ENERGY SYSTEM SECURITY

Further Submission to the NEM Security Review Panel

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Energy Networks Australia

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Executive Summary

The National Electricity Market (NEM) Security Review Panel has requested further advice from Transmission CEOs in relation to options to enhance coordination of NEM security. The key messages of Energy Networks Australia on the reform of Energy System Security are summarised below.

1. **Institutional changes are required to provide greater oversight of national energy security**. This could occur by a single, independent institution (eg. an Energy Security Council) which has explicit accountability and statutory powers for both a) *integrated energy security planning* and b) for *timely intervention* when required. This institution could be established in a number of ways, and while intervention is required now to establish a clearly managed, secure energy transition, the ongoing need and role of this institution may be reviewed in the future.
2. **Energy security planning should comprehensively address key issues in an integrated manner,** including system stability and system strength, availability of generation and transmission capacity and interrelated issues in gas and electricity markets; bilateral contracting and transparent spot markets; the effect of energy and carbon policy; and related Federal and State regulatory and policy frameworks.
3. **An independent institution should develop and maintain:**
    - a ***National Energy Security Plan*** with a 5 year outlook evaluating near term risks to energy security including relevant geographic considerations; the sufficiency of existing market and regulatory mechanisms to ensure energy system security; and prioritising intervention which will occur by a defined time if identified security risks persist in the market; and
    - a ***National Energy Transition Plan*** with a long term 30 year outlook to identify both the *required trajectory or 'corridor'* to achieve Australia's long-term carbon abatement objectives, energy security and affordability; and the current *trajectory or 'corridor'* noting the implications of State and Federal policy and regulatory frameworks and market circumstances.
4. **An independent institution could oversee and monitor any immediate actions or interventions recommended by the NEM Security Review to address current issues.**
5. **Consequential changes to other institutions would be required to**:
    - clarify the Australian Energy Market Agreement to define an objective (at section 2.1) in relation to energy security;
    - clarify the statutory functions of the three national market institutions to support the new institution (the Energy Security Council);
    - amend arrangements for interconnector planning to either extend the existing role of the Australian Energy Market Operator (AEMO) to national transmission planning assessment of interconnectors, or alternatively strengthen existing arrangements for national coordination of interconnector planning amongst

Jurisdictional Planning Bodies (including AEMO), with a safety net arrangement. (This safety net arrangement could be incorporated with the existing Last Resort Planning Power held by the Australian Energy Market Commission (AEMC) or be oversighted by a new independent institution (e.g. Energy Security Council)). Both of the two options for interconnector planning require addressing a) consequential conflicts of interest in AEMO's current role as a Victorian TNSP planner/procurer and b) governance conflicts in which Market Participants are the only industry members responsible for appointing AEMO Directors; and

- increase the strategic capacity and technical resources of the three national market institutions to ensure their capacity to fully address energy system security.

6. **Australia's 'energy only' National Electricity Market (and resulting energy contract arrangements) is no longer a reliable mechanism to ensure firm, dispatchable generation capacity is available as required to support system security in specific locations.** This highlights a disconnect in current institutional arrangements which have not provided clear accountability for timely market reforms to address threats to energy security.
    - It is evident that the energy only market cannot support the required availability of generation capacity on a standalone commercial basis, without extreme price volatility which is unacceptable to market participants, governments or customers.
    - The vulnerability of the energy only market has been exposed by poorly integrated carbon and energy policy and a gas supply crisis exacerbated by State-based development restrictions. Nevertheless, it would have emerged due to the increasingly widespread penetration of generation sources with near zero short run marginal costs and significant increases in weather-variable generation output within the NEM.
    - The rapid emergence of high levels of variable generation in a market region has resulted in a contract market which no longer facilitates predictable outcomes for customers.
    - While current reviews of NEM system security by the Australian Energy Market Commission have proposed new frameworks to deliver inertia services, fast frequency response and other frequency services, these changes will not address the vulnerability of the energy only market as it relates to generation capacity and the ability of the contract market to facilitate outcomes for customers.

