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Date: **7 August 2025**

Subject: **Nomad Energy submission relating to the Power System Security and Reliability (PSSR) Standards Review**

To: Energy Policy WA (via email): energymarkets@demirs.wa.gov.au

Nomad Energy (**Nomad**) welcomes the opportunity to provide Energy Policy WA (EPWA) with feedback on the PSSR Consultation Paper and endorses changes to the existing network rules to facilitate the participation of grid forming (GFM) technologies into the South-West Interconnected System (SWIS).

Nomad is an active market participant in WA's Electricity System and Market (ESM), being the original developer of the largest operational solar farm (Merredin Solar Farm – 132MWp/100MWac) and more recently delivering the Merredin BESS (100MW/400MWh) project into construction with our joint venture partners Atmos Renewables.

Whilst Nomad supports the PSSR consultation process, in our view the list of proposals and subsequent recommendations that have been presented by the Market Advisory Committee Working Group are in general overly prescriptive, technically challenging and in some cases may disincentivise the rollout of GFM technologies onto the SWIS.

A critical element absent from the PSSR review, in our view, is an underlying **financial support mechanism** which incentivises proponents to opt for GFM technologies for future and existing projects. Many of the proposed rules and their associated operational limits will require BESS projects to tune GFM Inverter Based Resources (IBRs) to ensure they adhere with the prescribed limits as opposed to providing the optimal outcomes to the network (ie site specific settings should be adopted based on the actual fault level at the point of connection rather than the SCR withstand limits defined in the proposals).

Furthermore, we make reference to the *Voluntary Specification for Grid-forming Inverters (May2023)* which was rolled out in the National Electricity Market (NEM) and query why the ESM has gone down a more prescriptive and technically challenging route than what was proposed for the NEM (eg NEM has a target SCR of 3.0 for GFM IBRs, whereas the proposed rules go down as low as a SCR of 1.2)? Since the roll-out in the NEM of the *Voluntary Specification for Grid-forming Inverters (May2023)*, the vast majority of all new utility-scale BESS projects have progressed with GFM technologies, given one of the ultimate goals of this PSSR review was to enable GFM technologies to connect to the SWIS, our overall observation is that the proposals will create barriers to entry rather than incentivise the connection of GFM projects, which would otherwise deliver much needed system strength services and enable the transition to a low carbon network.

Whilst not commenting on all proposals outlined in the PSSR consultation paper, we have endeavoured to respond to those we feel are most important to get right.

Proposal Responses

Nomad notes that under Section 3.1 – Network Planning Standards for PSSR, specifically **Proposal 1**, that the customer outcome standards states that standards be implemented with *effective incentive mechanisms*. It is not evidenced throughout the PSSR consultation paper what *effective incentive mechanisms* are being proposed or how they would be implemented as part of the access arrangement process. We see the PSSR proposals as being overly prescriptive in regards to minimum and automatic operational limits without any associated incentives being offered to proponents who are considering utilising GFM technologies, furthermore we see certain proposals (eg having to withstand SCRs of 1.2 and phase angle jumps of 60deg) effectively disincentivising the roll out of GFM technology in weak parts of the SWIS.

Nomad proposes:

1) GFM market participants are actively and appropriately incentivised to enter the market, whether through 15yr NCESS contracts, or via an alternative revenue mechanism, which would encourage developers to reserve BESS capacity in order to provide system strength options into the SWIS; and
2) greater ability to negotiate performance standards be included in the proposed rule changes to enable facilities to push forward with GFM technologies without limiting their ability to participate in primary revenue markets (eg Reserve Capacity)

Nomad notes that under Section 3.2 – The User Facility Standards Framework, specifically **Proposal 3**, that Large User Facility Standards are only proposed to allow for negotiation between Automatic User Performance (previously Ideal GPS) and Minimum User Performance Standards. This creates, in some cases, a very narrow window for operational negotiations. The ability of a facility to perform at certain levels is both a function of the technology limits and the network characteristics (eg impedance) present at the Point of Connection (POC), which is not reflected in the proposed operational requirements. Furthermore, we **strongly disagree** with the statement that *the proposed application of standards to each category of users seeks to balance managing PSSR risks without imposing onerous technical requirements*. The technical requirements proposed are onerous, and do not adequately balance the management or PSSR risks whilst at the same time encouraging GFM technologies into the SWIS.

Nomad proposes:

1) Updated PSSR standards to either:
    a. Include commentary which reflects the current capability limits of the GFM technology at the time of a fault as part of the assessment for compliance, accepting that in certain circumstances GFM proponents may not be able to meet Minimum User Performance standards (eg maintaining voltage reference) due to temporarily hitting inverter operational limits during transients – furthermore, the standards should be designed to enable future GFM technologies and not focus on some capabilities as they currently stand (ie future proofing); or

b. **Increase** the range between Automatic and Minimum Performance Standards to further enable negotiation of operational limits at each connection point.

Nomad notes that under Section 3.2 – The User Facility Standards Framework, specifically **Proposal 4** (Point of compliance with user facility standards and hybrid facilities), that providing different GPS requirements for GFM and GFL technologies is not *fit for purpose*. For example, wind farms which are coupled with a GFM BESS behind the meter will, under the current proposal, be required to meet different GPS standards.

