

# Joint Distribution Network Service Provider Climate Resilience Workshop

## Comments and responses report

Prepared for Ausgrid, Endeavour  
Energy, Essential Energy, Evoenergy,  
TasNetworks, and NT Power and Water.

March 2022

## Prepared for:

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**Ausgrid**



**Endeavour Energy**



**Essential Energy**



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# 1. Background to the forum

## 1.1 Engaging on network resilience

In recognition of their combined goals and regulatory requirements, Distribution Network Service Providers (DNSP) across the country this year have collaborated in a joint engagement process, to help inform their forthcoming 2024-29 regulatory proposal submissions and gain an understanding from their customers on the challenges and opportunities impacting all communities.

DNSPs included in this joint engagement are Ausgrid, Endeavour Energy, Essential Energy, Evoenergy, TasNetworks, and NT Power and Water.

Specifically, they have sought to engage with customers and stakeholders on network resilience – wanting to understand how people see DNSPs best supporting communities adapt to a changing climate. This work has included the development of a consultation paper on the topic, on which DNSPs have invited feedback and submissions.

The stakeholder forum, independently facilitated by SEC Newgate, formed one part of a broader engagement process. The consultation paper was circulated as pre-reading material for forum participants. Topics covered on the day followed the same format and detail as the paper.

## 1.2 The forum

The forum invited stakeholders of varying backgrounds and relations to the electricity sector and posed a series of questions on network resilience aimed at uncovering the needs and desires across customer groups. The forum sought to understand how participants felt DNSPs can best support the communities they serve in adapting to a changing climate over the next 10 years. Discussion objectives were to understand participants' views on:

- the relationship between resilience and reliability, and proposed definitions
- whether regulatory frameworks and objectives consider resilience
- networks' role in community resilience and response.

Presentations were developed in collaboration with all involved in line with the paper titled Network Resilience: 2022 Collaboration Paper on Network Resilience. On the day, these presentations were given by executives from Ausgrid, Endeavour Energy, Essential Energy, Evoenergy, and TasNetworks.

Discussion was captured using a range of tools including the online polling tool, Slido, the meeting's chat function and verbal discussions in the forum itself. Overall, during the forum over 400 (approximately) written comments were received, not including comments given in verbal discussion.

The forum was attended by 170 participants, including 54 observers or presenters from DNSP partners. Encouraging written feedback in addition to free-form discussion was imperative to ensure all views were captured and then accurately reflected in reporting. 77 stakeholders participated in the Slido activities, narrowing down to 22 in later questions. Many of those who didn't participate in Slido chose to instead use the chat or verbal channels to provide their input. 95 comments were provided to the chat function.

A small number of participants noted their individual difficulty accessing the Slido tool (see Section 4).

Invited stakeholders included members or representatives from:

- Community and customer advocacy organisations
- Environment organisations
- Planners, builders of energy infrastructure
- Local Government agencies
- State Government agencies
- Federal Government agencies
- Regulatory bodies
- Energy network providers

*Appendix A lists the organisations that attended.*

## 2. Overall insights

**Over the next 10 years, how can DNSPs best support the communities they serve in adapting to a changing climate?**

An analysis of stakeholder feedback given in response to the question above and in overall discussion suggested DNSPs can best support the communities they serve in adapting to a changing climate in the following four ways.

*These four themes are explored in further detail in Section 3.*

### 1. Support local resilience planning and community education

DNSPs should support investment in locally relevant energy resilient solutions. Engaging and working with communities on this would ensure network operations and responses reflect the varied needs of communities across regions.

Working in collaboration with communities and local institutions (e.g. councils) to strengthen networks would help build people's understanding of resilience, including the role of DNSPs, and empower greater customer choice to manage the impact of weather events.

### 2. Utilise available partnership opportunities

Sharing the responsibility in building resilience was supported. Engaging in partnerships with different specialty groups, such as emergency services or government resilience agencies would improve responsiveness to outages and enable more innovative resilience solutions for customers.

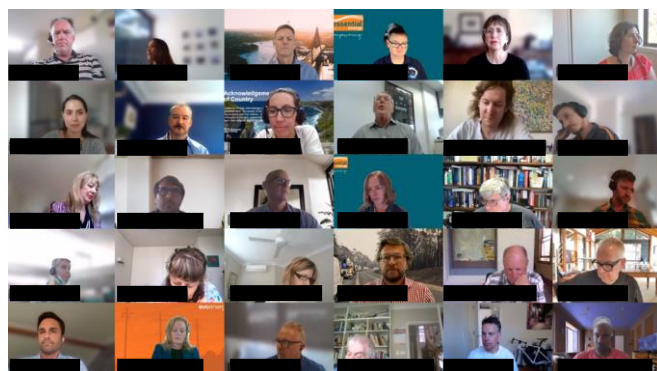
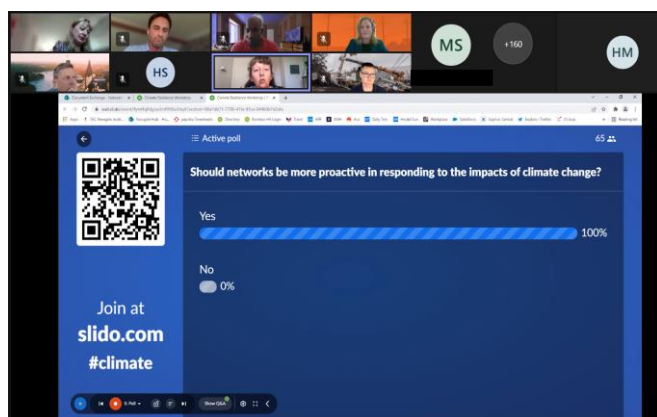
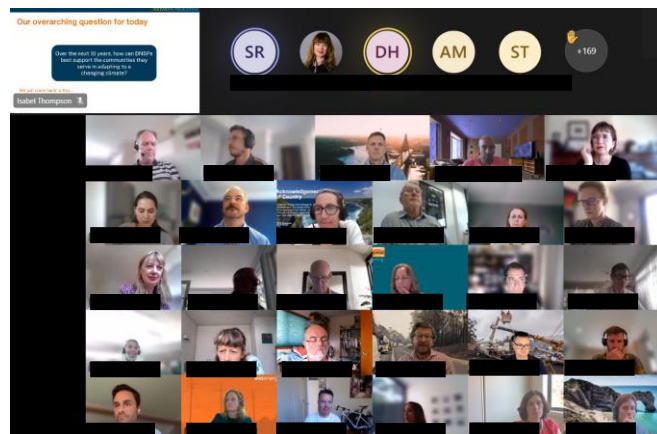
### 3. Improve communication and responsiveness during large-scale events

Timely and regular communication about outages with affected communities was highly valued.

DNSPs should manage consumer expectations regarding electricity supply through greater communication and instruction before and during events, and work towards faster restoration times.

### 4. Network resilience to adapt and transform with communities

As climate-related risks and events increase, DNSPs should adapt and transform their networks through evidenced-based investments to better prepare for and respond to such events. This should include exploring opportunities for network hardening using innovative and newly emerging technology solutions.



## 3. Insights by discussion topic

### 3.1 What is network resilience?

**In this presentation, DNSPs asked participants to discuss and test their draft definition of resilience; the ability to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard.**

**Below are key themes from analysis across the verbal discussion, meeting chat and Slido results and include participants' responses to the three questions asked.**

#### **Network Resilience as DNSP preparedness to respond**

Participants were largely in agreement that resilience essentially means DNSPs are ready for and have the capacity to bounce back from major events causing electricity disruptions.

Some felt this meant network hardening through methods such as vegetation clearing and asset upgrades. The expectation for some is that the network continue operating whilst being impacted by hazards.

Others felt improved resilience is less about assets being resistant to hazards through a hardened network, but is a means to mitigate the risks and impacts of such hazards or events (reducing severity of impact and duration), for example asset repair and restoration.

A comment was made about the level of investment needing to be prudent. Others noted the need for evidence-based decision making.

DNSPs noted in debrief discussions that this debate is contingent on people's definition of 'network hardening.' For customers, hardening often means improving or increasing network infrastructure while DNSPs consider 'hardening' to be a layered approach including improved communication and responsiveness during events and innovative solutions outside of traditional network infrastructure. This was a gap in understanding identified from discussions.

#### **Proactive planning is critical in building resilience and responding to climate change**

It was felt DNSPs had a role to proactively plan for increased climate-related risks. It was felt they should do this by

- working with the community on 'behind-the-meter' solutions (e.g. solar and battery storage) to strengthen community resilience.
- mitigating risks early. This included anticipating impacts to network assets and strengthening the network accordingly.
- effectively communicating the issues and challenges facing customers, stakeholders, and government.

*"Needs to be a proactive approach to building resilience to climate change impacts"*  
– Slido

*"If it (the network) is going to be more constantly compromised - it may be more efficient to invest more in rapid responsiveness and less in hardened central network."*  
– Chat

An orange rounded rectangle containing a 'Q' and 'A' icon at the top. Below the icon, the text 'Questions asked' is written in white. Three questions are listed in white text: 'What does resilience mean to you?', 'What do you see as the role of electricity networks in responding to climate change?', and 'What are your views on the set of general principles we have developed for considering resilience?'

**Questions asked**

What does resilience mean to you?

What do you see as the role of electricity networks in responding to climate change?

What are your views on the set of general principles we have developed for considering resilience?

## Resilience means supporting an interconnected network

It was noted that the topic of resilience applied to many other service providers apart from electricity. It was felt that, where responsibilities are unclear, a coordinated approach between all services would translate into the best outcomes for customers.


It was noted that it is not just resilience of a single asset but of supply to an *"entire interconnected ecosystem."*

The sharing of information before and during major disruption events between services was seen as one solution and as a possible way to improve continuity of service.

## Extending the scope of resilience to include community needs for electricity and how these change

When defining and planning for resilience, DNSPs should consider more than the impacts of events that are related to climate change. It was felt resilience should account for all challenges facing communities including other environmental factors, and social and economic environments such as people's changing abilities to pay bills, the affordability of local solutions, and cost-sharing arrangements.

It should be clarified who benefits from infrastructure and supply investments. Resilience is about communities being able to thrive.



*"Resilience is about an approach rather than an outcome - resilience means doing things differently (rather than more or less) in order to mitigate the impact of hazards both in severity, spread or duration" – Slido*

*"Needs to be more than just communicating during events, but planning" – Chat*

## 3.2 What is changing?

**This topic highlighted that climate change has increased the likelihood of events that impact the network in significant ways. The forum asked participants to consider this fact and evaluate networks' current approach to resilience against these changing circumstances.**

**The themes below are combined findings found across the verbal discussion, meeting chat and Slido results and include participants' responses to the three questions asked.**

**69%** of participants (n=68) thought the current measures of reliability do not reflect what customers value today in terms of service outcomes

**100%** of participants (n=66) felt networks should be more proactive in responding to the impacts of climate change



### Questions asked

Do the current measures of reliability (average duration and frequency of outages) reflect what customers value today in terms of service outcomes?

Should networks be more proactive in responding to the impacts of climate change?

What factors should be considered in making these decisions?

### A readjustment is needed to reflect changing community needs and expectations

Participants discussed in depth the increase in community expectations regarding their electricity supply. Some felt that an increasing dependence on electricity means customers now broadly expect almost complete reliability even during large-scale impact events.

Some noted that changing expectations also means that customers expect more than just reliability from their network. They desire the ability to disconnect from the grid with alternate power supply, or to have alternate energy systems and transfer options such as vehicle-to-grid enabled electric vehicles.

An acknowledgement of changed or inequitable risk profiles (spatial differences in community risk) may be needed. Customers have been exposed to prolonged outages recently, with Covid-19 also affecting the provider's response times given the pandemic's impact on staffing levels. It was noted the average outage reporting figures do not capture the significant impacts (duration of outages) to communities from events classified as major event days.

### Greater agency coordination and integrated planning across the network is needed to achieve resilience

Participants agreed firstly that DNSPs should be more proactive in responding to the impacts of climate change and secondly that a holistic approach is needed to improve network resilience and meet customer values and needs. Alternatives beyond network based solutions should be explored in order to meet the changing needs of all communities.