7. **Unilateral government decisions to promote increased renewable energy, or more recently security are a high cost approach to achieving objectives.** While the intention may be understandable, in a national energy market such decisions precipitate unforeseen consequences and introduce a level of unmanageable sovereign risk to the market. Such actions undermine and distort the commercial investment environment which the Australian energy system has been designed to provide for investors and should be normalised into nationally consistent frameworks as part of the Blueprint recommended by the Panel.

1. Background

The National Electricity Market (NEM) Security Review Panel has requested further advice from Transmission CEOs in relation to options to enhance coordination of NEM security. While the current institutional framework has elements which *should* result in achieving the required level of overall energy system security, including power system security in the National Electricity Market, in the current rapidly changing external environment that has not occurred in practice. Further information is provided, particularly as it relates to:

- Energy Security Governance;
- Energy Security Planning;
- Coordination of National Transmission Planning; and
- Other Matters related to NEM Security.

2. Energy Security Governance

A number of weaknesses in Energy Security Governance have constrained the ability of market participants and regulated entities to respond in a timely and efficient way to maintain NEM Security:

- COAG Energy Council effectiveness:
  - In the absence of clear roles for market institutions, the Council or its individual members has dealt with energy security in an 'ad hoc' and sporadic manner, while the overall strategic accountability for energy security has not been tasked to institutions.
  - Inconsistent State and Federal carbon and renewable policies;
  - Inadequate advance assessment of policy interventions for their impact on networks (eg. Solar Feed in Tariffs) or the NEM (eg. SA Energy Security Package) which have the potential for significant unforeseen customer outcomes;
  - Inadequate implementation of previous COAG Energy Council decisions (including the 2015 Governance Review)
- Institutional Role Clarity & Coordination:
  - Arguably, existing institutions, including the AEMC Reliability Panel and AEMO, have had the statutory ability to more actively intervene to address NEM security hazards.
  - AEMO has responsibility under section 49 (1) (e) of the National Electricity Law "to maintain and improve power system security."
  - The Reliability Panel has *"periodic and ongoing obligations under the NER to review market parameters regarding power system security and reliability"*. For instance, it has had the capacity to review Performance Standards in the face of changing system security conditions.

- Resourcing & Governance of Institutions:
  - It appears the resourcing of key functions of the AEMC (Reliability Panel), AEMO and Australian Energy Regulator have constrained their ability to anticipate security risks and to act more quickly in the current dynamically changing environment.
  - AEMO's Board composition (Market Participants) also requires review in the context of changes to National Transmission Planning coordination (see below).

In addition to the proposed Implementation Plan, it is recommended that the NEM Security Review also recommend:

- an explicit implementation structure, including a plan of action, with specified timeframes, actions and accountabilities;
- changes to the Australian Energy Market Agreement, to ensure the implementation of the NEM Security Review has at least equivalent relevance to the 2001 COAG Review and to provide an accountability framework for the Implementation Plan, under which an independent agency (ie. the Energy Security Council discussed above, or otherwise the AEMC) monitors and reports publicly on actions and has the ability to 'step in' to ensure follow through; and
- changes to the Australian Energy Market Agreement, such that Governments agree to submit future policy proposals and market interventions which may impact national energy markets or systems to review by an independent institution (ie. the Energy Security Council discussed above, or otherwise the AEMC).

3. An Energy Security Function

As summarised in Attachment 1 (below), current arrangements for energy security planning appear weakly integrated across national market institutions such as AEMO, AEMC (including the Reliability Panel) and AER. This is due partly to the intentional design of Australia's framework for national energy markets which:

- encourages a primary reliance on ***market based responses*** for energy security within the broad parameters specified in Reliability Standard & Settings (Market Price Cap, etc);
- ***emphasises market information*** sources (such as the NEM SOO, GSOO, NTNDP, etc) while ***deemphasising intervention*** (eg. relying on Emergency Reserve Trader, Last Resort Planner, etc); and
- maintains significant responsibilities with ***State jurisdictions*** (eg. reliability, technical regulation and licensing functions), thereby relying on interjurisdictional coordination to achieve overall outcomes.

The NEM Security Review should consider the need to establish a singular responsibility for the function of planning and maintaining national energy security in one institution, the Energy Security Council. The Energy Security Council would have explicit accountability and statutory powers for both a) integrated energy security planning and b) for timely intervention when required.

