

## **Abstract for: National Electric Energy Conference (EECON) 2017**

### **Collaboration and Innovation: Adapting Today's Grid for Tomorrow's Future**

#### **Energy Resilience: Another cost or future proofing?**

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Resilience is not just the Saturday footy team fighting back to win on the siren or communities rising above hardship. Indeed, people as individuals and communities display remarkable resilience with the ability to adapt and rise above circumstances. However, resilience is more than this and is implicit in all complex systems which are adapting to vulnerabilities and mitigating shock. Resilience enhances evolution, avoids revolution and provides for transition pathways.

Too often resilience is used as a 'mealy-mouthed' nicety by leaders and managers to describe the bit of magic that makes a short-term action deliver sustained long-term benefits. It is an escape word offered without commitment, and resilience becomes something we will pay for when we must. Decision makers can see a time for resilience, but the question is; Can they assess that moment with adequate time to prepare? The challenge is to future proof our communities without burdening ourselves with unnecessary cost.

Resilience is more than reliability. Australians' safety, productivity, comfort, and convenience depend on the reliable supply of electric power. The electric power system is a complex "cyber-physical" system composed of a network of millions of components spread out across the continent. These components are owned, operated, and regulated by thousands of different entities. Power system operators work hard to assure safe and reliable service, but large outages occasionally happen. Energy Resilience is not just about lessening the likelihood that these outages will occur. It is also about limiting the scope and impact of outages when they do occur, restoring power rapidly afterwards, and learning from these experiences to better deal with events in the future.

Therefore, understanding Australia's energy resilience requires a complex system-of-systems perspective, which identifies systemic vulnerabilities that contribute to potential gaps in the resilience of our energy supply. We require a new resilience-based approach to thinking about continuity of energy supply which will support Australian interests and economy in the future and be better than piecemeal reform. It is not about an end state but rather it as a way of thinking which requires reforming energy supply through the electricity grid, addressing evolving transport energy demand, and future-proofing our communities.