrades and replacements, and as the network continues to age. This was to mitigate the impact of planned outages on higher wholesale prices.

Through a capability gap assessment, we identified four broad needs in the TRR 2027-32 period requiring AEMS investments:

- Uplift emergency and contingency response (system black) – we identified a need to enhance our wide-area monitoring and simulation training to mitigate increasing risk of system blacks.
- Mitigate risk of increased unplanned outages (station black) – we identified a need to improve the accuracy of our ratings and model management and to improve visibility of the impact of rooftop solar on our terminal substations.
- Improve effectiveness of controllers in a more complex environment – to ensure that we can meet the increased cognitive load of controllers, we identified a need to improve our training and knowledge, data and tools to such that we minimise the need to increase resources.
- Optimise planned outages – We identified a need to enhance our Transmission Access and Switching Management (TASM) system to more effectively manage the increasing number of planned outages on the network. This will reduce the constraints on low-cost generation dispatch.

The proposed AEMS expenditure in our initial proposal was $73.8m capex and $15.1m opex ($real 2025), as shown in **Table 4** below.

Table 4 - Initial Submission Forecast Expenditure for AEMS ($m, real 2025)

Cost item	RY2028	RY2029	RY2030	RY2031	RY2032	Total
Capex	$12.0	$15.0	$14.3	$16.0	$16.5	**$73.8**
Project Implementation Opex ("propex", non-recurrent opex)	$3.3	$0.0	$0.0	$0.0	$0.0	**$3.3**
Ongoing Licences & Support Opex (recurrent opex)	$0.4	$1.3	$2.3	$3.7	$4.0	**$11.8**
Total	**$15.7**	**$16.3**	**$16.6**	**$19.7**	**$20.5**	**$88.8**

1.2. Response to AER Information Requests

The AER issued information requests relating to the AEMS after we submitted our initial regulatory proposal. **Table 5** summarises the AER's questions and our response.

Table 5 Summary of AER information requests related to AEMS

Ref	Summary of AER Question	Summary of AusNet's response
IR013	The AER sought program wide information or each initiative including gap analysis, options assessment, quantified benefits, and cost build-up.	AusNet provided a comprehensive response in a table based on each of the AER's requirements. AusNet also provided detailed information on our benefits methodology and assumptions.
IR017	The AER sought further evidence and justification for HMI upgrades, alarms management, TASM phase 2 and the system uplift restart initiatives.	AusNet provided additional information to address each of the AER's questions in respect to the specific initiatives.
IR018	The AER sought further specific information on the capabilities of the System Restart uplift and how TASM Phase 2 would improve outage planning beyond existing arrangements.	AusNet provided more information on the current gaps in capabilities for System Restarts and how the initiative would address these gaps. AusNet also included more information to show how TASM Phase 3 would support outage planning.
IR019	The AER sought further clarity on the scope of Phase 2 and Phase 3 of the proposed TASM initiatives	AusNet noted that TASM Phase 2 would focus on implementing automation capabilities within the [C-I-C] environment, while Phase 3 would enable TASM to operate as a fully integrated access and switching management platform.

1.3. AER Draft Determination feedback

The AER's Draft Determination accepted 13 AEMS initiatives proposed by AusNet. The AER considered that the benefits were not substantiated or duplicative for 8 AEMS initiatives and excluded these expenditures from its alternative forecast. The resulting Draft Determination contained an alternative forecast of $59.1m capex and $8.8m opex ($real 2025).

The AER's Draft Determination provided reasoning for the excluded initiatives as follows:

- The AER raised concerns with the benefits calculation for the Advanced Energy Management System project. In some cases, AusNet included unclear or tenuous benefits in its analysis that may not be realised by customers, for example 'passive knowledge management, UAV inspection, and security cameras for network purposes'.
- The AER also considered that a number of benefits were double-counted where they overlapped between items, for example we consider the benefits for 'load forecast by feeder' and 'DPV forecasts for modelling' duplicate those for 'connection asset demand management'.

The AER stated that AusNet should provide evidence that shows how the excluded items are prudent and efficient by clearly mapping the discrete benefits these items deliver to customers.

Subsequent to the AER's Draft Decision, we sought AER staff guidance on the reasons for not accepting each of the 8 AEMS initiatives. This is discussed further in Section 2.2 of this document.

2. Revised Proposal

In this section, we set out our Revised Proposal for the AEMS including inputs from new expectations and regulatory requirements since submitting our Initial Proposal. With consideration of these and the AER's Draft Determination feedback, this section details the Initial Proposal initiatives we seek to include in our Revised Proposal with additional supportive assessment, and a new initiative required as a consequence of the new regulatory requirement.

2.1. New expectations and regulatory requirements

Our Revised Proposal has considered new regulatory requirements including AEMO's Draft Transmission System Operational Capability Framework and the replacement of AEMO's delegation agreement with AusNet Services made under the National Electricity Rules.

Draft Transmission System Operational Capability Framework

Following the development of AusNet's Initial Proposal, AEMO released the draft Transmission System Operational Capability Framework (TSOCF). The TSOCF has been developed collaboratively with Transmission Network Service Providers (TNSPs) to establish a common understanding of the operational capabilities required to securely operate the future National Electricity Market (NEM) as the energy transition accelerates.