3.1 Structural Options

A single institutional responsibility for energy security could be established in a number of forms and the response should be proportionate to the problems being addressed. The options have relative strengths and weaknesses, depending on the objectives.

As summarised in the table below, the perceived benefits may depend on whether the Panel concludes:

- weak coordination between institutions is due to inherent problems with the current institutional structure; OR is due to manageable issues in corporate governance, incumbent performance or culture;
- the institutional function is temporary (eg. 3 to 5 years) to provide a short-term, hands-on intervention during a transition in market design; OR permanent because the need for stronger coordination of energy security will be an enduring feature even after current market reforms; and
- the priority is a body which provides independent oversight of market institution functions related to energy security, OR a body which providing a forum for coordination of market institution functions.

We have considered three broad options including a new institution; a substantial expansion of the role of AEMC's Reliability Panel; or the establishment of a Cooperative Forum, perhaps using an independent Advisory Board.

The consideration of an expanded role for the AEMC's Reliability Panel was partly informed by the recognition of the significant overarching role and powers of the North American Electricity Reliability Corporation (NERC). Attachment 2 includes a summary of the role of NERC, including how its functions and powers were enhanced over time to address similar uncertainties in institutional frameworks to those facing the NEM Security Review.

Structural Options for an Energy Security Council

Key Features	New Institution	Existing Institution	Cooperative Forum
Name	Energy Security Council	Energy Security Council	Energy Security Council
Establishment	Statutory Authority, amendment to AEMA, enabling legislation.	Subsume & Expand functions of the AEMC Reliability Panel	Standing Committee (not a corporate entity)
Composition	Independent Board but Market Bodies attend 'Ex Officio'	Reformed Reliability Panel (eg. AEMC Commissioner plus Independent members with broad sector representation)	Independent Advisory Board OR Committee based on Market Bodies with Independent Chair
Resourcing	Dependent on industry levy (or government funding)	Funded like AEMC by State Government funding. Leverages Reliability Panel capability	Contributions by participating institutions
Planning functions	Independent Plans drawing on input from AEMO and other institutions	Independent Plans drawing on input from AEMO and other institutions. Integrated with Reliability Panel roles.	Cooperative Plan drawing on input from AEMO and other institutions
Intervention functions	Empowered to intervene as a last resort, directing institutions as well as market participants. Last Resort Planning Power transferred from AEMC.	Could be empowered to act as a last resort, but conflicted given AEMC's role in Rules/Market design. AEMC retains Last Resort Planning Power.	Nil. Relies on individual agency follow through.
Advice to Governments	Could standardise role advising Governments on security impacts of policy interventions.	Could standardise integrated AEMC role advising Governments on security & market impacts of policy interventions.	Could standardise role advising Governments on security impacts of policy interventions.

The remainder of this paper is premised on the Energy Security Council being established as a New Institution. As a statutory authority, it would be independent of existing institutions and governments. It is recognised that this approach would involve standalone resourcing requirements and interface costs. On balance, this model was preferred based on a view that:

- the current weak coordination between institutions requires a structural solution as it is due to more than just governance, incumbent performance or culture;
- there will be an enduring need for stronger coordination of energy security even after current market reforms (such as inertia markets, fast frequency response mechanisms and capacity mechanisms are reviewed and established); not least because of the uncertainty of coordinated State and Federal government policy; and
- to provide confidence to State and Federal Governments and reduce the risk of ad hoc, unilateral intervention, the Energy Security Council requires the capacity to intervene to address energy security. It must establish not only a forum for coordination of market institution functions but also an independent ability to intervene including on matters of market design and rule changes, which requires an independence from existing market institutions including the AEMC.

3.2 Establishment and Functions

The Energy Security Council should be established as a statutory authority on similar basis to the Australian Energy Market Commission. To remain efficient and avoid unnecessary duplication of existing agency functions and responsibilities, it will be essential that its functions are clearly defined and that its cooperative activities leverage existing agency resources and expertise.

