

SUBMISSION TO THE CAPABILITY CLASS 2 TECHNOLOGIES REVIEW

UNIFORM OBLIGATIONS, AND FACILITIES THAT COMPLY BY DIFFERENT MEANS

SUBMISSION BY FINESS ON PROPOSALS 4A, 4B AND 5, AND ON THE RECOGNITION OF STORAGE DURATION BEYOND THE ELECTRIC STORAGE RESOURCE DURATION REQUIREMENT.

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We acknowledge and pay respects to the Traditional Custodians of country.

Submitted by	FiNESS — First Nations Energy Storage Systems — a proponent developing a long-duration vanadium flow battery in the Eastern Goldfields, and a prospective Market Participant.
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Related submission	FiNESS is also making a submission to the Economic Regulation Authority's Review of the Offer Construction Guideline 2026, which closes on 3 September 2026. That submission concerns how a hybrid facility constructs price offers. It is referred to here for context only; this submission stands on its own and requires no reference to it.
Disclosure	A related proponent, with which a party to this project holds a collaboration agreement, may make a separate submission raising similar issues. The two are prepared independently.
Publication	This submission may be published in full. No part of it is confidential.
Status	Final. Annex A accompanies this submission and forms part of it.

1. SUMMARY

We support the proposed Lack of Reserve – State of Charge condition. Targeted intervention ahead of infrequent system stress events is a better answer than redesigning the market around events that rarely occur, and the transparency built into Proposal 4a — a defined WEM Procedure, published methodology, specified notification timings — is the right approach.

Our submission concerns the uniformity of the obligation it creates. The proposed obligation is a uniform charge level applicable to all Electric Storage Resource Facilities with Reserve Capacity obligations. The obligation is uniform; the means of complying with it are not. A facility that charges from the network must buy energy to comply, at the same time as every other Electric Storage Resource under the same direction. A facility that charges from a generating component behind its own connection point does not.

That difference cuts both ways, and we set out both. It makes compliance cheaper for one class of facility and less certain for the other. Neither the obligation, the compliance options at Proposal 4b, nor the refund addition at Proposal 5 presently distinguishes between them.

We also make a submission on duration. The Review has retained the Linearly Derating Methodology, under which an Electric Storage Resource is credited with its discharge capability in megawatt hours divided by the Electric Storage Resource Duration Requirement. That requirement is eight Trading Intervals for incumbents, twelve for a new Electric Storage Resource in 2027-28, and the 2026 Electricity Statement of Opportunities has lifted it again to fourteen. A facility is credited in full once it holds the energy the requirement calls for, and no

more for holding beyond it — so duration above the requirement earns nothing, while the requirement itself rises for new entrants alone. We do not say the method is wrong on its own terms. We say that the arrangements around it recognise duration in one direction only, at a time when the State is separately seeking long-duration storage the mechanism does not price.

2. WHO IS MAKING THIS SUBMISSION

FiNESS is developing a long-duration vanadium flow battery co-located with a solar array in the Eastern Goldfields. Under clause 2.29.1B(c) of the ESM Rules the plant is a single Facility, comprising an Intermittent Generating System component and an Electric Storage Resource component behind one Measurement Point. Because the storage component holds the higher Peak Certified Reserve Capacity, clause 4.11.4A assigns the Facility to Capability Class 2.

The facility's ten hour duration is not an election. It is a feature of the facility and it is fixed.

We make this submission as a prospective Capability Class 2 participant with a configuration the Review's proposals will apply to. We take no position on matters outside that.

3. PROPOSAL 4A — THE OBLIGATION IS UNIFORM; THE MEANS OF COMPLIANCE ARE NOT

Proposal 4a specifies that the LOR-SOC obligation will be for a uniform charge level applicable to all Electric Storage Resource Facilities with Reserve Capacity obligations, and that those Facilities must be at that level at the start of their relevant Electric Storage Resource Obligation Intervals.

A uniform level is sensible and simple to administer. But a uniform level presumes that facilities reach it by comparable means, and they do not.

A facility that charges from the network complies by purchasing energy. Under a declared LOR-SOC condition it does so at the same time as every other Electric Storage Resource carrying the same obligation, in the hours before a system stress event, when the system is already tight. The aggregate effect of the direction on demand is a function of how much of the fleet must charge from the network to comply.