The framework recognises that the future transmission system will require significantly greater operational capability than the traditional power system due to increasing levels of inverter-based resources, greater system complexity, growing dependence on digital technologies, increased cyber security risks, and the need for closer coordination between AEMO, transmission businesses and distribution networks. The framework provides a structured method for identifying capability gaps, prioritising investment and coordinating capability uplift across AEMO and all TNSPs.

While the TSOCF was not available during preparation of our Initial Proposal, the framework provides a nationally consistent reference against which AusNet's proposed initiatives can now be assessed. The framework validates many of the capability gaps previously identified by AusNet. In particular, there is strong alignment between the Regulatory Proposal and the TSOCF as set out in Appendix A. This provides increased confidence that the capability uplift identified by AusNet is consistent with the direction now being established across the National Electricity Market.

Replacement of AEMO delegation

AEMO has the power under clause 4.3.3(a)(1) of the National Electricity Rules to delegate its rights, functions and obligations under Chapter 4 of the NER. A replacement instrument of delegation was agreed between AEMO and AusNet Transmission on 1 July 2026 (subsequent to our initial proposal). In that agreement, AEMO has specified certain of its rights, functions and obligations that it wishes to delegate to AusNet under clause 4.3.3(a)(1) of the NER as set out in Schedule 1 of the agreement. Refer to "Appendix 4E" for a copy of the executed instrument of delegation.

Relevantly, AusNet may take whatever action is necessary to restore or maintain the transmission network in Victoria to a satisfactory operating state while there exists a breakdown in all communications facilities between AusNet's control centre and the AEMO coordinating control centre. As discussed in Section 2.3, we have identified a gap in our capability to perform the delegated function primarily because we do not have a secure direct communication channel to other transmission network providers.

2.2. Re-evaluation of initiatives not accepted in AER Draft Determination

The AER's Draft Determination did not accept 8 AEMS initiatives from our initial proposal. In addition to the rationale provided in the Draft Determination, AER staff provided further guidance on their reasons for not accepting these initiatives. In developing our Revised Proposal, we have considered the feedback provided by the AER and have accepted removal of 3 initiatives.

Our Revised Proposal includes the remaining five initiatives, supported by additional information and updated cost-benefit modelling to address the AER's concerns. In addition to the original pooled benefits assessment, we have identified and quantified initiative-specific benefits to provide a more direct demonstration of value.

Table 6 sets out AusNet's Revised Proposal and a summary of the additional information we are providing to support our revisions. Further detail for each of the initiatives follows.

Table 6 – Summary of AusNet's Revised Proposal for initiatives not accepted in AER Draft Determination

Initiatives not accepted in Draft Determination	Capex ($m)	Opex ($m)	AusNet's Revised Proposal basis
Distributed Photovoltaics (DPV) Forecasts for modelling	[C-I-C]	[C-I-C]	We have identified new benefits for this initiative related to reduced cost to consumers due to avoided transformer overload related load-shed events.
Load forecasting by feeder	[C-I-C]	[C-I-C]	We have identified new benefits for this initiative related to reduced cost to consumers due to avoided transformer overload related load-shed events.
Geospatial threat monitoring and forecast	[C-I-C]	[C-I-C]	We have identified new benefits for this initiative related to reduced cost to consumers due to avoided weather-related load-shed events.
Passive knowledge management	[C-I-C]	[C-I-C]	We have identified new benefits for this initiative related to controller and access planner efficiencies. Additionally, we have provided further evidence demonstrating that the benefits of this initiative extend beyond internal productivity improvements and support stronger customer outcomes.
Security cameras for network purposes	[C-I-C]	[C-I-C]	We have strengthened existing benefits of reduced cost to consumers due to faster resolution of unplanned station-level incidents
TASM Phase 3	[C-I-C]	[C-I-C]	We have not included expenditure in our Revised Proposal for this initiative. While we see a future need for this project, we accept the AER's view that the scope of the solution is not well developed at this stage
PMU data for incident response and investigation	[C-I-C]	[C-I-C]	We have not included expenditure in our Revised Proposal for this initiative. We note that the project is a prerequisite for required for Wide Area Monitoring (WAM) which was approved by the AER. However, we note that the proposed expenditure was $0.2m, and some level of synergy may be available to develop the PMU data alongside WAM. As a result, we will seek to absorb this scope into the WAM project, to minimise the costs faced by customers to deliver this capability.
UAV/drone inspection	[C-I-C]	[C-I-C]	We have considered AER staff feedback that the program is likely to have additional costs that we have not fully scoped. While we consider the program has significant benefits[1], we are mindful of developing a more thorough understanding of the costs before proceeding with this project.

Appendix B also provides material which was presented to the Transmission Stakeholder Advisory Panel (TSAP) on the AEMS program, which provides a summary of how these initiatives would contribute to improved customer outcomes during a bushfire or maximum demand event, the likes of which were experienced in January 2026. This is provided to assist the AER in understanding how these initiatives could be practically applied in a real-life situation.