The establishment would be effected by:

- The introduction of establishing legislation in the South Australian parliament;
- amendments to the Australian Energy Market Agreement, whereby governments agree to confer functions and enable the Council's operation through enabling legislation in a similar manner to the AEMC (Section 8) and AER (Section 9); and
- the introduction of an explicit objective (at section 2.1) in the Australian Energy Market Agreement in relation to energy security;

The **Statutory Functions** of the Energy Security Council should include:

- To develop and maintain an integrated, *National Energy Security Plan* with a 5 year outlook[1] evaluating near term risks to energy security at the relevant locational level; the sufficiency of existing market and regulatory mechanisms to ensure energy system security;
- To develop and maintain an integrated National Energy Transition Plan with a 30 year long term outlook to identify both the required trajectory or 'corridor' to achieve Australia's long-term carbon abatement objectives, energy security and affordability; and the current trajectory or 'corridor', noting the implications of State and Federal policy and regulatory frameworks and market circumstances.
- To recommend additional actions to energy market institutions including AEMC, AEMO, AER and COAG Energy Council as may be required to enhance energy security;
- To intervene to make an Energy Security Program where it determines necessary due to market circumstances or institutional inaction, to ensure energy security. If made, the Energy Security Program would have regulatory effect to direct actions by institutions or commercial participants which are required to support energy system security. (This could include any immediate interventions recommended by the Review of NEM Security to address current issues, noting these may be temporary in nature).
- To intervene to exercise the existing Last Resort Planning Power when and if required

[1] The five year timeframe for the integrated, *National Energy Security Plan*, proposed above is suggested as the appropriate window within to stimulate market reactions, while allowing the Energy Security Council time to act if required in the short-term.

(noting this power currently rests with the Australian Energy Market Commission);

- To ensure compliance with *Energy Security Programs* where made;
- To assess and advise on future policy proposals and market interventions submitted by State and Federal Governments, which may impact national energy markets or systems to review by an independent institution;
- To report publicly on progress against the Implementation Plan recommended by the (Finkel) Review of NEM Security, including specified timeframes, actions and accountabilities.

One of the key new functions proposed above is the ability to *intervene* when required, in the form of an Energy Security Program, which would have regulatory effect to direct institutions as well as market participants. This capacity to intervene to preserve energy security appears to be required because:

- existing market bodies (including AEMO and the Australian Energy Regulator) operate within the constraints of the National Electricity Rules; and
- the AEMC is unable to initiate rule changes or deliver amendments to market design in a timely way in advance of, or in response to, much more rapidly changing market environments than have occurred previously.

However, it would be essential to establish clear guidance that - while intervention would be certain if required to address energy security - it would also be predictable, well-defined and foreshadowed in the Energy Security Plan and only implemented where markets or institutions did not act.

The Energy Security Council should focus on achieving energy security in the national interest, the National Electricity Objective and the National Gas Objective, having regard to:

- key security outcomes including system stability and system strength;
- availability of generation and key transmission capacity, including electricity transmission interconnection planning;
- mutually dependent supply security in gas and electricity markets;
- effective functioning of bilateral contracting and transparent spot markets;
- market outcomes of energy and carbon policy; and
- Federal and State regulatory and policy frameworks.

A critical priority for the Energy Security Council will be working with existing market institutions, particularly AEMO, and market participants, particularly TNSPs, to establish the analytical capacity to manage energy security in a transformed energy system. Among the key capabilities required will include:

- Sophisticated models (electromechanical and electromagnetic models) of current generation and load. (For instance, such models should be capable of reproducing the frequency and voltage behaviour during the recent events in South Australia).
- Models of diverse new technology solutions to support system stability and strength,

with pilot projects used to verify actual performance capability of this technology;

- Future scenarios analysis building on the Energy Networks Australia and CSIRO Network Transformation Roadmap analysis to allow a holistic review of system security with testing of all assumptions such as speed of frequency load shedding, load characteristics for varying frequency and voltage.
- Evaluating optimised solutions analysed with market designs and standards designs to inform the proposed National Energy Security Plan and National Energy Transition Plan that guide market and regulatory reforms.

3.3 Membership and Governance of the Council

The Council must have powers to not only undertake energy security planning but to intervene where required to address inaction by either commercial parties or market institutions. Consequently, the Board of the Energy Security Council should not include market institution officers but should be closely informed, and supported, by those institutions in an ex officio capacity so as to leverage existing agency resources and expertise.