*"From a customer perspective, resilience or reliability is about having electricity all the time, even during hazards. Simple" – Slido*

*"We need to be conscious that we do not turn DNSPs into the 'silver bullet' to address issues coming out of climate change. There may be other parties who are better placed to deal with some of them" – Slido*

Participants suggested this could be achieved through increased communication and coordination between DNSPs, broader emergency 'planning arms' (such as emergency services), the community and the Australian Electricity Regulator.

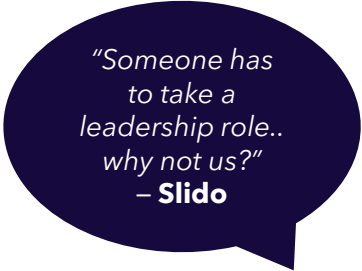
Examples given included real-time data sharing between relevant parties, planning for remote energy solutions, working with local councils to enable better vegetation management, and improving co-ordinated efforts in community education and empowerment across delivery agencies.

### Role of governments in supporting resilience planning

Across discussions, the limitations of DNSPs were recognised. Involvement of and investment from federal and state governments in non-network specific solutions was seen as a critical component to achieving network resilience, particularly concerning investments in renewable systems.

It was acknowledged there may be a lack of motivation or understanding from governments to address some issues facing the networks. To address this, it was felt DNSPs should assume a leadership role in advocating for better consumer outcomes on behalf of customers to governments and political leaders. Participants thought DNSPs, through working with government agencies, could create positive change by

- supporting better corridor and vegetation management
- promoting community centred solutions such as energy sharing among customers, vehicle-grid energy transfers, and community storage options
- encouraging a faster transition to renewable energy.



*"Someone has to take a leadership role.. why not us?"*  
– Slido



*"We need to invest money into renewables network now to cover us for future issues and demand - I don't think that governments are as convinced of this"* – Chat

### 3.3 Community resilience

**Discussion on community resilience sought to understand from participants how DNSPs can best support communities in managing and being prepared for risks to the network.**

**The themes below are combined findings found across the verbal discussion, meeting chat and Slido results and include participants' responses to the two questions asked.**

**81%** of participants (n=57) felt electricity

networks should play a role beyond education and communication to help communities prepare for extreme weather events and possible disruptions to power.

**DNSPs should use/work with outside resources where needed to create optimal community benefits**

It was widely felt that to provide optimal outcomes and benefits to customers, DNSPs should look to other institutions or bodies where they may be more equipped to fill in some of the gaps in DNSPs' existing services. Participants felt increased partnerships between DNSPs, government resilience agencies, and suppliers of essential or emergency services would support resilience planning and ensure more coordinated responses to major events amongst recovery services.

Partnerships were thought to be particularly relevant for vulnerable customers (people exposed to higher risk of outages), as they could allow for more targeted network efforts that have a greater focus on addressing the needs of vulnerable customers.

This was seen as of particular importance as climate-related risks increase and intensify, therefore increasing the number of communities and people *more* adversely affected than others. It was noted this issue is compounded by Australia's ageing population, with elderly citizens being more vulnerable in times of large-scale outages.

As demonstrated in the above poll result, the network providers should expand their efforts in creating community resilience. Partnerships were seen as being able to facilitate stronger, expanded efforts in community resilience and recovery support, including mutual aid opportunities (sharing resources between DNSPs to respond to outages).

#### **Community as a partner in resilience planning**

Most participants felt communities should have a greater say and role in their own resilience planning. DNSPs could partner with communities to plan and implement safeguards that suit their different priorities and consumer needs when it comes to creating resilience. Each community is different.

DNSPs could work more frequently within community level planning processes, including those being led by local councils. Examples given were to work with communities to develop self-sustaining back up power systems such as emergency hubs for use during major outages and to use community groups as support teams at emergency shelters.



#### **Questions asked**

Should electricity networks play a role beyond education and communication to help communities prepare for extreme weather events and possible disruptions to power?

The network providers have played a role in helping communities respond to extreme weather events to varying degrees. What do you expect from your provider in this situation?

*"That is why each community needs to be assisted to develop their own response plan and to prioritise their own needs"*  
– Chat

*"Support for and coordination with emergency service groups"*  
– Slido

*"Partnership with others is critical"* – Slido

## Communication is critical during event recovery

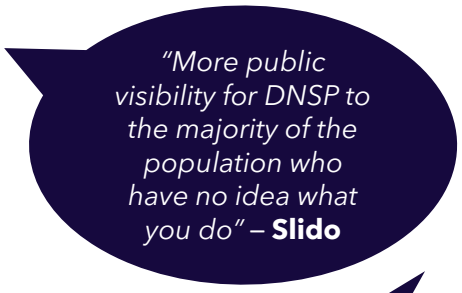
Within discussions on expectations, accurate and timely public communications during major events was highly valued among participants.

Most participants described:

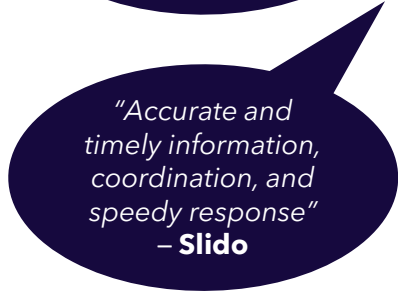
- quick energy network rectifications, and
- the provision of regular communication and updates on the process and timeframes

as being of high importance and crucial to manage community expectations. The topic of partnerships was raised again here, noting their usefulness when first responding to a major event.

Others noted media promotion as a valuable tool to educate communities on the role of DNSPs in general and in relation to managing specific events.



*"More public visibility for DNSP to the majority of the population who have no idea what you do" – Slido*



*"Accurate and timely information, coordination, and speedy response" – Slido*

### 3.4 Network resilience

**As the frequency and nature of extreme weather events changes, networks need to review their practices planning for and during such events.**

**Participants were asked to examine the proposed risk assessment framework and network resilience mitigation solutions.**

**The themes below are combined findings found across the verbal discussion, meeting chat and Slido results and include participants' responses to the three questions asked.**

#### Keeping the customer perspective front of mind

When developing a risk framework, it was important to participants that outcomes for the customer are always considered, particularly with the increasing frequency of major network events.

For some, this meant implementing ways to prioritise recovery responses to be in line with individual community needs and expectations. By doing this, DNSPs would operate in a way that reflects how different communities value resilience. An example given was a staged process of reinstating electricity supply so that places of high value to the community are reinstated first e.g., supermarkets.

Other examples given related to cost and service efficiencies. It was thought costs should be competitive and that cost options and impacts for building resilience be clearly communicated to customers.

#### Changing the modelling assumption and inclusions

Participants raised on multiple occasions the need for DNSPs to recognise that once rare disruption events are becoming frequent occurrences and require DNSPs to adapt how they prepare for and respond to these events.

#### Valuing major network outages and the balance that is required

It was raised that a methodology to value long duration or wide-scale events would be supported and that networks should not be penalised for major event occurrences (by the regulator). Others felt that if the likelihood of such events continues to increase, a separate mechanism to value the impacts of these outages might not be needed as they should be included in the regular distribution of events.

The role of the insurance sector was discussed, noting their evolving methodologies on how to value the risk of long duration or wide-scale events. The lack of a common framework across both insurance providers and DNSPs was noted by participants as problematic.



#### Questions asked

Are there any critical steps or other elements missing from the risk assessment and solutions process and framework?

Is there benefit in developing a way to value large-scale major events in network investment decisions?

Should DNSPs have a common framework for valuing the risk of large-scale major events?

*"...communities may not only have different priorities according to where they are but also different ways of valuing reliability of different aspects of their network during events" – Chat*

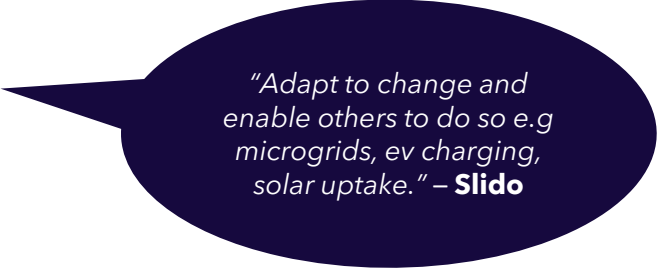
*"Need to stop thinking that what has been normal in the past is normal in the future" – Chat*

## Exploring new technologies

For participants, this meant exploring alternative solutions and opportunities beyond existing methods and not necessarily related to hard assets. These solutions could be supported by innovative, tech driven tools.

Participants' discussion on this topic offered the following suggestions as alternatives to physical network hardening:

- A standardised climate predictor model
- Solar and battery storage solutions
- Micro-grids
- Stand-alone power systems



*"Adapt to change and enable others to do so e.g microgrids, ev charging, solar uptake." – Slido*

## 3.5 Other themes that emerged in the discussion

The below lists other themes that emerged during discussion that fell outside of the themes identified in previous sections of this report.

### Valuing risk

- The current method of valuing risk, the Customer Reliability measure, may not be effective as it is. Increased communication with customers about price quality trade-offs is needed.

### Asset design and investment

- Design criteria of network assets and systems to consider long-term resilience requirements to provide the best outcomes for customers.
- By doing so, it would lessen the need for temporary systems such as portable generators, as the network would have the ability to continue operation during outages or be restored quickly.

### Renewable energy

- Greater exploration and adoption of renewable energy options would be encouraged by customers and may in some cases reduce pressure on the network.
- Network designs to encourage a greater uptake of local renewable energy sources.

### Customer service

- The definition of resilience should encompass the ability to provide consistent and acceptable levels of customer service *during* outages.

The top row shows a Slido poll titled "Over the next 10 years, how can DNSPs best support the communities they serve in adapting to a changing climate?". The poll has three options: "Making sure they are empowering communities - particularly with decentralised solutions.", "Taking a place based approach to community resilience. Priorities will vary from place to place.", and "Prevention is better than cure. So the focus on avoiding destruction should be the highest priority. Using physical measures of better waterproofing infrastructure, concrete poles etc. is fine, but we need to eliminate the risks of trees, better manage trees, etc.". The bottom row shows a Zoom meeting slide titled "Network Resilience" with the heading "What is changing?". The slide lists two bullet points: "The cost of natural hazard events in Australia has more than doubled since the 1970s and totalled \$35 billion over the past decade." and "The frequency and magnitude of these events are increasing due to climate change." It also includes a bar chart showing the "Number of dry Australian states experiencing severe drought 1 year out of 5 years" from 1970 to 2020, with a note that "The frequency of extreme heat events is increasing." The slide also mentions "See page 6 of the paper".

## 4. Feedback on the forum

### 4.1 Summary of results from the evaluation survey

At the end of the forum, participants were invited to complete an online evaluation survey using an online platform by Bang the Table.

22 participants completed the 16-question survey. 59% of respondents said they participated as a representative from an energy organisation, industry group, consumer group or as a private individual. 41% said they participated as 'other' but chose not to specify. 68% of respondents were located in NSW.

Feedback questions were asked using an agreement scale - Strongly agree, Somewhat agree, Neither agree nor disagree, Somewhat disagree, Strongly disagree.

- 82% of respondents strongly agreed or somewhat agreed with the statement *Overall, I am satisfied with the way the forum was run today.*
- 100% of respondents strongly agreed or somewhat agreed with the statement, *I understood the purpose of today's forum.* 95% strongly agreed or somewhat agreed with the statement *I feel I received enough information before today's forum to participate to the best of my ability.* There was some confusion about how the feedback from the session will be used, and some would have liked more information about network resilience and how the session was to be run.
- 55% of respondents strongly agreed or somewhat agreed with the statement *I believe aspects of today's engagement could have been done differently/better.* Some respondents thought more time for discussion was needed and that other tools may have facilitated easier observation and debate of the group's comments. Others thought it was run well. When asked to select aspects of the session's engagement that they thought worked well, 77% of respondents included Slido in their selection.
- 54% of respondents strongly agreed or somewhat agreed with the statement *I think there are other topics that could benefit from joint engagement.* Suggestions included engaging with councils and water authorities, and creating opportunities to discuss microgrids, community batteries and other regulatory reset issues. It was felt by respondents this discussion would be best executed through an online forum or online study circle/workshop.
- Respondents were given an opportunity to give an open feedback response about the forum or network resilience. Most took the opportunity to provide further comments on network resilience. Comments about the forum included suggestions of other tools and meeting platforms that are compatible across different devices, as some people had difficulty during the forum. Others thanked the group for the opportunity to participate in the forum.