Distributed Photovoltaics (DPV) Forecasts for Modelling & Load Forecasting by Feeder

These two initiatives are closely related, with the primary objective of improving visibility and accuracy of the demand on AusNet's 66kV feeders to avoid load shedding events. In AusNet's response on 16 January 2026 to AER Information Request #13, we noted that the need for the Distributed Photovoltaics (DPV) Forecast initiative is a lack of visibility of rooftop solar connected to the transmission network. The proposed solution is to incorporate roof-top solar forecasts

[1] We refer to the positive experience of other transmission networks including Transgrid and ElectraNet (links below)
https://www.transgrid.com.au/media-publications/news-articles/transgrid-to-use-drones-to-make-transmission-line-inspections-safer
https://electranet.com.au/community-sustainability/landholders/aerial-inspections/

into contingency analysis. Similarly, the need for the Load Forecasting by Feeder initiative is that AusNet currently has no capability to forecast load at the feeder or 66 kV level.

Collectively, these two initiatives support the Operational Planning and Forecasting domain of AEMO's draft Transmission System Operator Capability Framework (TSOCF) by enabling earlier identification of emerging network constraints and more proactive management of load shedding risk.

AER staff have subsequently clarified their concerns with accepting the initiative in the AER Draft Decision. This includes:

> AER concern 1 - Need for a stronger benefit link between capability and customer outcomes.
>
> AER concern 2 - Clarity on whether forecasting reduces outage risk, improves network operations or defers future investments.
>
> AER concern 3 - Clarity on the missing information gap from distribution networks that require AusNet to invest separately, and whether there are opportunities for shared solutions.
>
> AER concern 4 - Whether the backstop mechanisms could manage the risk more cost effectively.

We note the AER's concerns on clarity of benefits to customers. For our Revised Proposal we have updated our benefit methodology for these initiatives to demonstrate that the primary benefit relates to mitigating load shedding events that disrupt electricity services to customers. These issues arise from a lack of visibility and accuracy of demand forecasts on transmission assets in real time due to volatility in solar and large emerging loads such as new housing developments.

Rooftop solar is creating greater volatility in short term demand, as recognised by AEMO[2]. For example, cloud banding can lead to a significant drop-off in generation, requiring a significant injection of imported electricity from transmission assets that may be close to full utilisation. In addition, weather events can lead to mass disconnection of rooftop solar. These events can cause significant increases in underlying demand, resulting in rapid loading increases across feeders, transformers and connection assets. A recent example was in 2024 when severe storms caused the collapse of six transmission towers on the Moorabool-Sydenham 500 kV lines. AEMO's subsequent analysis estimated that approximately 424 MW of DPV disconnected during the disturbance, representing around 21% of Victorian rooftop solar generation.[3]

Emerging loads are creating difficulties with accurately forecasting demand, particularly in peak periods. For example, rapid demand growth in the Cranbourne supply area created a credible risk of load shedding in the 2025/26 summer for more than 198,000 customers as a result of actual demand being higher than expected.[4] Similarly, rapid growth in western Melbourne increased loading at Keilor Terminal Station to the point where emergency overload management schemes were required to manage network security risk. To avoid these 'near misses', AusNet considers that the DPV forecasts and load forecasting by feeder capabilities will improves visibility of emerging demand hotspots, enabling earlier identification of network constraints to avoid load shedding events.

We note that the AER also questioned whether the emergency backstop mechanism could be a more cost-effective solution to address the underlying need. It is important to highlight that the emergency backstop is designed for system wide events such as Minimum System Load and not for asset capacity management. Distribution networks will only implement backstop controls under direction from AEMO[5], and not to address a capacity risk on the transmission network.

The AER also sought clarity on whether distribution networks have sufficient data to enable load forecasting on the transmission network. We note that distribution networks only assess distribution network assets and that this information is not sufficient or granular to estimate transmission forecasts. However, we note that the information that we collect under this new capability may have benefit to distribution networks, and we would look to assess how the data could be made available.

While we continue to consider the station black event benefits identified in the initial proposal to be relevant, we have re-evaluated the benefits attributable to these initiatives in response to the AER's feedback. Specifically, we have assessed their contribution to reducing the customer impacts associated with load shedding arising from transformer

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[2] AEMO's General Power System Risk Reviews identify increasing distributed PV penetration as an emerging power system security risk, noting that traditional assumptions regarding contingency response and under-frequency load shedding effectiveness are becoming less reliable as rooftop solar penetration increases. (https://www.aemo.com.au/-/media/files/initiatives/der/2021/capstone-report.pdfBF184AC51804652E268B3117EC12327A)

[3] https://www.aemo.com.au/-/media/files/electricity/nem/market_notices_and_events/power_system_incident_reports/2024/final-report---loss-of-moorabool---sydenham-500-kv-lines-on-13-feb-2024.pdf

[4] AEMO | Cranbourne RIT-T Project Assessment Conclusions Report

[5] Victoria's emergency backstop mechanism for solar

overload events. Based on this revised methodology, the initiatives deliver a combined NPV of $11.0 million, with benefits apportioned between the Distributed Photovoltaics (DPV) Forecasts for Modelling & Load Forecasting by Feeder initiatives, with both initiatives remaining NPV positive on a standalone basis.

The scope and associated costs remain unchanged from the Initial Proposal.