It is recommended that the Council be established with 7 Appointed Members and 3 Ex Officio Members with a defined skills mix emphasising systems planning, operations and engineering.

Appointed Members	1 x Chair (Inaugural Chair recommended as Chief Scientist)
	1 x Power systems planning, operations and engineering
	1 x Power Generation operations and engineering
	1 x Gas industry planning operations and engineering
	1 x Energy markets, economic and legal expertise
	1 x Corporate Governance expertise
	1 x Expertise in energy reliant industry.
'Ex Officio' Attendees	Chair, Australian Energy Market Commission
	Chair, Australian Energy Market Operator
	Chair, Australian Energy Regulator

The Appointed Members should be made by the COAG Energy Council, on advice of the market institution selection procedures currently in place under *the Protocol for Appointments to Australian Energy Market Governance Institutions and Panels*.

3.4 Resourcing

Energy Networks Australia would support an energy industry levy to ensure the Energy Security Council is established with fit-for-purpose resources to undertake its statutory functions. To undertake its role independently, the body should ***not*** be directly funded by a Commonwealth agency or a market institution (such as AEMC). However it must undertake cooperative activities to leverage existing agency resources and expertise.

4. Coordination of National Transmission Planning

Note transmission planning is different to the broader energy security planning discussed above. The current frameworks for National Transmission Planning were recently reviewed by the AEMC in its *Transmission Frameworks Review*[2], which was itself intended to link the arrangements for investment in, and usage of, the transmission system with those governing the wholesale market. Informed by this past analysis, the NEM Security Review could consider two options for increased coordination of National Transmission Planning:

Option 1: Interconnector Planner

The key features of this approach would include:

- The role of the National Transmission Planner (NTP), currently AEMO, could extend beyond the current National Transmission Development Plan functions to also include determining the ***investment need*** for the Interconnection in the independent evaluation of the Regulatory Investment Test.
- As in the PJM system, New York and Alberta, the relevant TNSP would then be directed to undertake the investment. The economic regulation frameworks already applying to TNSPs would ensure the delivery of the investment is efficient. This option does not propose transferring procurement to the National Transmission Planner for contestable interconnection works, for the reasons outlined in the AEMC Transmission Frameworks Review. *(See Attachment 2, Option C* for a summary*)*.
- Effective outcomes would require close cooperation between the NTP and the TNSP and clarity of institutional roles. Consequently to enable this, other roles of AEMO would need to be harmonised nationally, to avoid conflicts with expanded functions including:
  - AEMO's TNSP functions in Victoria should be transferred to the primary TNSP Ausnet Services;
  - Ausnet would be subject to RIT-T regulatory oversight for transmission augmentation as in other jurisdictions;
  - AEMO's Board would require reform to remove the governance conflict in which Retailer and Generator Market Participants appoint Directors responsible for NTP decisions with investment consequences.

Option 2: Required National Coordination with safety net

An alternative which does not involve transferring interconnector planning functions has also been considered. To achieve increased national coordination of interconnection and nationally significant transmission planning, the current NTNDP model could be modified

[2] http://www.aemc.gov.au/Markets-Reviews-Advice/Transmission-Frameworks-Review

to ***require*** the NTP and TNSPs to reach agreement in relation to nationally significant Issues. This would be similar to an option evaluated in the AEMC's First Interim Report (see Attachment 2) under which:

- The NTP would be required to endorse the TNSP's Transmission Annual Planning Reports (TAPRs); and the TNSPs would be required to endorse the NTP's NTNDP;
- Where various TNSPs and the NTP could not agree on a coordinated plan:
  - at minimum, TNSPs and the NTP would be required to publish any areas of disagreement and the reasons for their position. Ultimately, the AER would be required to decide whether or not to provide allowances for investments as part of TNSP revenue determinations;
  - The proposed Energy Security Council may exercise the current Last Resort Planning Power which currently rests with the Australian Energy Market Commission.