### 4.2 Other feedback received

- DNSP internal stakeholders held mixed views about the choice of tools to capture participant input. The Slido tool was felt to have both advantages and disadvantages – capturing people's views in their own words is important; however, the comments scrolled quickly up the screen making it hard for others to read.
- Some participants suggested the following ways the session could have improved:
  - More discussion time – the session agenda was very 'full'
  - Inclusion of breakout sessions for conversation by reducing the agenda or increasing the length of the session
  - Fewer or easier to use engagement channels
- Other participants praised the session and thought it was run well and facilitated interesting discussion. Some positive feedback received is captured over the page.

## 4.3 SEC Newgate findings and recommendations

- Participants were surprised and enthusiastic at the number of people who had joined the forum. Over the space of 2 hours, discussion explored topics of a 21-page technical paper and over 400 written responses were provided. This amount of feedback would not have occurred with just an open discussion. The debate was rich across multiple channels at the same time, and most people had the time and means to provide their comments.
- Criticism given felt the forum objectives in the time allotted was ambitious and that the whole-group discussion felt rushed and would have benefited from breakout discussions. The idea of holding break out groups was considered in event planning, however doing so and using note takers would not have enabled all comments to be captured in the way that people intended.
- Concern was expressed that we would not capture the breadth and depth of comments. Potentially some participants were worried that the Slido tool could result in not all comments being captured, which is not the case and reassurance to participants could assist this concern.
- Some confusion was expressed regarding the feedback tools, others found instructions clear. More time could be given to technical instructions at the beginning of future sessions with high volume attendees.
- People wanted to debate the comments once they could see them. This would have required a much longer forum. An exploration of how to do this could occur in the next DNSP joint engagement session.
- 77 stakeholders participated in the beginning Slido activities, reducing to 22 in later questions. Given that many themes were returned to across the different questions, it can be seen participants attended with clear feedback that they wanted to discuss and once they had submitted this, they possibly did not feel the need to provide further input.

*"The huge number that participated in this engagement proved it was a huge success" –*  
**Survey**

*"Thank you for hosting this discussion, we look forward to building relationships for further planning for resilience..." –*  
**Chat**

*"Great presentation and engagement from attendees" –*  
**Survey**

*"The Slido system worked well."*  
**– Survey**

*"Thank you very much. It was a great session" –*  
**Discussion**

*"Presenters were clear and concise with good opportunities for participant feedback" –*  
**Survey**

## 5. Next steps

### **Findings from the forum will inform:**

- DNSP 2024-29 regulatory reset proposals, and
- ongoing discussions with regulators, and government and customer advocates.

### **DNSPs are committed to continuing the discussions from this forum. They plan to continue discussions with:**

- agencies to co-ordinate a shared approach to community resilience, and
- the Australian Energy Regulator on regulatory matters.

### **DNSPs will continue to explore:**

- behind-the-meter solutions, and
- non-network solutions.

# Appendices



## A. Organisations in attendance

ACT Council of Social Service	Department of Police, Fire and Emergency Management
ACT Government	Department of Treasury and Finance Tasmania
ActewAGL	Distributed Energy Services
ActewAGL	Electric Vehicle Council
Ampol	Endeavour Energy
Ausgrid	Energy & Water Ombudsman NSW
AusNetServices	Energy Consumers Australia
Australian Energy Market Commission	Energy Networks
Australian Energy Market Operator	Energy Queensland
Australian Energy Regulator	Energy Users Association of Australia
Australian Ethical Investment	Equinix
Australian National University	Erne Energy
Australian Road Research Board (ARRB)	Essential Energy
Bayside Council	Evoenergy
Business Australia	Georges River
Business Western Sydney	GHD
Cadency	Ginninderry
Canada Bay	Greater Sydney Commission
CitiPower & Powercor	Havyatt Associates
City of Sydney	Inmarsat
Clean Energy Council	Internode
Combined Energy	Jacobs
Committee for Sydney	Jemena
COTA ACT	KPMG
COTA NSW	Lane Cove Council
COTA Tasmania	LGI
CSIRO	Macquarie Aata Centres

Momentum Energy	Team Telstra
National Broadband Network	Tesla
Natural Hazards Research Australia	The Customer Advocate
Nekon	The Energy Charter
Next Energy	The Ethnic Communities' Council of NSW (ECCNSW)
NEXTDC	Total Environment Care
Nicholls.mmc	Transgrid
NSW Department of Planning	UDIA NSW
Ombudsman Tasmania	United Energy
Port Stephens	Uniting
Powerlink	University of Canberra
Public Interest Advocacy Centre	Waverley Council
Renew	Welcomer
Resilience NSW	Western Sydney Regional Organisation of Councils Ltd (WSROC)
Rheem	WP Martin
S&C Electric Company	
SA Power Networks	
Salvation Army	
Simply Energy	
Southern Sydney Regional Organisation of Councils (SSROC)	
Spotless	
St Vincent de Paul Society Victoria	
Sutherland Shire Council	
Tasmanian Renewable Energy Alliance	
Tasmanian State Emergency Service	
TasNetworks	
TE Connectivity	

## B. Presentation slides



NSW/ACT/TAS/NT

# Stakeholder forum Network Resilience





We acknowledge  
and pay our  
respect to the  
traditional  
custodians of the  
lands and waters  
of Australia, and  
all Aboriginal  
Elders, past,  
present and  
emerging.

Image credit: 'New Life', by Michael Lambeth,  
Powerline Worker, Casino NSW

# Welcome

**NSW/ACT/TAS/NT  
electricity distributors**



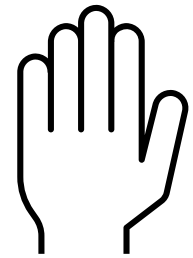
**External facilitator**



# Agenda



	Time	Lead	Duration
Welcome and introductions	2pm	SEC Newgate	5 mins
Overview of today's forum	2.05	Endeavour Energy	10 mins
What is network resilience?	2.15	Ausgrid	15 mins
<b>Discussion 1</b>	2.30	SEC Newgate	15 mins
What is changing?	2.45	Evoenergy	10 mins
<b>Discussion 2</b>	2.55	SEC Newgate	15 mins
<b>Break</b>	3.10		5 mins
Community Resilience	3.15	Essential Energy	5 mins
<b>Discussion 3</b>	3.20	SEC Newgate	15 mins
Network Resilience	3.35	TasNetworks	10 mins
<b>Discussion 4</b>	3.45	SEC Newgate	10 mins
<b>Final thoughts</b>	3.55	SEC Newgate	2 mins
<b>Feedback survey</b>	3.57pm	SEC Newgate	3 mins
<b>Close</b>	4pm		



# Who is here today?

Energy network providers

State Government agencies

Federal Government agencies

Local government agencies

Regulatory bodies

Community and customer advocacy organisations

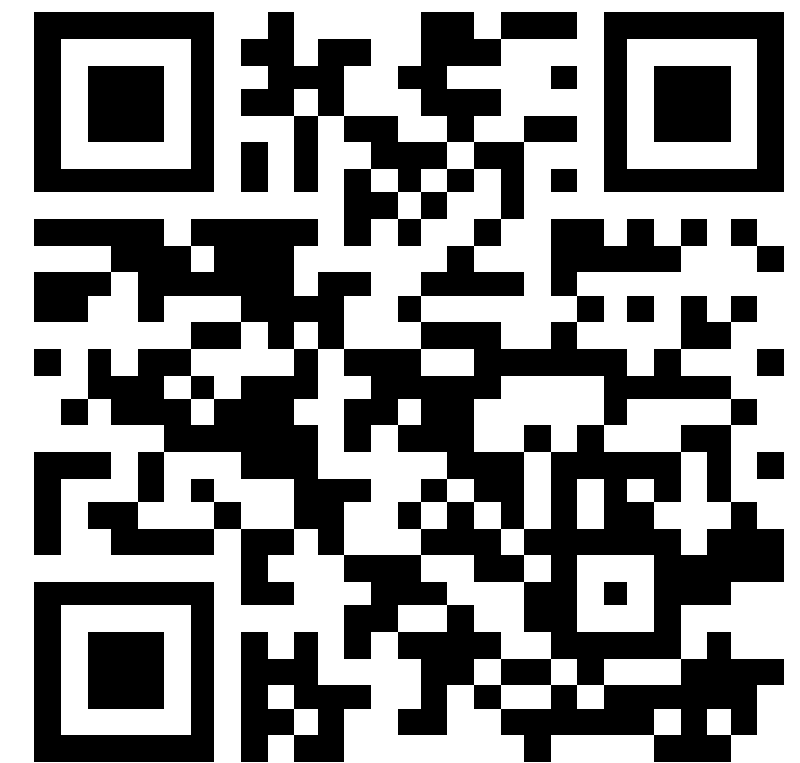
Environment organisations

Planners, builders of energy infrastructure

Other essential services

# Today is a busy forum – we must hear from everyone in the room

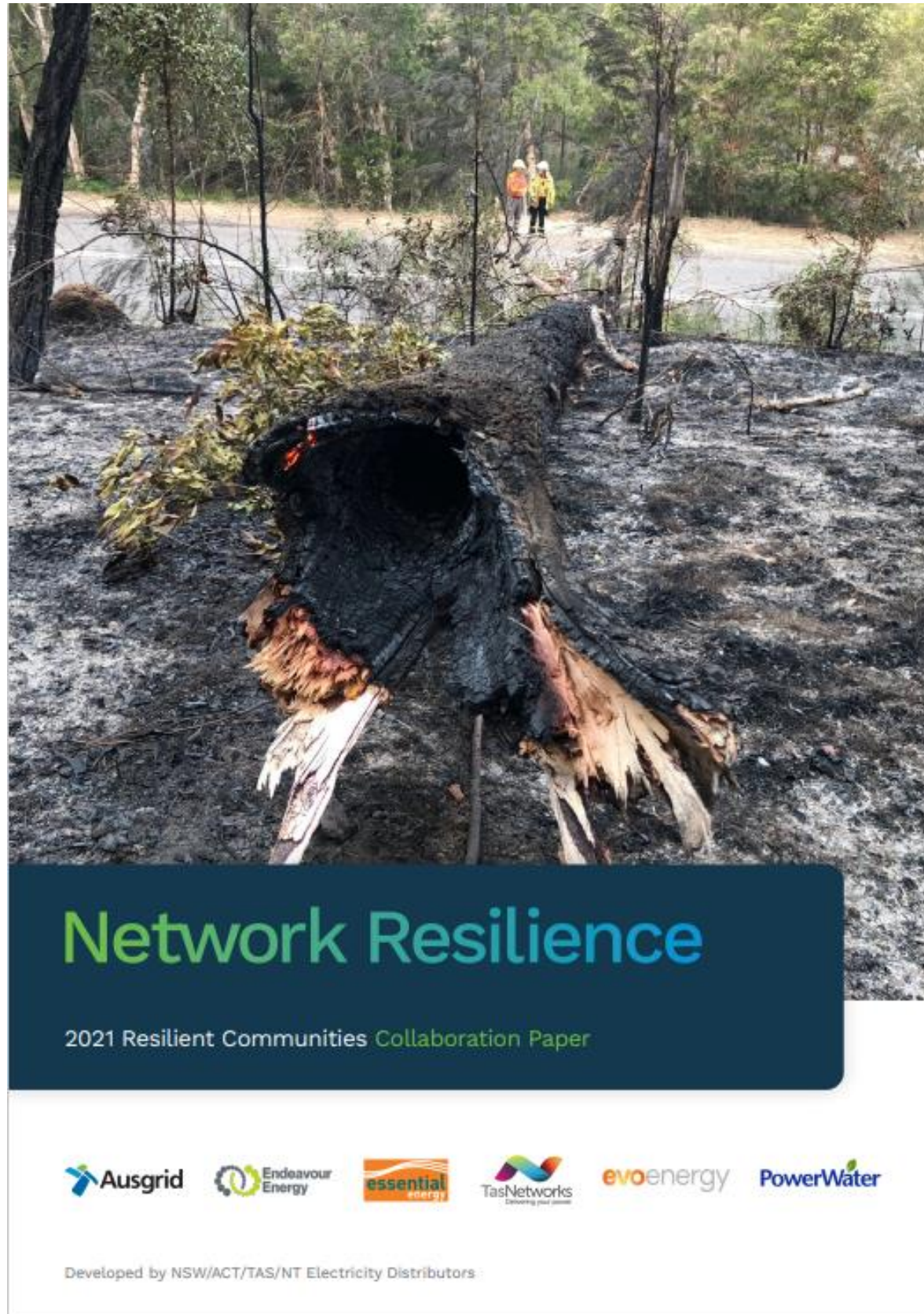
- To make sure we hear from everyone, we will be using a program called **Slido**.
- You will **need your phone** to participate.
- To set it up ready for the first activity, **scan the QR code on the screen now. Do not answer anything yet!**
- If you ever get stuck using it, post a message to Isabel in the Teams chat bar.
- For those who have trouble scanning the code, you can join at [slido.com](https://slido.com) with #climate. We will pop this in the chat now.