Geospatial Threat Monitoring and Forecast

As described in AusNet's response on 16 January 2026 to AER Information Request #013, this initiative unifies historical weather data, asset damage records and real-time geospatial threat monitoring into a single view for controllers. The initiative improves network reliability through prediction of weather-driven asset failures, supports customers by reducing outage impacts, boosts efficiency by enabling faster, risk-based prioritisation of field crew deployment, and strengthens safety by helping controllers identify and communicate emerging hazards to crews.

AER staff clarified their concerns with accepting this initiative in the Draft Determination. These concerns are summarised below, with the following section detailing our understanding of these concerns and providing further information to address them.

> AER concern 1 – Clarity on whether the same outcome can be achieved through a lower cost solution such as additional monitors.
>
> AER concern 2 – Unclear on how the system would reduce impact of outages.

We recognise that our Initial Proposal and subsequent responses may not have provided sufficient information for the AER to understand and appropriately assess the proposed initiative. For clarity, the initiative addresses a growing operational risk arising from fragmented threat monitoring processes. Controllers currently rely on multiple disconnected systems to monitor bushfires, severe weather and other environmental threats, increasing the likelihood that critical information is missed or identified too late.

The investment delivers a new geospatial threat monitoring capability that integrates network, weather and external intelligence into a single operational view, enabling earlier detection, improved situational awareness and more effective response to emerging threats. It is not a system consolidation initiative, but the establishment of a capability required to manage increasingly complex and dynamic network risks.

As geospatial threats become more frequent and dynamic, operators are required to monitor an increasing volume of information across multiple systems. Recent bushfire events demonstrated that fragmented information could delay threat identification and response, reducing the time available to protect network assets and customers.

By way of example, consider a situation where a bushfire is close to AusNet's transmission assets. The geospatial threat system would provide a single view of the risk to the asset from crowd sourcing data on wind speed not visible in Bureau of Meteorology data, security cameras, and alarms. With geospatial threat monitoring we can reduce time and impact (load shedding). For example, earlier visibility of network issues allows operators to reroute power through alternative sources. While the line may still trip, the resulting impact to customers from load shedding can be avoided.

This initiative is not merely a 'nice-to-have' investment to for an uncertain event, but an important capability uplift that prepares AusNet's control room for events which we are already experiencing, and that will likely occur more frequently in the future. In January 2026, the interconnector to NSW was lost multiple times due to bushfires. When the Dederang-Murray (NSW) line was lost, we experienced overloading on the Dederang-Wodonga line, demonstrating the potential knock-on effects of a bushfire in one area. When AusNet's network faces bushfires or other extreme weather events in the future, the geospatial threat monitoring and forecast initiative will be critical to allowing controllers to make safer and more rapid decisions, and ultimately restore power more quickly. Appendix B provides additional information on events experienced in January, and how the AEMS program would help AusNet respond more effectively if a similar event were to occur in the future.

Figure 1: Bushfires on Murray-Dederang line, January 2026

Furthermore, the initiative aligns with AEMO's draft Transmission System Operator Capability Framework (TSOCF), supporting the capability uplift required to improve operational resilience, situational awareness and risk management in response to increasingly dynamic network and environmental threats.

While we continue to consider the broader system black event benefits identified in the Initial Proposal to be relevant, we have revised the benefit modelling to assess the initiative's contribution to the reduction of customer impacts due to weather-related load shedding events. Specifically, the assessment quantifies the reduction in customer load at risk enabled by improved forecasting and monitoring of emerging geospatial threats, allowing earlier operational intervention. Based on this revised methodology, the initiative delivers a positive NPV of $2.6 million.

The scope and associated costs remain unchanged from the Initial Proposal.

Passive Knowledge Management

As described in AusNet's response on 16 January 2026 to AER Information Request #013, currently controllers rely on separate systems like SCADA for real-time telemetry, asset management platforms for equipment status, and documented procedures for compliance, but lack a unified capability to quickly interpret this information and provide real-time operational insights. Our proposed solution seeks to integrate with existing operational systems, including procedures, asset management platforms, and SCADA data.

AER staff clarified their concerns with accepting this initiative in the Draft Determination. These concerns are summarised below, with the following section detailing our understanding of these concerns and providing further information to address them.

AER concern 1 – Lack of clarity on scope of project.

AER concern 2 – More information to demonstrate that the technology is proven.

AER concern 3 - Given the relatively high cost, would need to demonstrate that it is not a minor productivity improvement.

We recognise that our Initial Proposal may not have provided sufficient information to support the initiative and its benefits to productivity. In respect of the scope, we had placed over-emphasis on the [C-I-C] AI capability, without explaining the [C-I-C] system that ultimately is the underlying solution.

[C-I-C] creates a common structure for electricity network data, bringing together information about network assets, operating conditions and electricity markets. It defines what things such as transmission lines, transformers, alarms and network constraints are, and how they relate to each other. This gives AI and analytics tools

the context to understand what the data means, rather than treating it as separate datasets, making it easier to search information, identify relationships, support decisions and automate tasks.

The initiative also aligns with the Real Time Network Operations domain of AEMO's draft Transmission System Operator Capability Framework (TSOCF), supporting the capability uplift required to manage increasingly complex network operating conditions through more effective use of operational information.