A facility whose storage component charges from a generating component behind its own connection point does not participate in that. It does not add to demand in order to comply, and it does not compete with other Electric Storage Resources for the energy required to comply with the same direction. Its compliance is, from the market's perspective, free.

The distinction matters to the Review because the cost of the intervention is not evenly distributed, and because the market impact AEMO is managing when it declares the condition is driven by the grid-charged share of the fleet rather than by the fleet as a whole.

Ask: that the WEM Procedure developed under the amended clause 3.17.11 — in determining the SOC obligation level, and in the information published to Market Participants — recognise that facilities charging from a generating component behind the connection point do not draw on the market to comply, and that the aggregate demand effect of a declared condition be assessed on that basis.

4. PROPOSAL 4A — THE OBLIGATION IS ALSO UNIFORM ACROSS DURATIONS THAT ARE NOT

The proposal states that a single uniform state of charge level will apply across the entire peak capacity Electric Storage Resource fleet, that it will apply at the beginning of each facility's Obligation Intervals, and that for a facility on partial planned outage it will apply to remaining available capacity. It does not state what the charge level is a proportion of.

For a fleet of a single duration that would not matter. For a fleet of mixed durations it matters a great deal. If the level is a proportion of total storage capacity, a facility with ten hours of storage holds two and a half times the energy of a four hour facility at the same level, and may hold it against an identical Reserve Capacity Obligation. Because Obligation Intervals presently run for eight Trading Intervals, a substantial part of that energy is held against an obligation that cannot call on it.

If the level is instead expressed by reference to the energy a facility requires to meet its Reserve Capacity Obligation across its Obligation Intervals, the obligation falls evenly across the fleet in the terms that matter — the capacity each facility has been certified to provide.

We do not raise this as a disadvantage to be corrected in our favour. A long duration facility directed to hold a high proportion of a large store is, on any view, well placed to meet the direction. The point is that the denominator is not specified, and a fleet-wide obligation whose meaning varies by a factor of two or three across facilities should say what it is measured against.

Ask: that the methodology AEMO is required to publish in the Low Reserve Condition WEM Procedure specify what the uniform charge level is expressed as a proportion of, and that consideration be given to expressing it by reference to the energy required to meet a facility's Reserve Capacity Obligation across its Obligation Intervals rather than to its total storage capacity.

5. PROPOSAL 4B — HOW DO THE CONSTRAINT EQUATIONS TREAT CHARGING THAT IS NOT WITHDRAWAL?

Option 1 would have AEMO apply Constraint Equations to prevent Electric Storage Resources being dispatched for withdrawal during their own Obligation Intervals and during those of other Electric Storage Resources. Option 2 would introduce an obligation preventing Electric Storage Resources from charging during those intervals.

For a facility charging from a co-located generating component behind the connection point, charging and withdrawal are not the same event. The storage component may be charging while the Facility is a net exporter, or a net zero flow, at its Measurement Point. Constraint Equations operate on dispatch at the connection point. An obligation expressed as a prohibition on charging operates on the component.

The two options are described as achieving the same outcome by different means. For a hybrid Facility they may not. Option 1, operating on dispatch, would not appear to bind behind-the-meter charging at all. Option 2, expressed as a prohibition on charging, would — and would prevent a facility storing its own generation during the very intervals in which it is being directed to hold charge.

We raise this as a question rather than a preference. It is not obvious to us which result is intended, and the choice between the options may have a materially different effect on hybrid facilities than on stand-alone ones.

Ask: that the Review confirm, for each of the two options at Proposal 4b, whether the restriction is intended to bind the charging of a storage component from a generating component behind the same connection point, and that whichever option is adopted be drafted to say so expressly.

6. PROPOSAL 5 — REFUNDS SHOULD BE ABLE TO DISTINGUISH THE CAUSE OF A SHORTFALL

Proposal 5 would add to the refund mechanism where an LOR-SOC mandate applies. We support an addition that gives the obligation force. We ask that it be capable of distinguishing between two different failures.

A facility that charges from the network and does not reach the mandated level has, in substance, declined to pay the prevailing price for the energy required. That is the behaviour the refund is properly directed at.