**slido**

Scan the QR code or  
join at [slido.com](https://slido.com) with  
#climate

# Overview



## Our objective

To ask you the broad question: Over the next 10 years, how can DNSPs best support the communities they serve in adapting to a changing climate?



## Participation in today's public forum

The Q&A sessions and polling activities will provide an opportunity for us to hear your thoughts on the consultation paper and the information shared today.



## Have your say

Please contact your preferred distribution network operator

- Ausgrid - Kara Chan at [kara.chan@ausgrid.com.au](mailto:kara.chan@ausgrid.com.au)
- Endeavor Energy - Samuel Morris at [Samuel.morris@endeavourenergy.com.au](mailto:Samuel.morris@endeavourenergy.com.au)
- Essential Energy - Natalie Lindsay at [natalie.lindsay@essentialenergy.com.au](mailto:natalie.lindsay@essentialenergy.com.au)
- Evoenergy - Tom Atkins at [tom.atkins@evoenergy.com.au](mailto:tom.atkins@evoenergy.com.au)
- TasNetworks - Brent McKillop at [Brent.McKillop@tasnetworks.com.au](mailto:Brent.McKillop@tasnetworks.com.au)
- Power and Water Corp - Brendon Crown at [Brendon.Crown@powerwater.com.au](mailto:Brendon.Crown@powerwater.com.au)

# Our overarching question for today

Over the next 10 years, how can DNSPs best support the communities they serve in adapting to a changing climate?

We will come back to this...

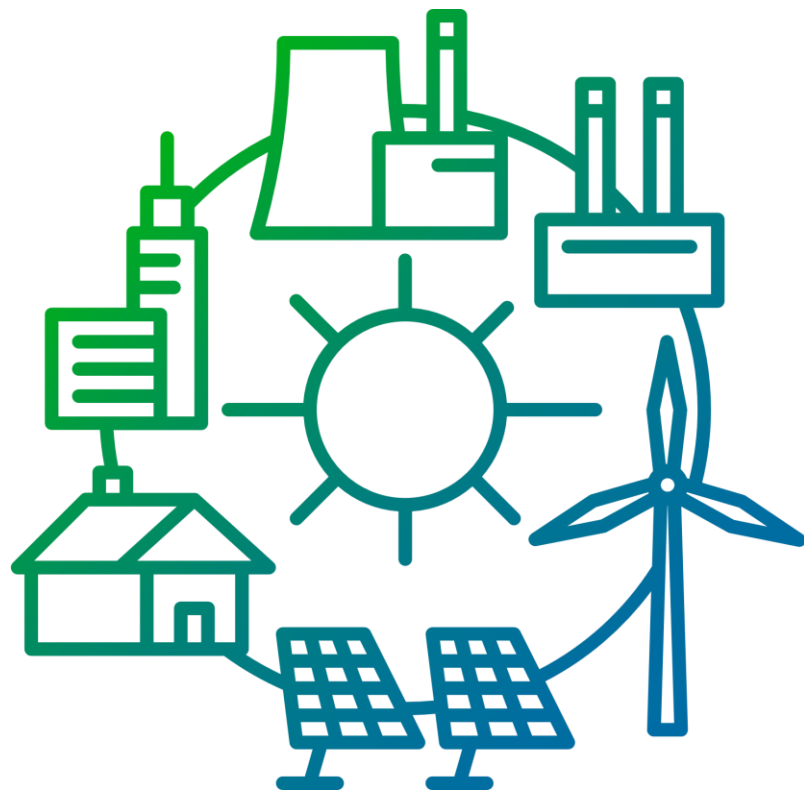
# 2024-29 reset process



The NSW/ACT/TAS/NT electricity distributors are due to submit their regulatory proposals in January 2023. We are engaging early to inform those proposals.

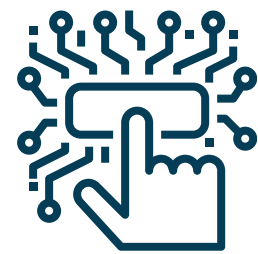


# Why we're running these joint consultations



## Climate Change Impacts

The affects of climate change is increasingly impacting our communities, network, and the way we operate



## Customer Expectations

As we continue to become more reliant on the electricity network, we want to understand how our customers want us to respond to the impacts of climate change.



## Policy change

The information gained from this engagement will be shared with our regulatory bodies, helping to shape the frameworks on which we will base our expenditure proposals.



Joint consultation lightens the load on our common stakeholders and allows us to gain a broader spectrum of views on the challenges and opportunities impacting us all.

# Network experiences with changing climate



East Coast Low Storm, 2020



Bushfires, 2019 - 2020



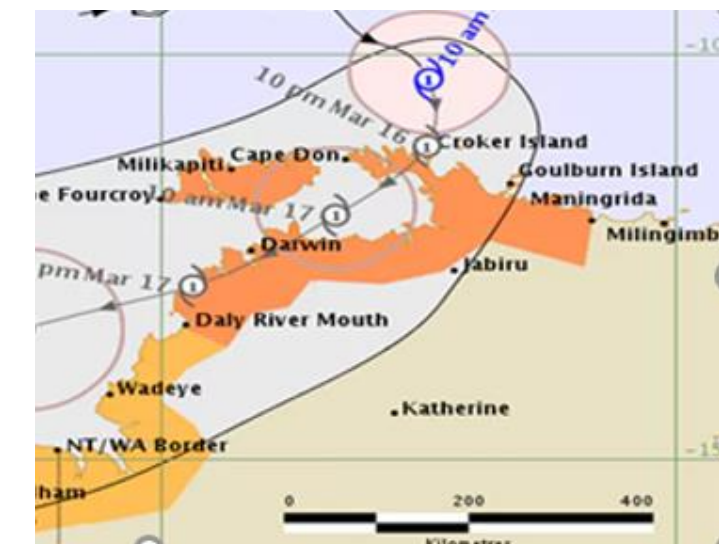
South Esk River Flood, 2014



Bushfires 2019 – 2020



Canberra supercell event, 2022



Tropical Cyclone Marcus, 2018

# A definition for resilience

See page  
2 of the  
paper



“The ability to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard” (Resilience NSW and UNDRR)



**Resist**

Building our capability to **withstand** impacts or **avoid** network destruction



**Absorb/  
Accommodate**

Minimising **disruptions** to networks and customers and **supporting communities** during these events



**Adapt/  
Transform**

Use **learnings** to identify **opportunities** or **anticipate** hazards to ensure the lived experience is acceptable to customers



**Recover**

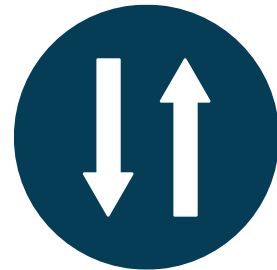
Ensuring plans and processes provide energy **supply restoration** as **quickly** as possible



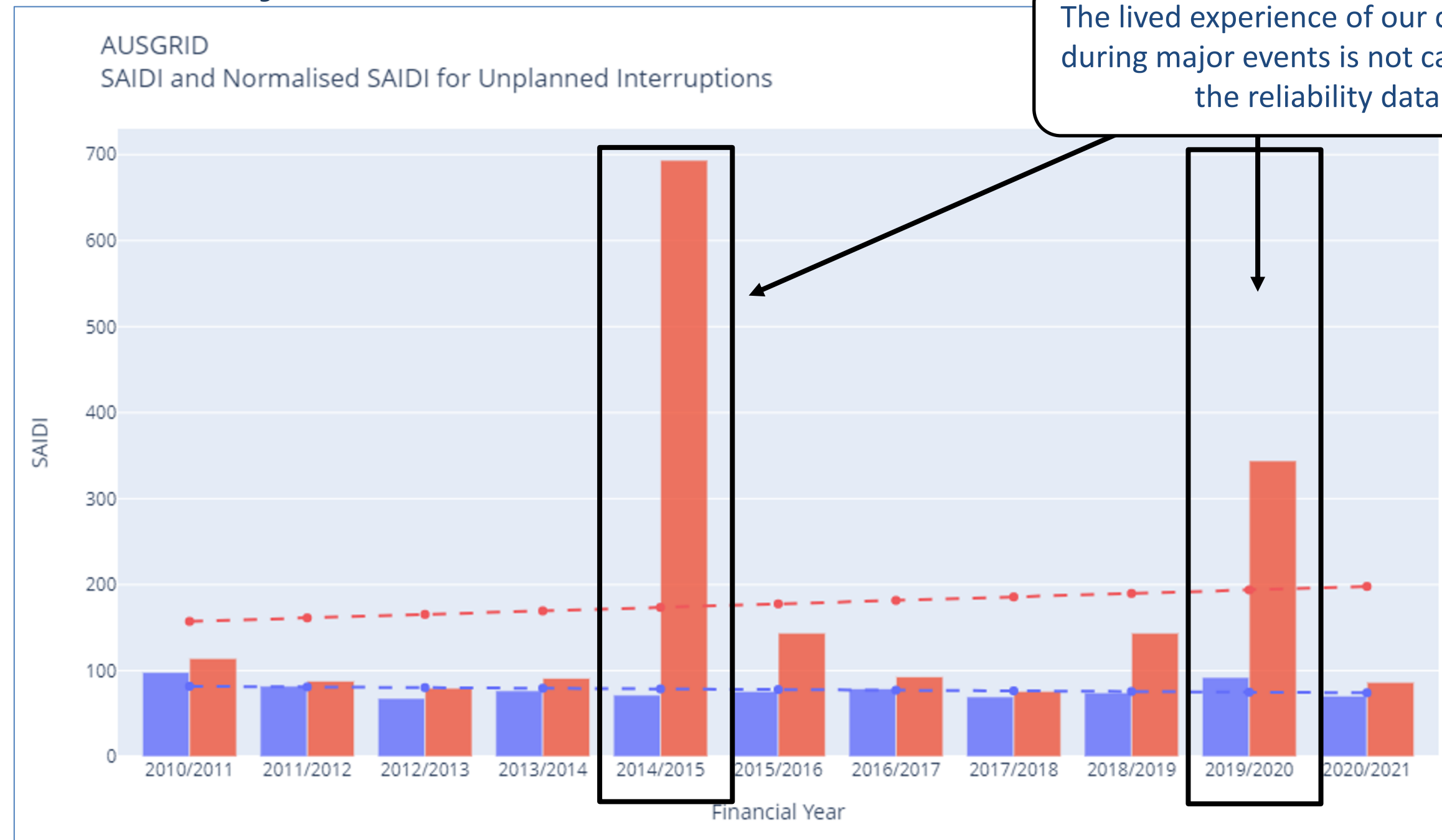
**Hazard**

Major disruptive event or chronic risk such as extreme weather events, cyber-attacks, or losses in power supply from fluctuations in intermittent energy sources outside of normal operating parameters.

# Reliability data



During extreme weather events, customers experience extensive disruption (both impact and duration).  
Current reliability performance measures do not account for major event days and excluded events.