A practical example is a controller seeking to understand the best option to undertake a planned outage. It requires information on the capacity and connectivity of the asset, the operating conditions including wind and sun, and information on the electricity market. [C-I-C] would bring multiple datasets together to provide the information.

We continue to consider the original benefit associated with improving controller effectiveness in an increasingly complex operating environment to be relevant. Consistent with the Initial Proposal, these capability improvements expected to reduce forecast workforce growth from [C-I-C] p.a. Separately, we have identified an additional productivity benefit arising from passive knowledge management capabilities, which has also been extended to access planners. This benefit applies to the forecast controller and access planner workforce after the workforce growth reduction described above. The functionality is expected to recover approximately [C-I-C] of working time by reducing the effort required to gather, validate and synthesise information across operational systems, enabling further avoidance of forecast workforce growth. We have incorporated this benefit into our Revised Proposal NPV model, which results in this initiative realising a positive net present value of $1.6 million.

We recognise the AER's concern that benefits of this nature are primarily business benefits, as discussed with AER staff following the release of the Draft Determination. However, we confirm that these benefits genuinely impact customers, as reduced avoided operating costs for the business lead to avoided costs paid for by customers as well. We consider that the customer benefits of initiatives such as this one have been accounted for through the productivity improvement of 0.42% p.a. which forms part of the 'trend' component of our opex forecast. The productivity parameter is discussed in Chapter 4 of the Revised Proposal.

Furthermore, improved productivity also supports faster restoration of supply to customers in an emergency event. Where a transformer overload risk or network constraint is identified, the solution can help planners and controllers rapidly assess alternative operating arrangements by understanding network connectivity, asset relationships and system conditions. Rather than manually gathering information from multiple systems and analysing potential response options, staff can more quickly identify and evaluate feasible actions, such as transferring load or perform switching to relieve the constraint. This enables the most effective response to be identified more quickly, reducing the time resolve network events and minimise the time customers are without supply.

The scope of this initiative and associated costs remain unchanged from the Initial Proposal.

Security Cameras for Network Purposes

As described in AusNet's response on 16 January 2026 to AER Information Request #013, our security cameras at terminal stations are currently only used for perimeter monitoring. This initiative is to expand the capability of these existing station security cameras and enable controllers to zoom in on assets, identify if people are around assets before remotely operating them, visually review assets in response to alarms, calibrate current thermal security cameras to enable thermal imaging, and correlate load readings from SCADA to automatically generate work orders based on a rules engine.

AER staff clarified their concerns with accepting this initiative in the Draft Determination. These concerns are summarised below, with the following section detailing our understanding of these concerns and providing further information to address them.

> AER concern 1 – There appears to be an overlap with expenditure for security cameras proposed in the Physical Security business case.
>
> AER concern 2 – Clarity on the benefits or efficiencies that manifest to customers.

We have undertaken further analysis to confirm that there is no overlap with the physical security camera investment program, which are primarily in place for security of the site. The proposed digital expenditure is underpinned by the efficiency of utilising the camera to remotely monitor network assets from the control room. This requires expenditure to utilise a software enhancement capability within the security cameras, and to install additional cameras where the physical security cameras have network asset blind spots. The benefits include improved safety by looking around before operating assets, efficiency of response by looking around the asset for positive confirmation, and through thermal inspections being able to assess the temperature of assets remotely. [SOCI ACT PROTECTED]

To better clarify the differences between camera-related initiatives, the **Table 7** below provides a clear explanation of the differences in scope for each relevant program.

Table 7: Camera-related scope included in Revised Proposal

Cost type	**Physical Security capex program – CCTV scope**	**AEMS digital program – security cameras for network purposes scope**	[SOCI ACT PROTECTED]
Physical installation of cameras / poles (hardware)	YES	YES – incremental to Physical Security scope	[SOCI ACT PROTECTED]
Digital systems to enhance camera capability (software)	NO	YES	[SOCI ACT PROTECTED]
[SOCI ACT PROTECTED]	[SOCI ACT PROTECTED]	[SOCI ACT PROTECTED]	[SOCI ACT PROTECTED]

The initiative also aligns with AEMO's draft Transmission System Operator Capability Framework (TSOCF), supporting the capability uplift required to improve operational visibility, risk management, resilience and safe network operations in an increasingly dynamic operating environment.

Consistent with the broader station black event benefits identified in the Initial Proposal, we have assessed a specific use case for this initiative for our revised benefit case to strengthen our original benefit. We expect a productivity gain from being able to check assets, bypassing the security control room and perform thermal inspections on assets during events without waiting for inspection crews to mobilise and perform the check. We expect that transmission controllers with the ability of the camera software enhancements to take only 5 minutes on average to locate a specific asset and undertake thermal checks. This added functionality to our cameras removes the need to rely on communications to the security room or wait for field crews. We have assumed that [C-I-C] of the time, the camera checks are enough to proceed to the next step of remediation with an estimated saving of [C-I-C] minutes per event. These productivity benefits have been reflected in our Revised Proposal NPV model, with this initiative realising a positive net present value of $1.5 million.

The scope and associated costs remain unchanged from the Initial Proposal.