A facility that charges from its own generating component and does not reach the mandated level may have encountered weather. It cannot buy its way to compliance in the way a grid-charged facility can, because its charging energy is not for sale to it at any price. This is the other side of the point made at section 3: the same configuration that makes compliance costless in ordinary conditions makes it less certain in adverse ones.

We are not asking for an exemption, and we do not suggest that a hybrid should be held to a lower standard. We ask only that the mechanism be able to tell the two situations apart, so that the incentive it creates is directed at the conduct it is meant to address.

Ask: that the refund addition proposed at Proposal 5, and the compliance framework at Proposal 4b, be capable of distinguishing a shortfall arising from the unavailability of a facility's own generating component from a shortfall arising from a participant's election not to acquire energy from the market.

7. A CONSEQUENCE THAT ARRIVES WITH THE FEDERAL CERTIFICATE TRANSITION

One further consequence is worth recording, and we accept it may sit at the edge of the Review's scope.

Creation of Large-scale Generation Certificates ceases on 31 December 2030, a date fixed in Commonwealth legislation. The Renewable Electricity Guarantee of Origin scheme continues in their place. Under that scheme certificates are timestamped with the hour in which the electricity is generated or dispatched — an hour being the position under the Act, with a calendar day, month or year available by election at registration — and may be created for electricity stored and dispatched by an energy storage system.

A direction that fixes when a facility may discharge therefore also fixes the timestamp its certificates carry. A facility required to hold charge through hours in which it would otherwise have discharged forgoes certificate value in those hours as well as energy value. That is a cost borne by the facility rather than imposed on the market, and it does not arise today, because a Large-scale Generation Certificate carries no time dimension finer than the year in which the electricity was generated.

We raise it as a consideration in weighing the proposal, not as an objection to it, and not as a matter for the Commonwealth scheme. The point is narrower. The arrangements this Review settles will operate across that transition, and the consultation paper does not refer to it. The cost of an obligation, and the incentives it creates, may not be the same before and after the certificate scheme changes.

Sourced to the Future Made in Australia (Guarantee of Origin) Act 2024 (Cth), sections 80, 91 and 94; the Future Made in Australia (Guarantee of Origin) Rules 2025 (Cth), sections 46, 49 and 52; and the Clean Energy Regulator's Renewable Electricity Guarantee of Origin scheme guidance, accessed 26 August 2026.

8. THE DURATION REQUIREMENT IS RISING FOR NEW ENTRANTS ALONE, AND THEY FUND THE SHORTFALL AS WELL

Table 7 sets the Electric Storage Resource Duration Requirement at eight Trading Intervals — four hours — for incumbent Electric Storage Resources across the 2025-26, 2026-27 and 2027-28 Capacity Years. For a new Electric Storage Resource in 2027-28 it is twelve Trading Intervals — six hours — with a Peak Obligation Duration of 16:30 to 22:00. The 2026 WEM Electricity Statement of Opportunities has since lifted the requirement from six hours to seven, which is what obliged the Coordinator to reset the Benchmark Technologies under clause 4.16.11.

Under the Linearly Derating Methodology, Peak Certified Reserve Capacity is the lesser of nameplate capacity and maximum Charge Level capability divided by half the number of Trading Intervals in the Obligation Duration. Raising the Duration Requirement therefore reduces the capacity credited to any facility holding less energy than the requirement calls for. The table expresses that as a percentage of nameplate capacity.

Duration Requirement applying	2 h	4 h	6 h	7 h	10 h
4 h — incumbent ESR, grandfathered	50%	100%	100%	100%	100%
6 h — new ESR, 2027-28	33%	67%	100%	100%	100%
7 h — 2026 WEM ESOO	29%	57%	86%	100%	100%

Peak Certified Reserve Capacity as a percentage of nameplate, by the facility's own storage duration.

Read down a column and the method works as designed — a facility holding less energy than the requirement calls for is derated in proportion, and we do not question that. Read across a row and the transition falls unevenly.

An incumbent four-hour facility retains its original Duration Requirement for up to ten years, and with it one hundred per cent of nameplate. An otherwise identical four-hour facility certified as a new entrant in 2027-28 receives sixty-seven per cent, and on the seven-hour requirement fifty-seven. The plant is the same. The difference is the year in which it first received Capacity Credits.