This was intended by the AEMC to ensure that:

- the NTP is satisfied that the TAPRs fully take account of the scenarios presented in the NTNDP;
- individual TNSPs are satisfied that the NTP has taken into account their TAPRs and any other advice they have provided in the NTNDP; and
- the NTP and TNSPs are satisfied that the TAPRs reflect joint planning where the proposed augmentations impact on NTFPs. [Page 140, First Interim Report]

AEMC noted it would *"...give stakeholders, including the AER, greater confidence that an efficient level of investment was being undertaken".*

As in the previous Option, effective outcomes would require close cooperation between the NTP and the TNSP and clarity of institutional roles. Consequently to enable this, other roles of AEMO would need to be harmonised nationally, to avoid conflicts including:

- AEMO's TNSP functions in Victoria should be transferred to the primary TNSP Ausnet Services;
- Ausnet would be subject to RIT-T regulatory oversight for transmission augmentation as in other jurisdictions;
- AEMO's Board would require reform to remove the governance conflict in which Retailer and Generator Market Participants appoint Directors responsible for NTP decisions with investment consequences.

Energy Networks Australia recommends the NEM Security Panel consider the two options for reform of National Transmission Planning outlined above.

Status Quo – Types of Planning

Attachment 1

	Type	Scope	Done by	Effectiveness of Coordination	Consequence for Commercial Environment
A.	**Energy system security planning**	Overarching planning of energy security 'in the national interest'. Coordination of gas, electricity and other fuel sources, including energy limited and intermittent fuels and major transmission interconnections that provide support. Ensuring a 'national approach'.	Governments or COAG EC with input from AEMO	**Weak** – Confused mix of State & Federal policy settings, direct & adhoc government interventions	**Poor** - Challenging investment context due to 'overhang' of conflicting instruments and government intervention
B.	**Plan for market development**	Proposing, evaluating and transitioning the market arrangements in a timely way in response to the external environment. (eg. introduction of inertia services, review of energy only market, integrated carbon policy measures).	Partially done by AEMC & AEMO. Overseen by COAG EC	**Partial** – informal coordination between AEMO & AEMC.	**Poor** - Challenging investment context due to 'overhang' of conflicting instruments and government intervention
C.	**National Transmission Planning**	Coordination of jurisdictional transmission plans for major flow paths and outlook for interconnectors. RIT-T would be used for any assessment.	AEMO produce NTNDP with input from TNSPs.	**Partial** – Model compromises coordination benefits for benefits of 'tension' between National Transmission Planner & TNSP (excl. Victoria)	**Positive:** NTP informs rather than determines decision. Allows tension between NTP/TNSP and Tx vs Generation. **Negative:** RIT-T guideline requires COAG reforms; slow.
D.	**Jurisdictional major transmission network planning**	Planning coordinated with AEMO, Economic assessment undertaken for lowest long run cost to customers including alternative solutions, eg. non-network. RIT-T used for any assessment	TNSPs in all states except Vic where AEMO does this as a Vic govt assigned role.	**OK** – Review need to address AEMO in Victoria & Governance	**OK** – inconsistent regulatory scrutiny in Victoria.
E.	**Transmission network replacement/ reinvestment planning**	Economic assessment undertaken for lowest long run cost to customers including alternative solutions, eg. non-network. RIT-T being extended to apply to these investments.	TNSPs in all states	**OK**	**OK**
F.	**Joint planning with distribution networks**	Bulk supply point planning at asset boundary between transmission and distribution networks	TNSPs and/or DNSPs in all states	**OK**	**OK**
G.	**Distribution network planning**	Medium and low voltage network planning.	DNSPs in all states	**OK**	**OK**

Background Information

Role of North American Electricity Reliability Corporation (NERC)

An Energy Security Council which is established as an augmentation of the AEMC Reliability Panel could be modelled on the North American Electric Reliability Corporation, known as NERC.

