Energy Consumers Australia – Consumer Electricity Resilience

What do communities and customers expect from DNSPs during prolonged outages?

Context

The significant losses of electricity supply due to severe weather have identified a mismatch between how electricity network businesses (and the regulator and governments) treat resilience and consumer expectations of electricity network businesses before, during and after a prolonged outage.

While there have been many reviews[1] and work on consumer expectations around prolonged power outages, the performance of electricity network businesses in face of severe weather and prolonged losses of electricity supply remains poor[2]. The disconnect between the industry and government focus on investment for risk reduction, and consumer expectations of electricity network businesses on responsiveness continues to result in poor experiences for consumers.

There is a risk that technical electricity network business led resilience solutions will fail anyway[3] or will not be located correctly for the next storm. For instance, a community microgrid is reliant on connectivity of network within the microgrid and any damage to generation and or poles and wires within the microgrid will cause the entire microgrid to fail.

In the face of the poor experiences, consumers are investing themselves (where they can afford to) in what the regulator calls "rational alternatives"[4]. In some locations, where reliability is already poor, the alternative is not a choice but a necessity[5].

For large consumers, reducing the business impact of prolonged outages by investing in electricity resilience, such as large diesel generators and batteries, will be a significant cost burden.

Key issues for consumers

Currently, networks are not sufficiently responsive to consumer needs during a prolonged outage. Even for those with life support needs, their experience is often poor[6,7]. Customers begin to experience stress as soon as electricity is lost[8], this is particularly the case if severe weather has occurred. For rural and regional communities, the fear that electricity supply will be lost will begin as a soon as a storm starts (or even as it is forecast).

Constantly assessing and reassessing the options for managing the loss of electricity supply is mentally exhausting[9], especially in the absence of accurate information from the electricity network business. Managing the loss of electricity supply may also be physically exhausting in terms of the additional activities that might be required. Consumers will be considering:

- Whether to stay or leave
- What to do about the contents of the fridge and freezer
- How to charge mobile phone (devices)
- How long access to the mobile telephone and NBN networks will last
- How to warm/cool the house
- How to cook
- How to maintain or access lighting
- How to access water
- How to manage pets and animals

[In the future: How to manage the charge of an electric vehicle or stationary battery]

Several reports and reviews[1] have identified that the quality of communication from electricity network businesses, before and during a prolonged loss of electricity, needs to be improved. Only improved timely and accurate information will support consumers making informed decisions on how best to manage the loss of electricity. Often the information from electricity network businesses is limited, inaccurate and inconsistent across media platforms.

Electricity network businesses need to deal rapidly with damaged network equipment so that it is safe for consumers to move around their communities, or to evacuate their community, while efficiently securing a supply of electricity, which may be temporary, to consumers[10,11].

In the absence of the telecommunications networks, the physical presence of electricity network business personnel in impacted communities is also highly valued[12,13].

The focus of industry and governments

Currently, the industry and governments are exploring new rules that would require electricity network businesses to invest in making electricity network equipment more resilient to severe weather, preventing outages longer than 12 hours[14], while possibly reducing repair costs[15]. Few of the current industry approaches to electricity resilience focus on the priority issue for consumers of responsiveness.

Given the focus on investment for risk reduction, there is a strong likelihood that investment to reduce the risk of the electricity network damage that causes prolonged outages will result in inequity and electricity consumers paying up to five times for resilience:

1. Consumers fund routine electricity network business operation with aspects of routine reliability investments, such as routine maintenance and asset replacement also supporting resilience
2. Consumers fund electricity network business investment in a (location) specific resilience solution
3. Consumers fund repairs following an event that damages electricity network equipment
4. Consumers fund compensation for long outages, such as Guaranteed Service Level payments
5. Consumers invest in their own electricity resilience (the regulator's "rational alternative")

Consumer expectations of electricity network businesses

Table 1 (page 3) compares the electricity network business' approach with the consumer focus on resilience. The electricity network businesses have a critical and unique role in supporting consumers through a prolonged outages by being responsive:

1. <u>Communication to allow informed decisions to be made and to alleviate stress</u>

Communications from electricity network business need to be timely, accurate, sufficient, relevant and consistent. The presence of the network business in impacted communities was highly regarded.

2. <u>Making damaged network equipment safe</u>

The electricity network business should prioritise consumer and community safety by making damaged network equipment safe.

3. <u>Providing temporary sources of electricity</u>

Electricity network businesses should provide temporary electricity supplies to a community (at a key community location) or at individual customer premises as a priority.

Erne Energy received funding from Energy Consumers Australia through their Network Reset Program to undertake this project.

Table 1: The differing resilience focus of electricity network businesses and consumers

Resilience Aspect	***Electricity network business approach***	***Consumer focus***
Risk Reduction	Vulnerability/risk assessments (shared, published in DAPR) Vegetation management (*typically for safety, rather than resilience*) Technical solutions Automatic reclosers Composite and concrete poles Aerial bundled cables Spreaders Rapid Earth Fault Current Limiter (REFCL) Undergrounding Mobile network equipment (*only in Queensland*) DNSP-owned islanded microgrids (SAPS) DNSP-owned batteries (*ringfencing concerns*) DNSP-owned islandable microgrids (*ringfencing concerns*) Community emergency hubs (*ringfencing concerns*)	Rooftop solar PV Behind-the-meter battery Portable generator Torches Wood burners/fires Gas BBQ Camping gas stove Camping fridges Water storage Where a severe weather risk to electricity network equipment can be linked to a specific location, electricity network businesses should mitigate cost-efficiently and equitably.
Readiness	Tweets SMS Seasonal advice on webpages Prolonged outage advice on webpages Moving crews and spares into position (*only in Queensland*) Mutual aid schemes Cancel planned work Ready workforce (reallocate teams to consumer-facing positions)	More proactive communications from electricity network businesses as the potential for an unplanned outage (due to a severe weather event) increases Likely outage risk Potential length of outage Steps the network is taking to be ready Steps network will take to manage outage Steps consumers can take to be ready
EVENT resulting in prolonged outage		
Response	Social media (Twitter, Facebook) SMS Telephone helpline Outage webpage Mobile response vehicles (*Victoria only*) Media (radio and TV (where signal available), print, websites) Portable generators Damage assessment (crews to assess)	Rapid response to ensure safety (downed lines) Improved coordination between government, emergency services, critical infrastructure providers, particularly telecommunications (and NBN) and electricity network businesses Multiple modes of communication, sharing timely and accurate information on situation and restoration time that is consistent across platforms. Alternative communications that are not dependent on electricity Alternative communications that are not dependent on mobile network Physical presence in impacted communities Information on location of support (community centres etc.) Temporary generation for impacted locations Ensuring key consumers and community locations have power
Recovery	Repair and rebuild network equipment Mutual aid schemes	Efficient and rapid repair of damaged assets Easy access to support payments Support (who is responsible for what particularly following damage to connection point)

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