Where grandfathering leaves a shortfall against system need, the Review records that an ESR Duration Requirement Uplift is added to Limb A of the Planning Criterion so that additional capacity is procured to cover it. Table C2 describes the same mechanism as over-allocation of capacity to incumbent Electric Storage Resources, added back into the Planning Criterion. That additional capacity is procured through the Reserve Capacity Mechanism and paid for by the market. New entrants therefore meet the higher requirement and fund the consequences of others not meeting it.

We do not say the grandfathering is wrong. Investors committed capital against a stated requirement and there is a reasonable case for holding the State to it. But the Review has retained an arrangement whose cost falls on a different group from the one it protects, and neither the intended duration of that protection nor the quantum of the Uplift appears in the paper.

A second matter follows from the same table. Above the requirement the line is flat — a ten-hour facility is credited the same as a seven-hour one. That is defensible on the method's own

terms, since energy that cannot be called on within the Obligation Duration adds nothing to it. It is worth noting only because the requirement is moving: a facility sized against the requirement in force at financial close has no assurance of where the requirement will sit when it is finally certified, and the movement has been in one direction.

Ask: that the Review state how long the grandfathering of Duration Requirements is intended to continue and on what basis, and that the quantum of the ESR Duration Requirement Uplift and its cost be published, so that the transfer between incumbent and new capacity is visible to the participants funding it.

9. THE METHOD'S OTHER LIMB ASSUMES A CHARACTERISTIC THAT NOT EVERY CAPABILITY CLASS 2 TECHNOLOGY HAS

The Review describes the derating factor as a function of two things: the storage resource's charge level degradation, and the length of the Obligation Duration. Table C2 records the retained option as the Linearly Derating Methodology applied to "degraded maximum charge capability". The assessment against the criteria reasons that there should be no uncertainty in the method because a participant "will know their degradation profile ahead of time".

Section 8 concerns the duration limb. This section concerns the other one.

In a vanadium redox flow battery, energy is stored chemically in the electrolyte rather than in cells. Manufacturer specifications for utility-scale vanadium systems state that the electrolyte does not degrade with cycling and give unlimited cycle life at full depth of discharge alongside a plant service life expressed in years. What has a finite life on that account is the plant around it — the cell stack, the membranes and the pumps. If that is right, there is, in the sense the method uses, no degradation profile to know.

We do not suggest the method should be set aside. The duration limb is technology-neutral and applies to this facility as it applies to any other. But a review of Capability Class 2 technologies has retained a method one of whose two stated inputs assumes a characteristic that not every technology in the class possesses and has done so without distinguishing between them.

We put this as a question rather than a claim, and it does not depend on accepting anything about our own technology. We are not in a position to establish the characteristic — those specifications are manufacturer statements, and we are not aware of published long-duration cycling data that would settle the matter either way — which is why we ask how the input is intended to be established rather than asking the Review to accept a figure. Where a facility's maximum Charge Level capability does not degrade over its life, how is the degradation input to the method intended to operate?

Ask: that the Review state how the degradation input to the Linearly Derating Methodology is intended to apply to a technology whose maximum Charge Level capability does not degrade with cycling, and whether that input is intended to be established by technology rather than assumed.

10. CONSOLIDATED ASKS

1. That the WEM Procedure under the amended clause 3.17.11 recognise, in setting the SOC obligation level and in the information published, that facilities charging behind the connection point do not draw on the market to comply.
2. That the methodology AEMO publishes in the Low Reserve Condition WEM Procedure specify what the uniform charge level is expressed as a proportion of, and consider expressing it by reference to the energy required to meet a facility's Reserve Capacity Obligation across its Obligation Intervals.
3. That the Review confirm whether each option at Proposal 4b is intended to bind charging of a storage component from a generating component behind the same connection point, and that the adopted option say so expressly.
4. That the refund addition at Proposal 5 be capable of distinguishing a shortfall caused by unavailability of a facility's own generating component from a shortfall caused by an election not to purchase energy.
5. That the Review state how long the grandfathering of Duration Requirements is intended to continue and on what basis, and that the quantum of the ESR Duration Requirement Uplift and its cost be published.

That the Review state how the degradation input to the Linearly Derating Methodology applies to a technology whose maximum Charge Level capability does not degrade, and whether that input is intended to be established by technology rather than assumed.

Kind regards,



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