2.3. New Inter-Control Centre Protocol (ICCP) Links initiative (to meet new regulatory requirement)

As detailed in Section 2.1, since our Initial Proposal AusNet have been subject to a new regulatory requirement relating to AEMO delegations under the National Electricity Rules. The Instrument of Delegation between AEMO and AusNet made under Clause 4.3.3 of the National Electricity Rules was replaced on 1 July 2026. The revised delegation provides AusNet transmission with the authority to take whatever action is necessary to restore or maintain the transmission network in Victoria to a satisfactory operating state while there exists a breakdown in all communications facilities between AusNet's control centre and the AEMO coordinating control centre.

We have identified a gap in our current capability to meet this regulatory requirement. AusNet currently relies on AEMO as the primary communications pathway for exchanging operational data with neighbouring TNSPs. If the AEMO coordinating control centre communications are disrupted, AusNet will not have the necessary visibility of connected transmission and distribution networks.

The Inter-Control Centre Protocol (ICCP) is the secure, industry-standard protocol used to exchange real-time operational data and control signals between AusNet's Energy Management System (EMS) / SCADA, AEMO, and peer network control systems. These communications support coordinated load shedding, distribution-level control actions, and enable a coordinated response across multiple Distribution Network Service Providers (DNSPs) connected to a single transmission network. These communications also provide the real-time visibility required to monitor and manage power flows across interconnected transmission networks, enabling coordinated operation of the NEM.

Currently AusNet has secure direct ICCP communications with 4 of the 5 DNSPs connected to our transmission network. Communication with the remaining DNSP is via AEMO, as is communication and visibility of our neighbouring connected Transmission Network Service Providers (TNSPs; ElectraNet and Transgrid). In order for AusNet to enact required delegation authority when AEMO is disrupted, AusNet will require these communications to be via direct links.

To achieve this, our Revised Proposal includes a new investment to establish secure, direct ICCP communication links with two neighbouring TNSPs and implement the required AusNet-side capabilities to enable direct ICCP communications with the remaining DNSP. These connections will utilise AusNet-owned telecommunications infrastructure where feasible, minimising reliance on third-party telecommunications providers while to provide resilient operational communications connectivity.

The project includes the installation of new communications equipment, integration with existing network operating systems, implementation of appropriate cyber security controls, enhanced monitoring capabilities, and comprehensive end-to-end testing. Collectively, these improvements will provide a secure and reliable platform for operational data exchange during both normal network operations and particularly contingency events.

As this initiative is to ensure compliance with AEMO's delegations, AusNet has not completed full cost benefit analysis. However, we note that the potential impact to Victorian (and potentially NEM-wide) customers in the event of a transmission system outage due to lack of inter-network control connectivity in the absence of AEMO is very significant (over $2 billion as per AusNet's AEMS and Cyber Security program NPV assessments). The proposed investment will address the risk of this major disruption impact.

Outside of AEMO delegation requirements, the direct ICCP links will improve operational coordination, situational awareness and response during major network events, supporting the secure and reliable operation of Victoria's transmission network and aligning with AEMO's draft Transmission System Operator Capability Framework (TSOCF) capability uplift objectives.

The cost estimate for implementation of the 3 new ICCP Links has been developed by our delivery partner Wipro. All costs for this initiative are 100% allocated to AusNet's transmission network.

2.4. Recommended Option

The cost of our Revised Proposal is $73.9m capex and $13.8m opex ($real 2025). This represents a $0.1m capex increase and $1.3m opex decrease relative to AusNet's Initial Proposal. The summary of this assessment is detailed in **Table 8** below.

Table 8 AEMS expenditure proposal ($m real 2025, transmission network allocated costs)

Criteria	Initial Proposal Recommended Option 3	AER Draft Determination	Revised Proposal
Capex and Propex ($million, real 2025)	73.8	53.1	73.9
Opex ($million, real 2025)	15.1	6.9	13.8
NPV ($million, real 2025)	189.3	-	152.6*
Technically feasible	✓	✓	✓
Addresses identified need	✓	✗	✓
Deliverable within timeframe	✓	✓	✓
Preferred option	✓	✗	✓

* Note: As described in Section 2.2, the AEMS Revised Proposal NPV comprises of the original proposal benefits for the reproposed Distributed Photovoltaics Forecasting, Load Forecasting by Feeder, Passive Knowledge Management and Geospatial Threat Monitoring initiatives, together with revised benefit assessment for the Security Cameras for Network Purposes initiative. Initial proposal benefits from the three descoped initiatives have been removed.

Appendix A – TSOCF Capability Mapping

Table 9 maps the capabilities in our Revised Proposal to the draft Transmission System Operational Capability Framework. The Transmission System Operational Capability Framework (TSOCF) was developed in conjunction between AEMO and TNSPs, to provide a consistent approach to assessing and planning operational capabilities required to support the Transmission network. The framework defines capability expectations across 8 domains, helping TNSPs identify capability gaps, prioritise investments, and progressively improve operational maturity as the network becomes more complex and dynamic.

