

Energy system resilience plans

Distribution network resilience plans should include the following elements or steps.

1. Context

- What is the vision or strategic context within which this focus on resilience sits?
 - Eg “A clean, affordable and *dependable* energy system for all” (from **ourPower**)

2. The problem

- Recent evidence of increasing costs to networks (and thus to users) of severe weather events
 - As expressed, for instance, in pass through applications to the AER and other internal DNSP data linking asset losses and/or the need for earlier replacement to severe weather events
- Historic climate data relating to the increasing frequency, intensity and/or duration of severe weather events
- Evidence of projected increases in severe weather events derived from a range of climate models under various emissions pathways,
 - Including their probability and geographic granularity, but also...
 - Recognising the limitations of this approach—eg, the difficulty of predicting the frequency and impact of compound weather events

3. Definition and scope

- What is understood by the term resilience, including
 - How it differs from (or incorporates) reliability
 - The variety of potential responses
 - Eg, toughening versus flexibility, or rebuilding like for like versus adapting to a new normal
- How energy system resilience relates to individual, community, institutional and other infrastructure dimensions of resilience
- Distinguishing between climate and other risks to resilience – e.g. cyberattacks

4. Regulatory context

- The existing regulatory role of electricity networks in maintaining or improving resilience
 - Eg, via the NEO, the NER and AER responsibilities (VCR and STPIS)
 - How relevant safety standards contribute to resilience
 - Relevant metrics (eg raw SAIDI and major event days [MED])
 - The limitations of the existing regulatory framework in dealing with resilience
 - Options for regulatory reform—eg,
 - The unfinished business around long duration outages (WALDOs)
 - Are there sufficient incentives to create resilience-related trials?

5. Risk assessment

- The climate risk assessment framework networks are utilising to identify vulnerable communities and assets (eg, see over for the ESCI framework), including

- Differentiating between networks' responsibilities for mitigating climate related risks (eg, bushfires caused by asset failures) and the impacts on network assets of external severe weather events
- Counterfactual: the potential financial and other impacts on networks and users if future climate risks are not addressed in the short term (given the 30 to 50 year lifespan of many network assets)

6. Assessment criteria

- The decision-making framework applied to identify preferred short- and long-term solutions, including
 - Prudence and efficiency—eg,
 - Networks should be able to prove that they have reduced the exposure of their assets to damage and responded to severe weather events as quickly as possible
 - Climate resilient solutions should usually be cheaper over the lifespan of assets (compared to rebuilding like for like)
 - Intergenerational impacts—ie, front-loading capex for a cheaper long-term solution consistent with the strategic context (eg, SAPS for remote customers)
 - More specifically, which investments are appropriate to consider for 2024-29 and which are best left to 2029-34? For the latter, what should be done in 24-29 as basis for 29-34 action?
 - Network and non-network alternatives to hardening the grid (eg, islandable microgrids and incentives for behind the meter solutions)
 - Expressed user preferences, including the weight given to non-economic factors such as people's desires for redundancy, autonomy and control
 - Evidence of cooperation with other critical infrastructure partners, government and local communities to develop comms and action campaigns around community resilience

7. Potential solutions

- Capex (augex and repex), opex and non-network options considered
- Preferred solutions (based on #6 above), including tailored local trials, trade-offs, cross-subsidies and complementary measures including collaboration in community resilience programs

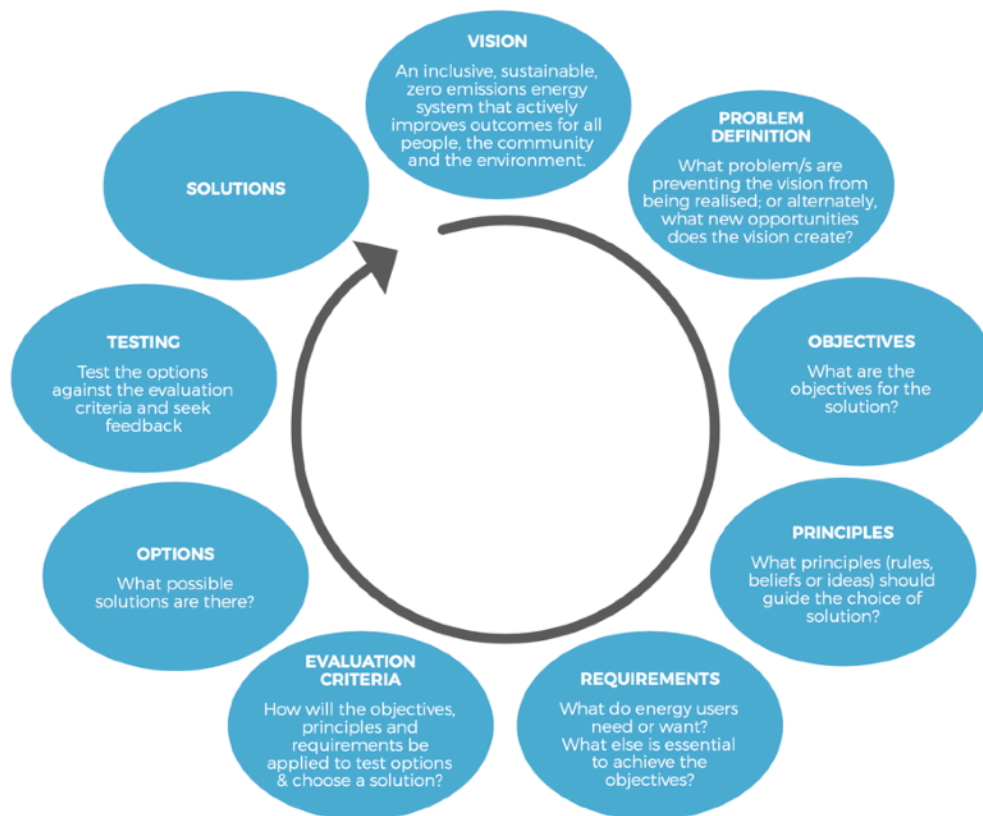
8. Engagement

- How networks have engaged with user advocates and affected communities in deciding on preferred solutions, including
 - The decision-making process to identify communities and locations at highest risk to resilience
 - The potential for communities to choose (and pay for) their own level of energy system resilience
 - The identification of critical loads (eg, comms towers, hospitals and evacuation centres)
 - The preparation of local energy resilience plans

9. Implementation

- An implementation workplan involving the roles of other stakeholders (users, SES, councils, telcos etc.) including
 - Capex (augex and repex), opex and trials
 - How the resilience workplan can be verified and periodically reviewed (eg, from one reset to the next) including input from affected communities

ourPower (formerly the New Energy Compact) codesign process



Electricity sector climate information (ESCI) project risk assessment framework