# What are the networks required to do?

See page  
4 of the  
paper



## National Electricity Objective

“to promote efficient investment in, and efficient operation and use of, electricity services for the **long term** interests of consumers of electricity with respect to:

- price, quality, safety and reliability and security of supply of electricity
- the reliability, safety and security of the national electricity system”

Lower  
probability

Higher  
probability



Price

# General Principles



## Principles for responding to resilience

See page 5 of the paper

Principle	Overview	Alignment with other investments
Targeted	Resilience investments will be targeted at the assets and areas most at risk (e.g. bushfire prone areas)	●
Customer benefits	Decisions to invest, or not invest, will be based on what unlocks the most net economic benefits	●
Risk based approach	Economic benefits will be calculated by comparing forecast costs and the monetised value of risk	●
Evidence based	Probability of events driving resilience investments will be informed by evidence	●
Time horizon	Costs and benefits associated with an investment will be assessed over the life of the asset (40 or more years)	●

# Q&A Panel: what is network resilience?



## Questions to you

1. What does resilience mean to you?
2. What do you see as the role of electricity networks in responding to climate change?



## Instructions

Please answer Questions 1 and 2 through Slido. Isabel will now share her screen where you will be able to scan the QR code.  
**Remember** – if you have trouble scanning the code, you can join at [slido.com](https://slido.com) with #climate



## Group discussion

What are your views on the set of general principles we have developed for considering resilience?

## Instructions

No technology needed. We will discuss this as a group after the Slido questions.

Slido



What does resilience mean to you?

Slido



What do you see as the role of electricity networks in responding to climate change?

# Group discussion



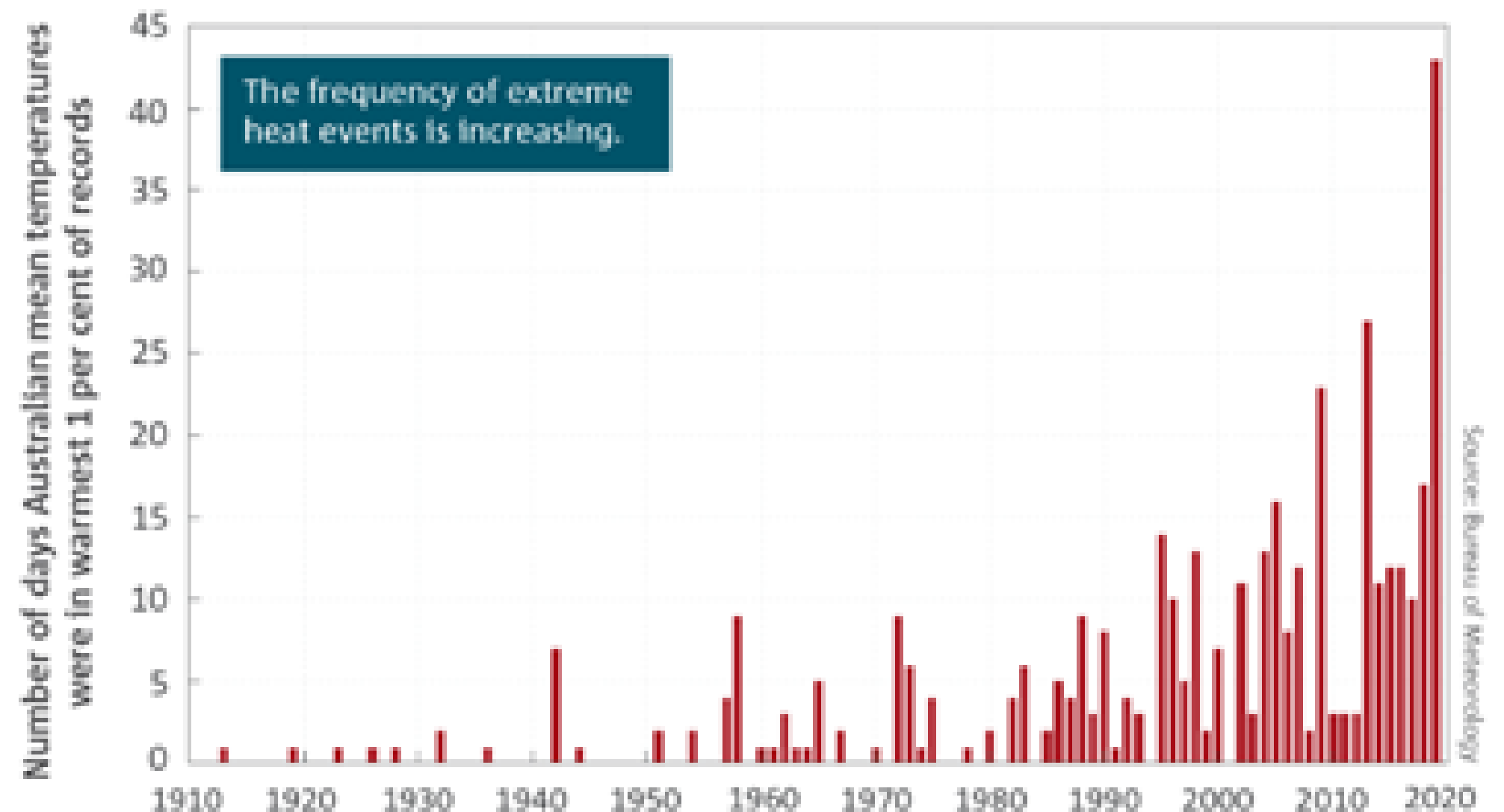
What are your views on the set of general principles we have developed for considering resilience?

# What is changing?

See page  
6 of the  
paper



- The cost of natural hazard events in Australia has more than doubled since the 1970s and totalled \$35 billion over the past decade.
- The frequency and magnitude of these events **are increasing** due to climate change.
- Without accounting for climate change impacts when making network investments, there is risk of **locking in higher costs and greater risk for network customers.**



# What is changing?



- Electricity is central to the delivery of **widespread essential services**.
- Damage to network assets triggers **broader impacts at both a widescale and local community scale**.
- The upcoming 2024-29 regulatory period allows DNSPs to embed the potential impact of **climate change in investment decision-making**.
- This would ensure that **climate resilience is significantly improved over the next 40–70 years** as assets are retired, fail, or are otherwise destroyed and possibly replaced with a more resilient solution.

See page  
8 of the  
paper

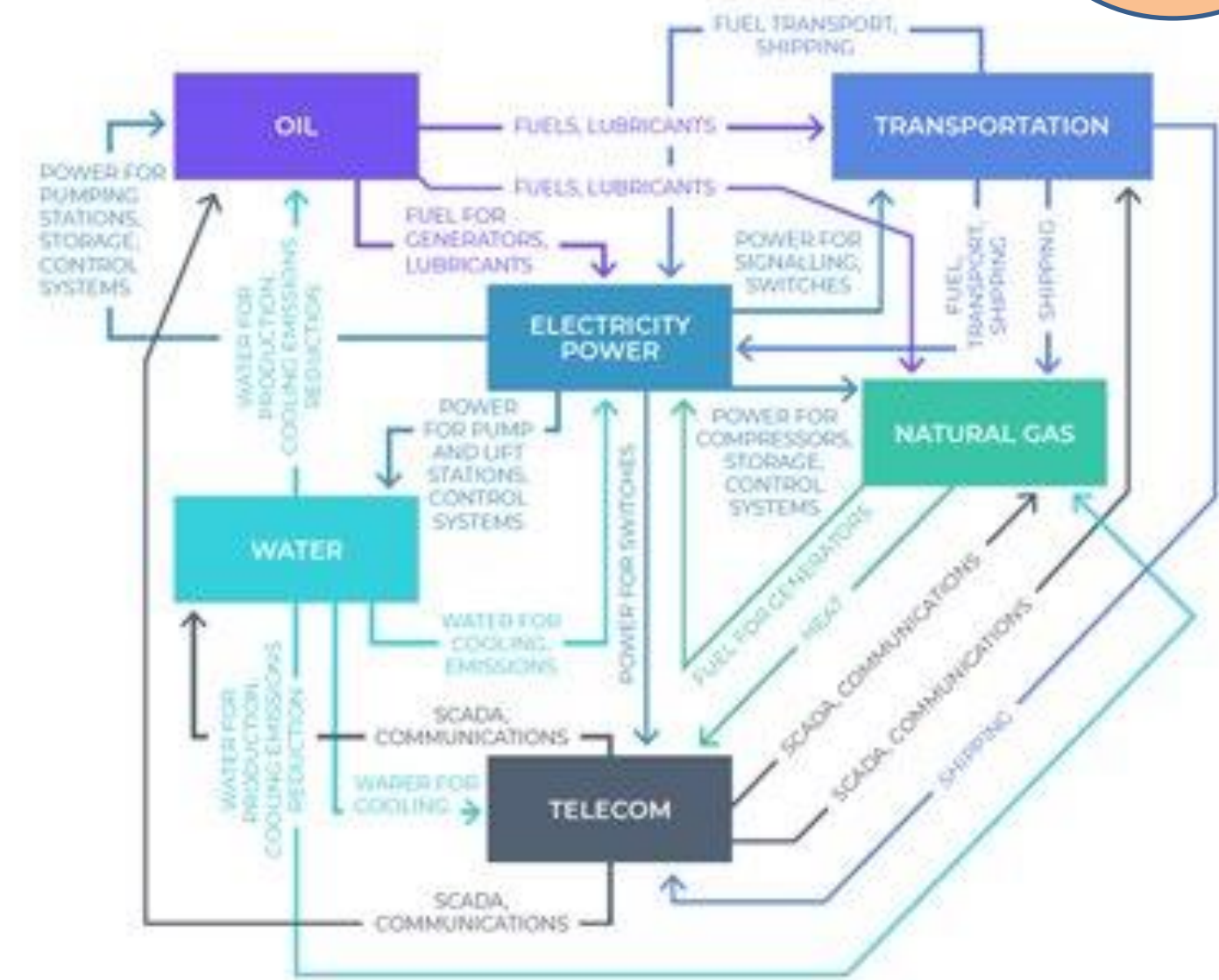


Figure 1: Examples of infrastructure interdependencies for selected critical infrastructure systems. Critical Infrastructure Resilience Strategy - Emergency Management Victoria (2015)

# Q&A Panel: what is changing?



## Questions to you

1. Do the current measures of reliability (average duration and frequency of outages) reflect what customers value today in terms of service outcomes? Yes/No and Why?



## Instructions

Please answer Questions 1 and 2 through Slido. Isabel will now share her screen where you will be able to scan the QR code.

**Remember** – if you have trouble scanning the code, you can join at [slido.com](https://slido.com) with #climate

2. Should networks be more proactive in responding to the impacts of climate change? Yes/No, Why?

## Group discussion

What factors should be considered in making these decisions?



## Instructions

No technology needed. We will discuss this as a group after the Slido questions.

Slido



Do the current measures  
of reliability (average duration  
and frequency of outages) reflect  
what customers value today in terms of  
service outcomes?

Slido



Should networks be more proactive in responding to the impacts of climate change?

# Group discussion



What factors should be considered in making these decisions?

# Break



5 MINUTES

# Community resilience



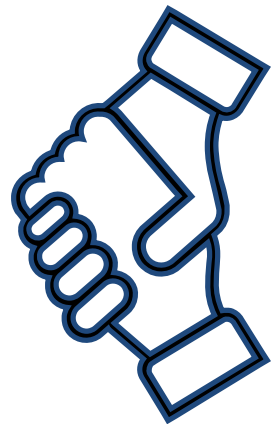
Expectations of the role of the networks in helping communities resist, absorb, adapt and recover from climate change events likely differs from what is considered in the regulatory framework.