Table 9 – AEMO's draft TSOCF capability domains compared to AusNet's AEMS program initiatives

Capability Area	Description	Initiatives submitted in AusNet's Initial Proposal
Operational planning and forecasting	Builds forward-looking capability to forecast demand, generation and DER/CER impacts, develop accurate limits and ratings, and assess operational risks. It also supports outage, restoration and system security planning using consistent, governed network models and data.	Load forecasting by feeder Distributed Photovoltages (DPV) forecasts for modelling Geospatial threat monitoring and forecast System restart uplift Ratings management Phase 1 & 2 VicTNSP capability TASM Phase 2
Real-time network operations	Provides operators with real-time visibility, analytics and decision support to identify emerging security risks and take timely control actions. It strengthens cross-network coordination, stability monitoring, alarm intelligence and operator preparedness for increasingly dynamic system conditions.	Passive knowledge management Demand Management Phase 2 Dynamic control room displays HMI upgrades for TOC Wide Area Monitoring System (Oscillation Detection & Monitoring) Transmission alarm management Network operations scenario simulator uplift
Real-time asset management	Maintains an accurate real-time view of asset condition, capability, ratings and network configuration. This enables operators to apply safe operating envelopes and reflect asset constraints or configuration changes promptly in operational decisions.	Connection asset demand management Dynamics Ratings (SOCS & OSSCA) upgrade Security cameras for network purposes
Monitoring and reporting	Ensures system operations are supported by controlled documentation, auditable records and consistent performance monitoring. It also enables efficient compliance,	TASM Phase 2 Transmission alarm management

	regulatory reporting and assurance against operational obligations.	
Outage management	Supports planning, coordination and safe execution of outages as system conditions become more dynamic and interdependent. It includes real-time outage adjustment, automated contingency response and electronic switching to improve security, speed and traceability.	TASM Phase 2 VicTNSP capability
Operational safety and risk management	Strengthens the identification, assessment and control of operational safety risks associated with switching, access, abnormal events and emergency response. Controls are designed to remain effective under rapidly changing conditions through current network-state awareness, workflow controls and auditable records.	Security cameras for network purposes HMI upgrades for TOC
Emergency dispatch	Maintains the ability to operate securely when AEMO systems, market systems or primary communications are unavailable or degraded. It relies on rehearsed fallback arrangements, resilient communications, backup processes and clear pathways for returning to normal operations.	VicTNSP capability TNSP ICCP links
Operational resilience and business continuity	Builds readiness to prepare for, respond to and recover from severe hazards such as extreme weather, bushfire, cyber or digital-system degradation and access constraints. It links hazard intelligence and operational risk assessment with field mobilisation, restoration priorities and coordinated recovery.	Geospatial threat monitoring and forecast Security cameras for network purposes

Appendix B – Engagement with TSAP on AEMS program

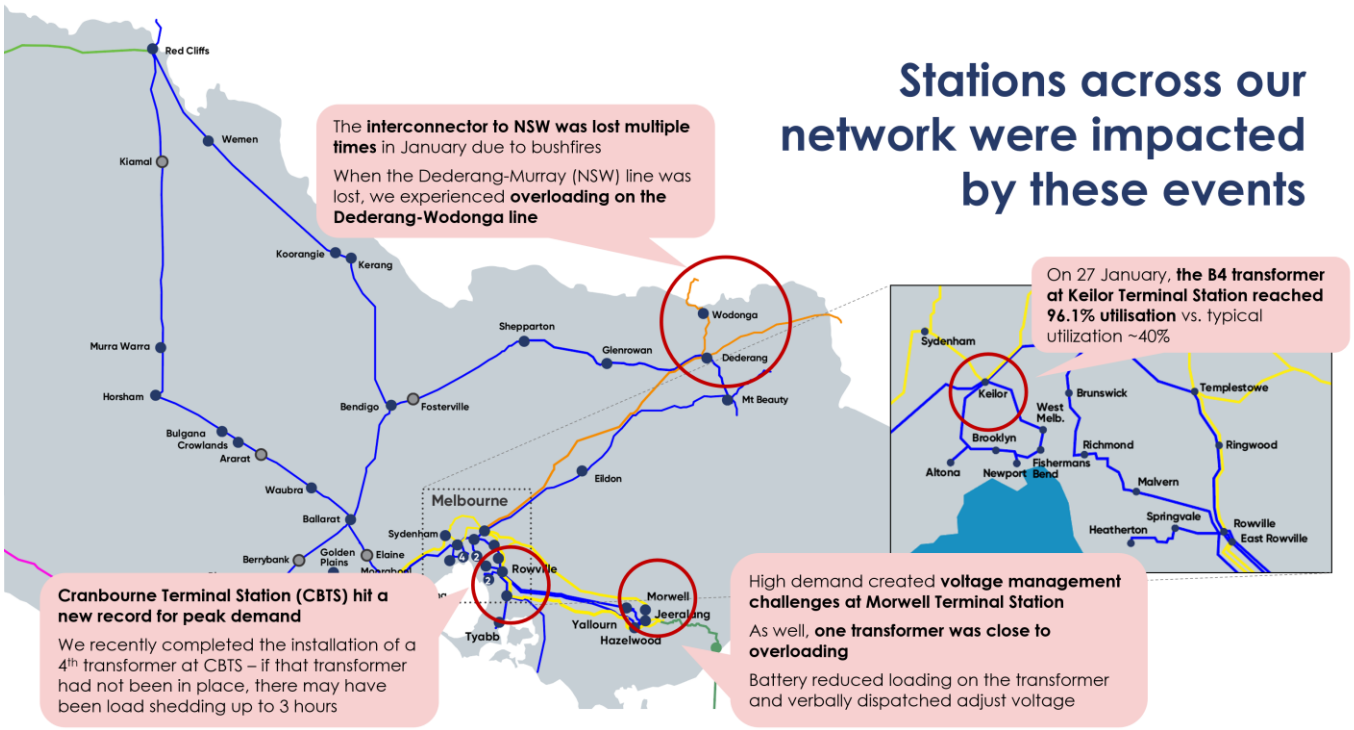
On 24 March 2026, AusNet engaged the Transmission Stakeholder Advisory Panel (TSAP) on recent events relevant to the Victorian transmission network. This included a summary of extreme weather events in January 2026, and how the proposed AEMS program would assist AusNet in responding to similar events in the 2027-32 period.