NERC was established in 1968 as a voluntary industry association. It was given statutory powers following the 2003 East Coast Blackout, when the subsequent investigation found that the voluntary regime had been ineffective. Among other things, the Joint US-Canada investigation found that:

> *"Although NERC's provisions address many of the factors and practices which contributed to the blackout, some of the policies or guidelines are inexact, non-specific, or lacking in detail, allowing divergent interpretations among reliability councils, control areas, and reliability coordinators.* ***NERC standards are minimum requirements that may be made more stringent if appropriate by regional or subregional bodies, but the regions have varied in their willingness to implement exacting reliability standards.***
>
> *NERC and the industry's reliability community were aware of the lack of specificity and detail in some standards, including definitions of Operating Security Limits, definition of planned outages, and delegation of Reliability Coordinator functions to control areas,* ***but they moved slowly to address these problems effectively.****"* ***(Emphasis added)***

NERC develops, implements, and enforces mandatory Reliability Standards for the bulk power system in accordance with Section 215 of the Federal Power Act. The statute requires that all users, owners, and operators of the bulk power system in the United States be subject to approved Reliability Standards.

NERC Reliability Standards cover the design, planning, and operation of the bulk power system, as well as cyber and physical security. In addition, NERC serves as the Electricity Information Sharing and Analysis Center. The E-ISAC gathers and analyzes security information, coordinates incident management, and communicates mitigation strategies with stakeholders within the Electricity Subsector, across interdependent sectors, and with government partners. It contributes the primary security communications channel for the Electricity Subsector enhancing its ability to prepare for and respond to cyber and physical threats, vulnerabilities, and incidents.

NERC also assesses electric supply adequacy annually via a 10-year forecast, special and seasonal assessments; monitors the bulk power system; and educates, trains, and certifies industry personnel. NERC assesses and reports on the reliability and adequacy of the North American bulk power system.

NERC draws on power industry experts from across the industry but retains its own capabilities including about 180 staff, to allow independent analysis[3]. NERC's effectiveness stems from its single-minded focus on security.

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[3] See the NERC Roster of Committee Participants and Staff available at http://www.nerc.com/AboutNERC/Resource%20Documents/roster.pdf

Background Information

AEMC review of National Transmission Planning Frameworks

The current frameworks for National Transmission Planning were recently reviewed by the AEMC in its *Transmission Frameworks Review*[4], which was itself intended to link the arrangements for investment in, and usage of, the transmission system with those governing the wholesale market.

The AEMC's interim report identified four structural options for enhanced coordination in a National Transmission Planner. In a supporting report by NERA and Allens/Linklaters[5] these options were assessed against eight principles including:

> *Principle 1: Promote transmission system investment decision-making on a coordinated basis to maximise net market benefit (defined as the benefit to all those who produce, consume and transport electricity in the NEM).*
>
> *Principle 2: Allow for both local input and a strategic perspective.*
>
> *Principle 3: Allow the use of incentives to promote efficient investment decisions.*
>
> *Principle 4: Minimise conflicts of interest.*
>
> *Principle 5: Maximise net benefits from reform.*
>
> *Principle 6: Allow risk to be allocated to the party that is best able to manage the risk.*
>
> *Principle 7: Be clear and transparent in approach.*
>
> *Principle 8: Does not create barriers to connection.*

In three of the options assessed (a to c below), the **investment decisions** were to be transferred to the National Transmission Planner, along with **coordinated planning**. The review concluded the following about the four options for a National Transmission Planner:

a. ***A for-profit joint venture, comprised of all current TNSPs*** would fail on principles including: maximise the net benefits of reform (#5); clear and transparent (#7) and do not create barriers to connection (#8)

b. ***A not for profit organisation comprised of representatives of all current TNSPs'*** would be likely to fail against Principle #6 (Risk Allocation); and #1 (National Coordination to maximise benefits)***;***

c. ***A NEM-wide, not for profit transmission planner and procurer;*** would be likely to fail against Principle #4 (Conflicts of Interest) both by removing the tension between NTP and TNSP and the conflict of the market operator if Transmission investment decision maker; and #3 (Use of Incentives to promote efficient investment); and #8 (Barriers to Connection) given generators would need to deal with NTP and TNSP; and

d. **A national body interacting with individual TNSPs across the NEM** –This was the preferred model which was adopted in implementation.

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[4] See for instance, AEMC (2011) First Interim Report, Transmission Frameworks Review

[5] NERA, Allens/Linklaters (2012) *Alternative Transmission Planning Arrangements: Ensuring Nationally Coordinated Decision-making*