## Community members

Residents and businesses

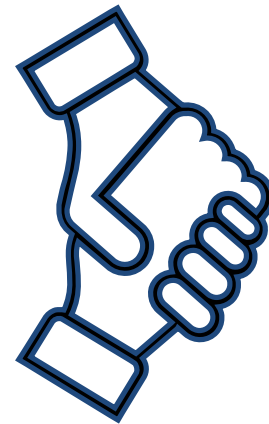


**Critical infrastructure providers**  
e.g. tele-communications, water & sewer



## DNSPs

(electricity networks)



## Local service providers

e.g. Council, petrol station, supermarket & community hall



## Training and education

- ✓ Public awareness campaigns
- ? Joint training with government emergency services and community leaders, including practice drills around disaster management and recovery
- ? Hands-on training courses for key community personnel e.g. first responders



## Household preparation

- ? Sharing knowledge of the need for: Emergency kits, evacuation and family communication plans



## Community infrastructure

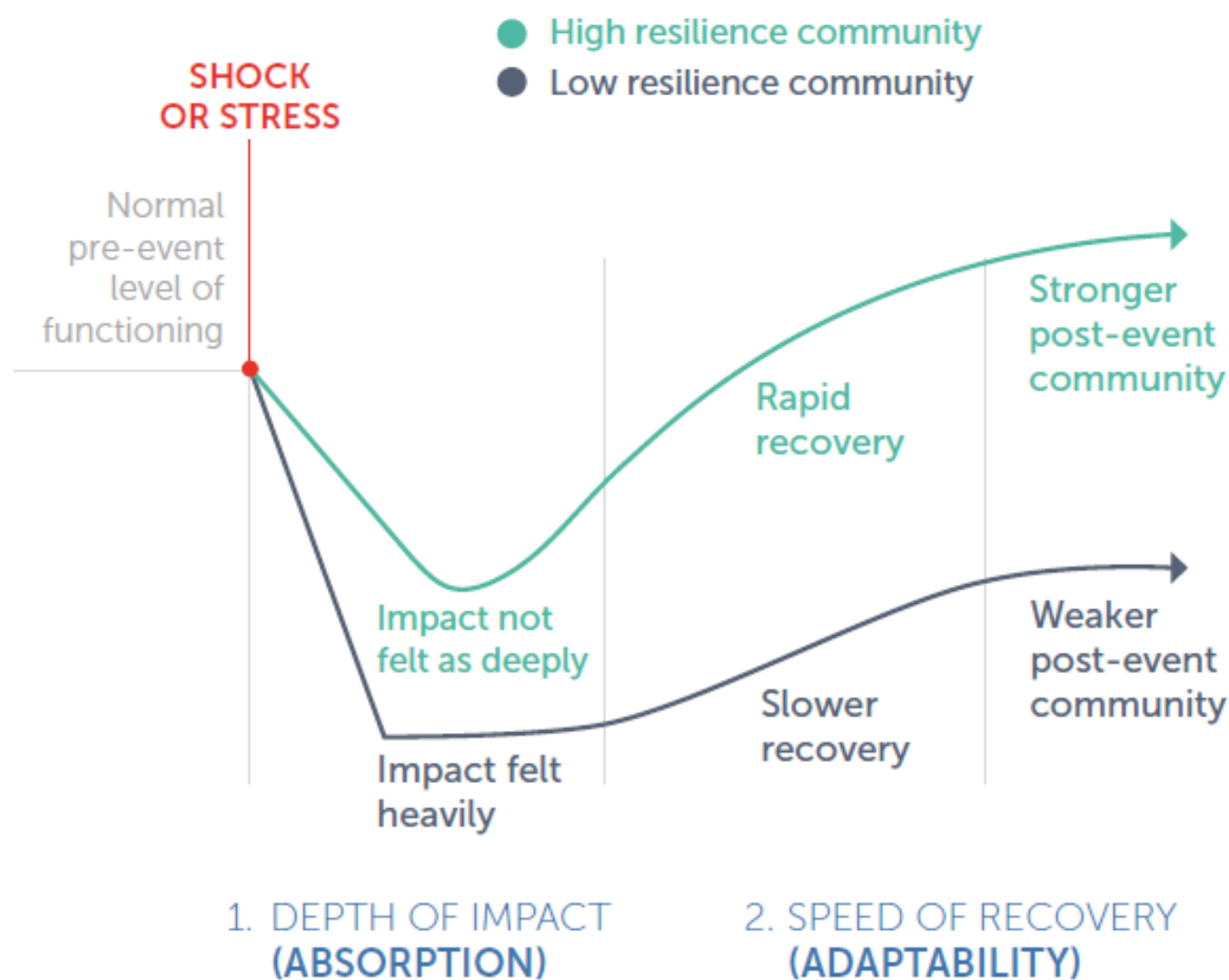
- ? Community evacuation facility
- ? Back-up power for essential services
- ? Portable power generators



# Community resilience

Assisting in building highly resilient communities.

See page  
9 of the  
paper



(Source: National Disaster Resilience Strategy ANHMC Conference 2019)

## Training and education



- ✓ Public awareness campaigns
- ? Joint training with government emergency services and community leaders, including practice drills around disaster management and recovery



- ? Hands-on training courses for key community personnel e.g. first responders

## Household preparation



- ? Sharing knowledge of the need for:
  - Emergency kits, evacuation and family communication plans



## Community infrastructure

- ? Community evacuation facility
- ? Back-up power for essential services
- ? Portable power generators

# Q&A Panel: community resilience



## Questions to you

1. Should electricity networks play a role beyond education and communication to help communities prepare for extreme weather events and possible disruptions to power? Yes/No and Why?

2. The network providers have played a role in helping communities respond to extreme weather events to varying degrees. What do you expect from your provider in this situation?



## Instructions

Please answer Questions 1 and 2 through Slido. Isabel will now share her screen where you will be able to scan the QR code.

**Remember** – if you have trouble scanning the code, you can join at [slido.com](https://slido.com) with #climate

## Group discussion

Let's discuss your responses.



## Instructions

No technology needed. We will discuss this as a group after the Slido questions.

Slido



Should electricity networks play a role beyond education and communication to help communities prepare for extreme weather events and possible disruptions to power?

Slido



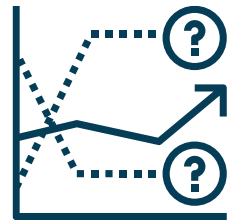
The network providers have played a role in helping communities respond to extreme weather events to varying degrees. What do you expect from your provider in this situation?

# Group discussion



Let's briefly discuss your responses.

# Steps to consider network resilience



## Risk Assessment Process and Framework

See page  
16 of the  
paper

<b>1</b>	<b>Identification of Hazards</b>	<ul style="list-style-type: none"> <li>– Review past hazard events (scale/impact, frequency, duration, type) by individual DINSPs and in the industry</li> <li>– Using climate models, determine the likelihood of future climate events in short, medium and long term cycles.</li> <li>– Quantifying consequences of events in terms of network operations, asset survivability and customer behaviour patterns.</li> </ul>
<b>2</b>	<b>Network Vulnerability Assessment</b>	<ul style="list-style-type: none"> <li>– Using SMEs to assess critical network components to identified climate hazards based on impact and severity and treatment options</li> <li>– Determine areas of network vulnerability</li> </ul>
<b>3</b>	<b>Development of Potential Opportunities</b>	<ul style="list-style-type: none"> <li>– Workshop potential opportunities (network investment, maintenance strategies, network planning, emergency response initiatives, collaboration opportunities), comparing to local and international industry</li> <li>– Comparison of opportunities based on cost, effectiveness and community benefit</li> </ul>
<b>4</b>	<b>Development of Pathway</b>	<ul style="list-style-type: none"> <li>– Develop transition pathway, identifying barriers and potential pitfalls to achieve success</li> <li>– Set targets and track progress against targets</li> </ul>
<b>5</b>	<b>Continual Review / Consultation</b>	<ul style="list-style-type: none"> <li>– Consultation with various industry (CSIRO and BOM) bodies and customer engagement groups</li> <li>– Review risks/treatments/opportunities on a regular basis, to ensure effective and efficient</li> </ul>

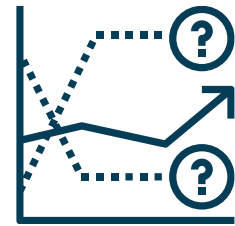
# Q&A Panel: network resilience

## Group discussion



Are there any critical steps or other elements missing from the risk assessment and solutions process and framework?

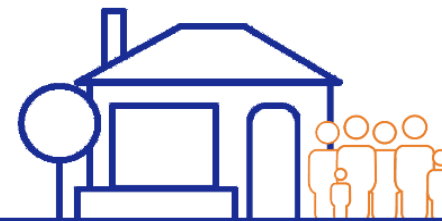
# Network Resilience



## Common Risks and Opportunities

See page  
19 of the  
paper

### Impact on Customers



- Increase in network prices from:
- > Asset upgrades and replacements
  - > Repairs and maintenance
- > Increased number of outages
- > Prolonged restoration times

- Increased safety risks from:
- > Reduced line clearances
  - > Vegetation growth
  - > Trying to avoid high bills
- > Increased risk of asset damage or loss



HEAT

- > Increase peak electricity demand
- > Reduce efficiency and capacity of overhead lines and equipment
- > Increase overhead line sag
- > Increase risk of network fire starts (see Bushfires below)

- > Alternative construction
- > Develop a community outcome



STORMS

Including lightning strikes, snow, ice and hail

- > Accelerate asset deterioration
- > Damage exposed network assets
- > Disrupt energy supply
- > Snow delays restoration efforts

- > Alternative construction
- > SAPS and microgrids for vulnerable areas
- > Share response with other DNSPs



WATER

Including extreme rainfall, sea level rise and storm surges

- > Damage substations, transformers and circuit breakers
- > Indirectly damage underground equipment and overhead wires
- > Floods reduce clearance to overhead lines
- > Restoration can be delayed
- > Increased vegetation growth impacts overhead lines

- > Alternative construction
- > Move highest risk assets to lower risk area
- > Share response with other DNSPs
- > Alter vegetation maintenance practice



WIND

Including cyclones, downbursts and airborne particles

- Can:
- > Damage overhead network assets
  - > Disrupt energy supply
  - > Cause flashovers
  - > Increase maintenance of overhead lines
  - > Increase risk of network fire starts (see Bushfires above)

- > Alternative construction
- > SAPS and microgrids for vulnerable areas
- > Share response with other DNSPs



BUSHFIRES

- > Damage overhead lines and equipment
- > Restoration can be delayed

- > Alternative construction
- > SAPS and microgrids for vulnerable areas
- > Develop a community outcome
- > De-energise on extreme temperature days
- > Share response with other DNSPs

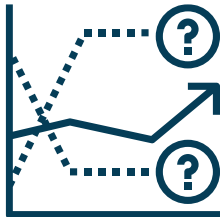


DROUGHT

- > Affects ground conductivity for underground cables
- > Indirectly damage overhead assets

