



**Energy Policy**  
INSTITUTE OF AUSTRALIA

**Submission by the Energy Policy Institute of Australia (EPIA)  
to the AEMC System Security Frameworks Review  
in Response to its Interim Report of December 2016**

EPIA submits that the Australian Energy Market Operator (AEMO) should be requested to adopt and follow a standard practice to consider ‘whole-of-system’ impact before granting any new application for a generation licence and that, where AEMO considers that the connection of a new generator may materially increase the level of risk to power system security, it should either refuse the application or impose licence conditions that are aimed at ensuring that the risk can be reliably managed.

EPIA submits that the adoption of such a practice constitutes good industry practice that is entirely consistent with AEMO’s long-established function of under section 49 (1) (e) of the National Electricity Law (NEL) *“to maintain and improve power system security.”*

EPIA does not believe that the adoption of such a practice will require any change to the NEL.

EPIA supports the preliminary finding of the Australian Energy Market Commission (AEMC) in its Interim Report published in December 2016 that there is a need for two new services in the National Electricity Market (NEM): (1) a mechanism to obtain system inertia and (2) a fast frequency response service. EPIA agrees that there is merit in the AEMC’s suggestion that there could be a minimum technical standard expected of generators either to physically provide such services or to contract with another services provider.

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***Discussion***

EPIA continues to advocate its long-held position that Australia should move towards a low-carbon society as fast as it can afford to do so and in step with international commitments. However, EPIA emphasises that energy security will remain of paramount importance to the economy.

EPIA endorses AEMO’s vision of “Energy security for all Australians” and acknowledges that AEMO has created a national Power System Issues Technical Advisory Group to study the challenges of accommodating a higher percentage of renewables in the power system.

In EPIA’s view, the first principle of power system security is that the system must be based on technology neutrality and diversity.

In recent years, power system security in the South Australian region has been weakened by the build-up of a high level of dependence on variable renewable energy (VRE). This is attributable to a combination of good wind resources, the availability of generous subsidies from the Commonwealth in the form of Renewable Energy Certificates, and an easy pathway to the issue of generation licences.

In September 2015, AEMO reported that the changing generation mix was giving rise to reliability concerns.

In April 2016, AEMO linked the concerns to faulty market design – faulty because it had been designed around a conventional generation model that was based on synchronous generation.<sup>1</sup>

In May 2016, the South Australian Nuclear Fuel Cycle Royal Commission recommended that the SA Government should collaborate on the development of a national energy policy that enables all technologies, including nuclear, to contribute to a reliable, low-carbon electricity network at the lowest possible system cost.<sup>2</sup>

In August 2016, AEMO foreshadowed reliability problems in the NEM as a consequence of the withdrawal of coal-fired generation.<sup>3</sup>

At the time of establishing the NEM, it was assumed that price signals from the market would incentivise investors to invest in new generation in a timely manner. This assumption may no longer be valid with government subsidies driving investment in variable renewable generation and inadequate market disciplines for system security services.

Experience in Europe has not been dissimilar.

In July 2015, the EC acknowledged that Europe's electricity system was no longer fit for purpose and there was a need for a new market design to accommodate the increased share of VRE.<sup>4</sup>

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<sup>1</sup> "The National Electricity Market was designed around a generation model based on synchronous generation, with the result that many of the services required to maintain system security (such as inertia and voltage control) have been provided for free as a by-product of energy generation. As the share of synchronous generation as a proportion of overall generation declines, it is necessary to consider how to source these services going forward," AEMO, "Report of the Energy Market Leaders Forum," April 2016.

<sup>2</sup> The Commission found that commercial electricity generation from nuclear fuels is not presently viable in South Australia under current market rules. However, it also found that nuclear energy has the potential to contribute to national emissions abatement after 2030. Given the need for significant decarbonisation of the electricity sector to meet future emissions reduction goals, the Commission recommended the development of a comprehensive national energy policy, which would enable all technologies, including nuclear, to contribute to a reliable, low-carbon electricity network at the lowest possible system cost." Report of the SA Nuclear Fuel Cycle Royal Commission, Adelaide, 2016, Chapter 10: Recommendations and Next Steps, p 170.

<sup>3</sup> "Under a neutral economic and consumer outlook – and in the absence of new generation, network or non-network development – coal-fired generation withdrawals at the levels assumed may lead to reliability standard breaches ... Additional intermittent generation alone may not materially improve the reliability of the system," AEMO, "Electricity Statement of Opportunities 2016," August 2016.

<sup>4</sup> European Commission, "Launching the public consultation process on a new energy market design," COM(2015) 340, 15 July 2015. See also "Energy Union Package," COM(2015) 80, 25 February 2015 and the EC's recently announced legislative proposals to implement the EU's transition to a low-carbon economy: "Clean Energy for All Europeans," COM(2016) 860, 30 November 2016.

In January 2016, leading UK energy economist Malcolm Keay described the challenge in the EU in these terms:

*“... one set of technologies is receiving support from outside the market, while other technologies are expected to remunerate themselves from the market – yet both sets of technologies are operating in the same market ...[and], if it is accepted that the present situation is unsustainable, urgent consideration must be given to alternative market structures if we are to avoid major security and environmental risks and a consumer backlash”<sup>5</sup>*

In the view of EPIA, the virtue of AEMO continuing to be responsible for power system security, but reviewing the ‘whole-of-system’ impact of new generation applications, as put forward by EPIA in this submission, is that AEMO has the professional and technical expertise to do so, it operates free of political intervention and it could be relied on to perform this function on a continuing basis.

EPIA also notes that the Australian Energy Regulator has power under section 15 (1) paragraph (a) of the NEL to monitor compliance by AEMO with the NEL and the National Electricity Rules.

Respectfully submitted



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**Energy Policy Institute of Australia**

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*EPIA is Australia's only independent, apolitical, technology-neutral energy policy body.*

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<sup>5</sup> Malcolm Keay, “Electricity markets are broken – can they be fixed?” OIES Paper EL 17, Oxford Institute for Energy Studies, Oxford UK, January 2016.