An excerpt of the materials presented to the TSAP are provided below. This includes a high-level overview of how three of the initiatives which we are re-proposing in the Revised Proposal (geospatial threat monitoring and forecast, passive knowledge management, and security cameras for network purposes) would deliver customer benefits in an emergency event:

January events | Victoria experiences extreme heat and bushfires throughout January

- **Victoria recorded a new statewide maximum temperature** – 48.9°C in the north-west (Walpeup and Hopetoun), beating the record on 48.8°C during the 2009 Black Saturday bushfires
- Overall, Victoria's area-averaged mean maximum temperature was 30.4°C, which means we had the **fifth-warmest January on record since 1910**
- **Bushfires across Victoria impacted more than 435,000 hectares of land**, including our transmission easements
- **Both the extreme heat and bushfires challenged the electricity network** – at both distribution and transmission levels

Stations across our network were impacted by these events



The **interconnector to NSW was lost multiple times** in January due to bushfires

When the Dederang-Murray (NSW) line was lost, we experienced **overloading on the Dederang-Wodonga line**

On 27 January, **the B4 transformer at Keilor Terminal Station reached 96.1% utilisation** vs. typical utilization ~40%

Cranbourne Terminal Station (CBTS) hit a new record for peak demand

We recently completed the installation of a 4th transformer at CBTS – if that transformer had not been in place, there may have been load shedding up to 3 hours

High demand created **voltage management challenges at Morwell Terminal Station**

As well, **one transformer was close to overloading**

Battery reduced loading on the transformer and verbally dispatched adjust voltage

TRR implications | Our proposed AEMS program will help manage these events as they become more severe and frequent (I/II)

AusNet

	Initiative *(non-exhaustive)*	Description	How initiative could assist in similar events
Uplift emergency response and mitigate unplanned outages	**Geospatial threat monitoring and forecast**	Creates a single pane of glass for geospatial information and threats and enables analytics using historic weather and asset damage data	During bushfire events, controllers had to use disparate systems (Google Earth, Emcop, etc.) – this tool could have enabled **faster decision-making and ultimately faster restoration**
	Connection asset demand management	Provides real-time asset capability and utilisation data with capacity constraints to manage limits, particularly where there are multiple DNSPs sharing connection asset capacity	By managing demand more effectively across DNSPs during maximum demand events, we can **reduce unnecessary load shedding and prevent avoidable overloads**
	Demand management phase 2	Improves communication with DNSPs via Inter-Control Centre Protocol (ICCP) and allows for distribution-level load shedding in an emergency (rather than at the transmission level)	This capability would have provided DNSPs with intelligence during a maximum demand event to assess how close they are to load shedding, allowing them to **make more proactive decisions**
	Wide area monitoring system	Introduces oscillation detection and analysis and provide actionable alerts to operators including fault magnitudes	By more readily identifying faults that are likely to be due to asset damage, WAMS would **support decision making about whether it is safe to re-close lines impacted by bushfire**
	Security cameras for network purposes	Expands capability of existing cameras (e.g. zoom, thermal imaging) so they can be better used for controller decision-making	**During a fire event, this allows for quicker assessment of safety threats and response** rather than having to go through the security control room

Relevant to bushfire events *Relevant to maximum demand events*

TRR implications | Our proposed AEMS program will help manage these events as they become more severe and frequent (II/II)

AusNet

	Initiative *(non-exhaustive)*	Description	How initiative could assist in similar events
Improve controller effectiveness	**Transmission alarm management**	Uses alarm analytics to automatically identify nuisance alarms vs genuine asset issues requiring prompt review, to reduce load on controllers	This tool helps controllers can focus on higher priority alarms, **increasing efficiency and improving controller throughput**
	Dynamic control room displays	Creates dynamic screens to present the most relevant information for emerging situations, and add related information required to respond	By automatically bringing up information on sites experiencing issues, **controllers can identify, prioritise and resolve issues more quickly**
	Passive knowledge management	This initiative uses AI to integrate existing operational systems, including procedures, asset management system, and SCADA information	Enabling faster access to the right chapter in the right procedure means **increased speed to respond to emergency events**
	Network operations scenario simulator uplift	Enhance simulation and scenario modelling capabilities, enabling controllers to "replay" previous events and practice their response	This capability better prepares controllers for a range of emergency situations, **supporting effective and efficient decision-making**

Relevant to bushfire events *Relevant to maximum demand events*

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