- > Alternative construction

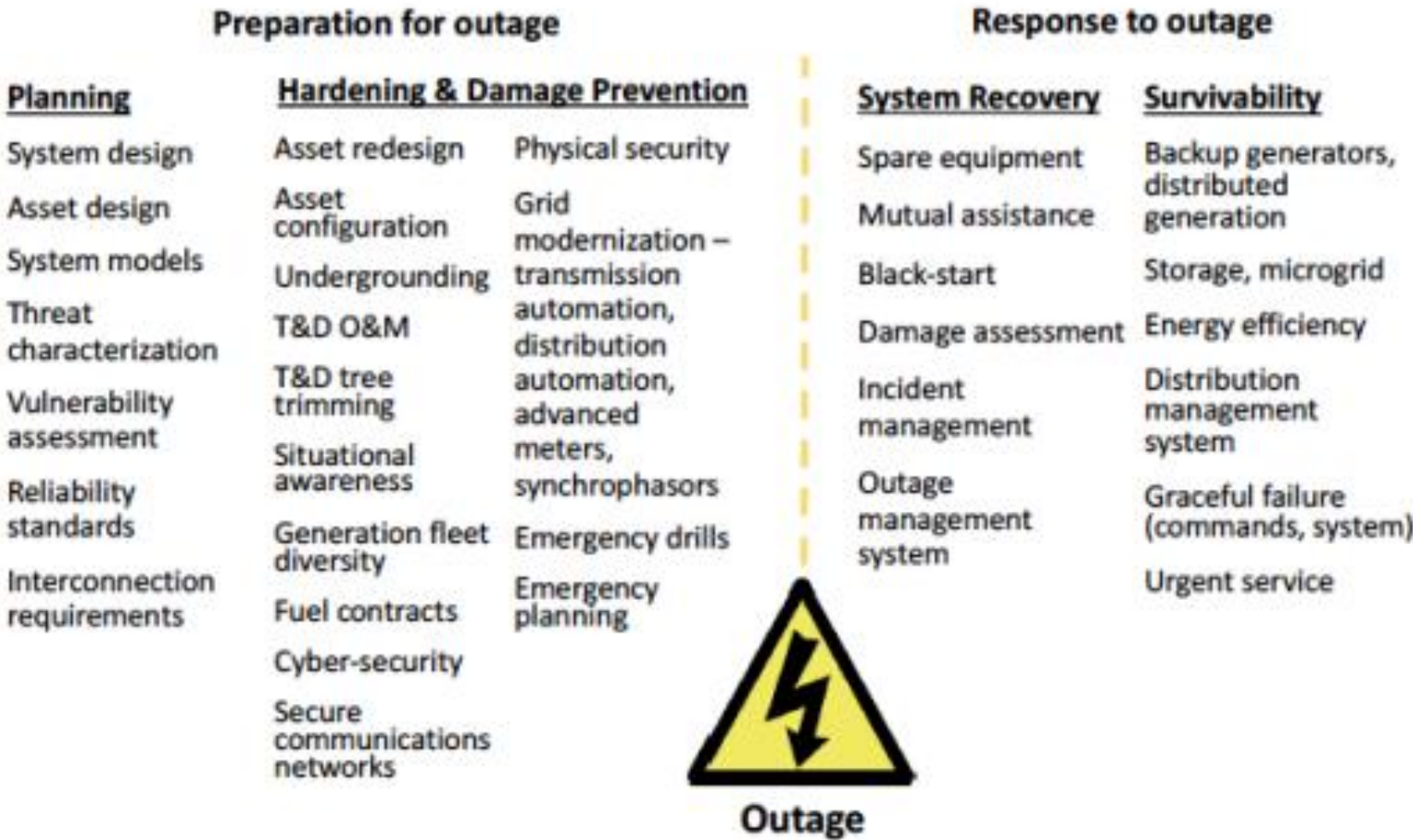
# Network Resilience



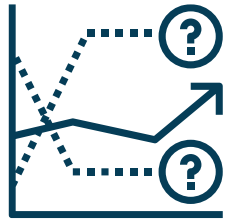
## Valuing Network Resilience

See page 17 of the paper

- Managing climate change risk involves both **pre-emptive and post-outage actions**.
- Balancing between these two actions may promote the networks to **adopt alternate network solutions that would otherwise not be competitive with traditional options**.



# Network Resilience



## Valuing Network Resilience

- Currently, reliability is quantified and monetised by the **Value of Customer Reliability (VCR) measure**.
- VCR measure is only appropriate for valuing **localised, short duration outages** (up to 12 hours).
- It does **not allow for large scale societal impacts** that occur from highly disruptive, low probability events. These events are expected to become more common due to climate change.
- There is **no current common methodology** used by networks to value and assess network resilience investments. If there was a common method that all the DNSPs used, it is likely that other investments, that are valued by customers, would become viable.

# Q&A Panel: network resilience

## Group discussion



- Is there benefit in developing a way to value large-scale major events in network investment decisions?
- Should DNSPs have a common framework for valuing the risk of large-scale major events?

# Q&A Panel: final thoughts



## Question to you

Over the next 10 years, how can DNSPs best support the communities they serve in adapting to a changing climate?



## Instructions

Please answer this question through Slido. Isabel will now share her screen where you will be able to scan the QR code. **Remember** – if you have trouble scanning the code, you can join at [slido.com](https://slido.com) with #climate

# Slido – final thoughts



Over the next 10 years, how can DNSPs best support the communities they serve in adapting to a changing climate?

# Your fast feedback on today

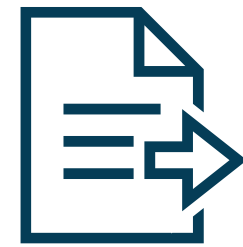


## **Survey**

The survey focuses on your satisfaction with the event.

We will share the link in the Teams chat bar now.

# Further opportunities for us to hear your views



## Written submissions

Stakeholders can provide written submissions on the consultation paper by February 28, 2022.

## Questions or submissions

- Ausgrid - Kara Chan at [kara.chan@ausgrid.com.au](mailto:kara.chan@ausgrid.com.au)
- Endeavor Energy - Samuel Morris at [Samuel.morris@endeavourenergy.com.au](mailto:Samuel.morris@endeavourenergy.com.au)
- Essential Energy - Natalie Lindsay at [natalie.lindsay@essentialenergy.com.au](mailto:natalie.lindsay@essentialenergy.com.au)
- Evoenergy - Tom Atkins at [tom.atkins@evoenergy.com.au](mailto:tom.atkins@evoenergy.com.au)
- TasNetworks - Brent McKillop at [Brent.McKillop@tasnetworks.com.au](mailto:Brent.McKillop@tasnetworks.com.au)
- Power and Water Corp - Brendon Crown at [Brendon.Crown@powerwater.com.au](mailto:Brendon.Crown@powerwater.com.au)

# Next steps

- Submissions due 28 February 2022
- We will send out answers to any outstanding questions **from the forum** in mid-March 2022
- Brief notes will be taken and combined with all of your comments and provided to all network providers
- Networks will consider feedback alongside the views of other stakeholders in their regulatory proposals

# Thank you everyone



## C. Slido data (*unedited*)

## SLIDO DATA

### What does resilience mean to you?

Capacity to cope through shocks and long slow stresses

Resilience is reduction in risk before an event, readiness for event as it approaches, response immediately after an event and recovery from an event, considering also long term options.

Long-term network protection against all hazards

Not just resilience of the asset or supply but of the entire interconnected ecosystem

Maintain supply of assets

Network that can withstand major events with minor disruption

Resilience is about an approach rather than an outcome - resilience means doing things differently (rather than more or less) in order to mitigate the impact of hazards both in severity, spread or duration - it is NOT about being resistant or impervious to hazard, but ensuring that the way things are done means the impact of hazard is avoided, mitigated or forshortened, by the approach taken to service delivery, etc

Coping with what nature throw at one

Community has understanding of energy availability

A network that is designed to not only respond to but incentivise the development of all-electric communities that are powered by renewables, include community and residential based storage and electric vehicles. This should be the basis for a resilient network.

Ability to be efficiently restored, but based on a prudent annual investment.

Reliability

Ability to see off infrequent major incident and return to business as usual with little disruption

Disaster Resilience is the ability of communities and individuals to survive adapt and thrive in the face of turbulent change or acute stress

Flexibility and ability to adapt

The ability of the distribution network (and my home) to survive problems, and be restored quickly if something does happen.

Capacity to adjust to and integrate a shock or trauma and keep functioning- not be overwhelmed or paralyzed

Ability to continue to perform the required function with minimum interruption to quality of the service.

Rising capacity of network and its customers to manage increase risk of supply disruption.

Provide and maintain an acceptable level of service under challenges to normal operations

Maintaining network function under extreme conditions

Capacity to avoid, prepare and to recover

In the case of electricity networks, that the service that it intends to deliver, continues to be delivered to its customers to a minimum agreed service quality

Frugal and sustainable socio-technical systems (inc energy)

Ability to adapt and respond to planned and unplanned events

Really nothing more than reliability. There's nothing new here.

Maintain supply - battery and storage; quickly recover

The network should be able to operate whilst be impacted by hazards

Safeguarding people, places and assets to live, play and work safely for years to come

Hardening the network

availability statistic of 1 for electrical supply.

Managing emergence of chronic conditions

In this context, ability to have continuous access to electricity that is affordable and zero carbon.

Electricity disruption due to weather events is minimal

Ability to recover from an extreme event

Being prepared to withstand hazard or impact as a community

Sustainable infrastructure that does not pose a financial burden on taxpayers

The ability for the network to withstand a significant event

The ability to overcome without additional support

Withstand, mitigate and recover from challenges

As per the document, good reference to follow.

Bounce forward

What does it mean for each at risk community...specifically

Ability to withstand time

Social, Economic and Environmental systems that respond to change in a sustainable and effective way

The ability of the service (which is providing electricity) to withstand extraordinary events

The ability of a system to resist, absorb, accommodate to, and recover from the effects of a hazard in a timely and efficient manner

Resilience for whom? Clarify the beneficiaries of your actions and investments.

Resilience means delivering in all challenges

Responding, adapting and managing for widespread low probability events.

Ability to avoid impacts of severe events, or recover quickly

think you've nailed it with the current definition

Adaptability, supported, continuity of supply

Capacity to withstand or recover

Hardening of the network for climate extremes

The ability to withstand different environments and conditions and to bounce back after disasters.

Being able to reduce impacts of extreme hazards due to proactive planning & investment

It means what you've said - but not restricted only to major events. Resilience applies to all potential disruptions. Anyone who thinks it is the same as reliability misses the point about being more than ability to withstand.

Pressing on in the face of challenge

Bounce back

The ability of the Network to provide and maintain an acceptable level of service in the face of challenges to normal operations

ensuring a business has a reliable, regular supply of energy and contingency measures in place in the event of a power failure

Ability to withstand negative influence and actions

The ability to prepare for and plan for adversity and then to bounce back after the adversity

Reliability, security, access to all

The ability to ride through and recover

Ability of community to Bounce forward from disruption

Ability to cope

Happy with definition given

Less outages

Planning upfront as well as responding

Ability to bounce back

More than just climate change!

Ability to respond to a disruption in a safe and reliable manner

Hardiness and flexibility.

Quick recovery

Redundancy

### **What do you see as the role of electricity networks in responding to climate change?**

It's sad that you folks are having to do this without federal gov support, but excellent that you are taking the initiative. If we agree that major event days will increase, and disruptions to supply will increase, then your response needs to include both hardening the network, and getting faster at restoring supply...

Supply electricity irrespective of climate affects

Leader in electricity security and ensuring the network can bounce back. Also underground powerlines to minimise fire risk and allow more street trees to be planted. Community batteries, EV charging etc

---

Preparing by building capacity to avoid network destruction. Using physical measures to strengthen infrastructure relocating and working with organisations to remove dangers such as trees too close, upgrade storm easements and drainage. Fire management breaks and burn offs

---

Responding to the effects of climate change? Or responding to mitigating the potential of climate change? - if the former, then the role of the networks is too help ensure that the impact of climate hazards is not widespread, catastrophic or of long duration - it is too ensure that key community services and needs continue to be provided during events (water treatment, communication and emergency response) and that any interruptions to access to power is as localised and temporary as possible.

---

Education and training

Clear communication of issues

Subsidies for back up power for the most vulnerable

Investment in facilitation of neighbourhood level generation and storage arrangements, and in shared housing settings like retirement villages

---

To provide the infrastructure necessary to underpin the climate transition - catalysing, rather than holding back, change - and overcoming the impacts of historic infrastructure investments that may have caused (and continue to cause) adverse climate impacts

---

Critical

Must allow prosumers to operate in the real time in the energy market

---

Transitioning the networks to provide community access to the energy services communities need, in a way that is net zero, and adapted for reliability in the future shock events we have coming.

---

Key stakeholder and an enabler of some of the changes required to decarbonise our economy - the challenge is to know where to play and not get distracted.

---

Anticipating issues and safeguarding supply , also adapting to future needs. I hope it goes beyond adaptation to being part of the community debate about mitigation- prevention beats cure every time

---

To facilitate the actions by other parties. They are a platform to facilitate outcome, not the driver

---

Needs to be a proactive approach to building resilience to climate change impacts

---

As part of a wider community response - doing what it does efficiently; not doing what other parts of the community are best placed to do

---

preparing for future changes that must be made to adapt/ mitigate climate impacts

---

To be adaptive to the changing situation, and to help shape community views on a more sustainable approach to the provision of energy

---

Major rethinking of what energy means, how it is carefully used, shared and considered as a common resource

---

Within the spending parameters do as much as possible to assist the public to deal with the issues and support their resilience

---

Climate is about everything, climate change is about selectable parameters, build an affordable & reliable network so the vulnerable can afford, keep costs down. electric vehicles aren't the only solution. Social living expectations should govern supply not ideology.

---

Changes and more changes

---

commitment to improving resilience of critical infrastructure

---

Incentivise distributed generation, distributed storage and redundancy whether owned by DNSPs or not

---

Stop making the problem worse. Encouraging and facilitating renewable energy generation and storage on small and large scales.