1) We propose that *hybrid* facilities should be required to meet GPS requirements for GFL technologies, with the GFM proponent being able to operate at lower levels being seen as a bonus rather than the minimum requirements for operation.
2) Nomad **agrees** with the rationale for requiring the Network Operator to provide a procedure when requiring facilities to comply with GPS at a point other than the POC.

Nomad notes that under Section 3.2 – The User Facility Standards Framework, specifically **Proposal 5** (Governance of the user facility standards framework), the following:

1) Nomad **agrees** with the proposal that AEMO be required to directly engage with proponents to resolve negotiated performance positions, furthermore, Nomad suggests that the review of the GPS package by the Network Operation and AEMO is done at the same time as opposed to the Network Operator first providing their feedback to the proponent without seeking comments from AEMO – the current process slows down the negotiation and approval of GPS packages and is iterative;
2) Nomad would like to see more detail on the proposal to expand the number of facilities who are required to have a monitoring plan registered with AEMO before commenting on this proposal – will EPWA release further information in regards to which facilities will be captured by this proposal?
3) Nomad **agrees** with the proposal that future connections, which contain negotiated positions, are made public, should OEM technology limits and associated confidentiality clauses enable this. Whilst we accept that some will see this as effectively setting a precedent for what is acceptable in terms of performance, we believe that this transparency will better inform the market of the acceptable levels of negotiation available and will ultimately result in more proponents obtaining approved GPS packages.

Nomad notes that under Section 3.3 – Suitability of Technical Requirements, specifically **Proposal 6** (Withstand Short Circuit Ratio - SCR), the following:

1) The proposed Minimum User Performance Standard for withstand SCR of 2.0 for GFM and 3.0 for GFL technologies is **too restrictive** when viewed in isolation. Whilst we agree that GFM inverters are able to withstand SCRs of 2.0 and lower, the ability to do so is interdependent to what level of operation is required to be maintained at these levels as well as the localised network conditions which influence the operation of GFM IBRs;
2) We do **not support** the withstand SCR level of 3.0 for GFL inverters, this should be increased to no less than 5.0 in order to maintain stable operation;
3) The proposed Automatic User Performance Standard for withstand SCR of 1.2 for GFM technologies is very low and at the limit for maintaining stable operations in weak parts of the

network. Furthermore, if proponents are only allowed to negotiate between the Automatic and the Minimum User Performance Standard this creates a very small range for negotiation (SCRs between 1.2 – 2.0). The provision of this requirement could disincentivise the roll out of GFM technologies into weak areas of the SWIS which so desperately need additional system strength. It is not possible for GFM technologies to meet all proposed GPS requirements at the withstand value (eg at a SCR of 1.2, the technology will not allow the full dispatch of Active Power). We propose that the withstand limit for GFM IBRs is set at 3.0 in line with the NEM limits;

4) Given that the GPS settings will be used for system studies and commissioning, flexibility must be inherent in the proposed rules to enable tuning of the IBRs to obtain the best network outcomes, otherwise GPS compliance issues are anticipated;
5) We **agree** with the proposal of no Automatic User Performance Standard for GFL technology;

Nomad notes that under Section 3.3 – Suitability of Technical Requirements, specifically **Proposal 7** (Voltage Phase Angle Jump), the following:

1) We **strongly recommend** a materially lower withstand phase angle jump below 60deg for GFM technologies. The proposal as stated is not practicable and won't be achieved without a material reduction in active power output. Nomad recommends the withstand phase angle jump be no higher than 25 degrees in line with the NEM;
2) We **strongly disagree** with the statement that withstanding a phase angle jump of 60 degrees is plausible and credible requirement for GFM technologies.
3) We do **not support** a response time of 20ms, this is too fast and will pose difficulties in monitoring this response time during commissioning testing, we propose a longer timeframe is required (> one full cycle).

Nomad notes that under Section 3.3 – Suitability of Technical Requirements, specifically **Proposal 8** (Active and reactive current response during and after contingencies), the following:

1) The majority of the proposed changes in this section are favourable;
2) We **do not think** that 10ms should be the commencement time for GFM technologies and that this limit will pose material challenges in both real time monitoring and accurate simulation / modelling. We propose a commencement time of **no less than 30ms** for GFM and that commencement time should not necessarily be measured from the point of connection as this will impact Wind & Solar Farms which have long feeders back to the generators. **We propose** these times are measured at the inverter terminals instead;
3) We propose the rise time for GFM **should be identical** to GFL technology;
4) We do not support the fast changes (within 20ms) in voltage magnitude proposed, which we believe will make compliance difficult to achieve. We **propose this requirement is removed** from the proposed rule changes.

Nomad notes that under Section 3.3 – Suitability of Technical Requirements, specifically **Proposal 10** (Damping of power system oscillations), the following:

1) We **support** the proposal stated as A12.4.3.8 and believe that this will generally cover previous concerns with damping of system oscillations, however we **do not support** specifying the frequency range of oscillation and recommend the removal of that statement.

Nomad notes that under Section 3.3 – Suitability of Technical Requirements, specifically **Proposal 11** (Partial Load Rejection), the following:

1) We conditionally support this proposal on the basis that our comments in relation to opposing phase angle jumps and frequency response are included in the revised rules;

Nomad looks forward to engaging constructively with EPWA and other key stakeholders to ensure the roll out of much needed amendments to the ESM rules do not discourage or, in the worst-case scenario, prohibit GFM technologies from entering the SWIS where they will provide much needed system strength attributes.

Sincerely

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