---

Understanding the impact localised to the network and tailor capex and opex in accordance to risk.

---

Coordinating efficient outcomes through more SAPS, distributed network (2 way) and hardening of network. Sharing of network information to allow other service providers to respond

---

Building resilience in the network to withstand as best as possible hazards and extreme events but also heat, wind and other impacts. Furthermore to develop a network that facilitates increases in renewable energy distribution and electric vehicle uptake. Also time of use flexibility.

---

Electricity is a lifeline service. DNSPs can work with communities and their trusted partners to provide behind-the-meter advice to support resilience in the home, as well as designing and delivering resilient networks (e.g. microgrids, islandable and isolated, community emergency hubs etc).

---

Upgrading networks to with stand the adverse impacts of climate change however keeping electricity costs down for end customers

---

Collaboration across all Ensp's, emergency services and network infrastructure

---

Having the ability to facilitate customers change in usage and dependency and non fossil fuel based electricity

---

Anticipating potential impacts, avoiding potentially hazardous situations, minimising risks, and making sure essential services and local communities are supported in the road to recovery.

---

Low carbon footprint for all new installed assets. RENEWABLE electricity

---

Supporting communities with reliable assets that can withstand shocks and stresses

---

Work with communities and other essential service providers to support communities and individuals to increase their own resilience and then prompt and smart restoration of power

---

Building systems that can withstand flood and fire eg dual supply avenues.

---

Supporting community resilience through energy service provision

---

To ensure that the network capacity, capability, realisability adapts to changes in the climate to ensure cost efficient and reliable supply of power

---

Adapt to change and enable others to do so e.e microgrids, ev changing, solar uptake.

---

Thinking for next 5 decades and planning the network that can sustain and support with no disruption to environment

---

Networks should be understanding forecasts/inevitability of more extremes and planning/managing accordingly

---

Organisational and system capacity to enable energy infrastructure to responds to the changing needs of community in each place

---

Understand / forecast the impact of climate change to the network address issues with efficcent investmemt to mitigate

---

Work closely with the experts and plan for network contingencies as a result.

---

Ensure there is sufficient capacity to enable future assets to connect with limited hurdles

---

Being prepared for a range of plausible futures, where climate change is just one of many linked influencing factors

---

To strengthen parts of network exposed to greatest risks of damage and assist customers to manage supply outages

---

Provide reliable and resilient networks that support 100% renewable whether network connected or not

---

Continuation of the same levels of service within the bounds of expectations of the community - meeting demand, however working toward that future SUSTAINABLE state

---

Innovation, implementing new tech, safety, supporting vulnerable communities and customers and harnessing renewable energy

---

Collaboration (with other infrastructure providers) to consider interdependices

---

Integral

This system didn't work great

Could be leaders in resilience building and community engagement

Future proof

---

To prepare for long run reliable service in the face of climate change

---

Build sustainable infrastructure and properly plan for extreme climatic events

---

Networks have a responsibility to support the transition away from fossil fuels, in both the supply to premises and the conversion of the transport sector to electric

---

Increased allowed for hotter longer temperatures. Increased fire and adverse weather event risk

---

Leading debates about efficient future use of electricity, eg efficient housing

---

Be proactive in adapting the way electricity is distributed to use new technologies and approaches to withstand the more frequent extreme events

---

Stationary energy is the single largest contributor to climate change- so accelerating the transition and advocating for change to our political leaders

---

Reducing direct and indirect impacts

---

prudent and efficient investment to build resilience in the network

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Keeping the lights on!

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Environmentally sustainable network for the future

---

Meeting the long term interests of consumers.

---

Innovate to reduce and respond to impact of climate change

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Adapting the network to ensure supply is maintained
Be forward looking and anticipatory in preparing our essential services for the adverse impact of climate change.
Basing decisions, investments and design on future climate projections
Forward thinking investment in distributed energy resources, SAPs & microgrids
Supporting the electrification of everything, including for vulnerable consumers
Leading the conversation, representing customers, advocating for change with govt
Meeting the demands of the future.
Engaging with the community on options
DNSPs need to host more Distributed Generation
Mitigating their impact and adapting existing infrastructure to be more resilient
Should be part of standard risk management practise
Adaptation
<b>Do the current measures of reliability (average duration and frequency of outages) reflect what customers value today in terms of service outcomes?</b>
Yes - 21/31%
No - 47/69%
<b>Why did you give this answer?</b>
Does not take into account individual customers
It is still valid but needs now consider the increase in climate related events and how this is measured.
Probably need two types of performance: 1. average duration and occurrence to measure general performance 2. a more specific measure on how quickly customers expect services to be restored in significant events.
Per Mike's earlier comment - it is about what customers want
Service level agreements and sign off on these to show customers what they get
Distribution networks are not harmonised with a risk based assessment of community need or against the changing risk profile
The problem isn't the metrics, it's the changing expectation that electricity HAS to be on 24/7. I think there needs to be a readjustment of our expectations.
I think customers would like a viable planet along with reliable supply
You have already made this point in your paper. Loss of supply during extreme events is the main driver of lived experience. Electricity is like air, only noticed when it's missing...
Consumers do not want to think about electricity They want to pay aknown amount and the lights come when they want to

I think it is accurate definition but the fact that outages are acceptable needs to be questioned.

---

less capacity to understand customer impacts

---

There are other aspects, these are satisfactory but not sufficient. Did the root cause get addressed, or just the outage at the time?

---

Because more customers have been exposed to prolonged outages than before and restoration is a long wait for them particularly during Covid

---

Customers seeking more than reliability. E.g. Ability to have systems that can disconnect from the grid during outages etc, ability to have two way energy transfer (e.g. vehicle to grid).

---

Because climate and other environmental changes have never been factored in reliability measures

---

Needs to reflect rapidly changing usage patterns and community needs. Averages allow for massive outages in some places, if the number of users there is small. There is no equity lens on these numbers

---

Personal experience - I just want the lights on as much as possible, and don't begrudge my DNSP for an outage if the neighbourhood is on fire!

---

We are largely talking about major events, which can be excluded now

---

Because people's experience is not 'average' and duration and frequency averages hide the experience of some communities - potentially leading to overly reliable network in many areas, and some communities who experience much greater and more frequent interruption. '

---

Exclusion of major event days

---

The indicators are known and have been utilised for a long time, and what alternatives are there to consider to replace or supplement?

---

I said no because I think all customers rightly or wrongly expect 100% reliable supply

---

Customers will remember their experience when power wasn't there when they needed it most

---

Because it doesn't cover what happens after failure and before restoration - tell me HOW LONG

---

Because it needs to reflect the ability to support community empowerment during major disruptions

---

The figure from Ausgrid and the figure from Endeavour on page 2 of the report illustrates how ignoring resilience in the STPIS results in bad outcomes for customers, while delivering "good" reliability results. We need to do both well.

---

Customers want explore option other than continued reliance on networks

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Exclusion of MED's; input from consumers on their experience

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Because the system appears to respond to the regulatory oversight rather than the resilient supply of electricity to customers

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Customers have high expectations

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From a customer perspective, resilience or reliability is about having electricity all the time, even during hazards. Simple.

---

Local experience varies across the region and network

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Might it be possible for us to aim for 100% reliability (ie no service disruption) with a networked mix of backups? Particularly relevant for life support customers

---

Networks haven't been keeping this data in this way
Averages aren't meaningful to individuals affected by extreme events
Yes: most customers want to turn their lights on at any point
It's what consumers have already paid for
Meds take our 2.3 major days per year. Those where resilience is most tested
Current definition of reliability works until you experience a shock, then it's irrelevant
SAIDI and SAIFI only tell part of the story
I said yes as I was unsure what else could be included as part of a reliable supply
Needs to be renewable, support new technology, allow peer to peer trading etc
Does not reflect the true experience of our customers
Need to add power quality metrics.
<b>Should networks be more proactive in responding to the impacts of climate change?</b>
Yes - 66/100%
No - 0/0%
<b>Why did you give this answer?</b>
Coordinating better with other service providers
Climate change brings uncertainty - while we know the trends, we don't know how they will play out in each place
It will require constant re-evaluation of thinking and practices starting now, to deal with the range of possibilities - this does not mean a blanket 'act now just like you always used to act' (ie build more expensive stuff) - but means thinking now about the range of different ways to respond to the ongoing and changing needs of different communities
Investment on assets and results do not come next day or next month. Research and trial for climate change resilience should start rather than leaving late
Besides the certainty of the more common major disruptions, uncertainty of future needs and demands require a more proactive approach to increasing resilience.
Someone has to take a leadership role.. why not us?
because the network is the heart of the organisation which provides service!
Working with communities to ensure outcomes is needed to satisfy energy demand in the long-term
We are all working to net zero, so do the same. We have to get there, and passively waiting for an instruction is more of the same, which achieves nothing.
DNSPs are the key enablers to incentivise / promote / support distributed energy responses, energy sharing across customers, vehicle to grid & other community storage options. Let's see some more open access
Proactivity needs to be built around community level planning...

There are risks that if the DNSPs take the approaches of the past (even building to current Australian Standards) that customers will be without power for long periods more often and paying increasing amounts for repairs. It's not just about "building back better", but working with communities and customers to understand how best resilient electricity can be delivered - a mix between behind-the-meter and front-of-meter solutions, although difficult in a regulatory sense for DNSPs to work behind-the-meter in customers' homes.

---

There is a need to assess the increasing urbanisation of some populations - ultimately leading to lack of individual resilience.

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The difficulty is forecasting the impact of climate change on the network and convincing others

---

Networks are able to assist the community in implementing mitigation measures ie preparing for renewables access and creating a network set up which encourages uptake. Also providing an innovative solution to network resilience rather than doubling down on the existing structure

---

You need to look at the future, plan for the contingencies that are likely to occur and fund the ones that will have the greatest impact & chance of happening.

---

Needs to be more than BAU. Underground power lines to be more resilient and allow planting of street trees to reduce urban heat island. Community batteries, peer to peer trading, Education programs, community solar, smart EV charging

---

We need increased security of critical infrastructure due to the connectivity of our industries

---

Networks should encourage other State and local governments to improve environment to eliminate trees falling, rivers and creeks flooding and fire breaks etc. not all Network's job. Councils are hopeless in managing trees and storm drainage. We need these guys to do better ... much better. Councils need to be held to account. As do some private owners.

---

The network is a prosumer network and nodes need be part of the network

---

We need to be conscious that we do not turn DNSPs into the 'silver bullet' to address issues coming out of climate change. There may be other parties who are better placed to deal with some of them

---

Support "proactive", but need to consider the holistic response, not just a network solution. For example: supporting customer SAPS, integrating with ARMY emergency shelter and remote generation provision.

---

No point in a resilient network if the customers homes are burnt to the ground.

---

You will be doing this regardless, it would therefore be logical and more cost effective to commence these activities now as opposed being forced to do this later.

---

We are all in uncharted territory and if we are to learn and adapt we need better engagement with customers and other stakeholders

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Distribution networks are a part of the system and therefore have responsibility to help strengthen the system and build resilience. This can be through communication, discussion, planning and implementation.

---

Climate change is just one issue that network planners need to be considering

---

Electricity generation accounts for ~35% of emissions, road transport for ~ 20%. DNSP decisions will impact the rate of change of these numbers.

---

Need to engage beyond poles and wires from the networks, and engage with developers, land use planners, and others - because they can create the problem or contribute to the solution.

We need a coordinated response across community and DNSPs a just a part of this

We're in a climate emergency. Every organisation needs to do more. DNSPs are morally and economically obliged to transition generation now.

Agree with Louise - pro active does not automatically mean more \$\$\$

Electricity supply is foundational. If it goes or stays off, other utilities that support us fail as well.

Because the world is on fire

Networks should do more to work with regulatory bodies (the AER) to appropriately quantify benefits associated with resilience.

Irresponsible to do otherwise

Proactive to me means mitigating climate change

To meet customer needs, expectations.

Agree with Louise 100% ... send payment later

Everyone has to be

**Should electricity networks play a role beyond education and communication to help communities prepare for extreme weather events and possible disruptions to power?**

Yes - 46/81%

No - 11/19%

**Why did you give this answer?**

dnsps need to work with communities and other emergency service providers

Answered "no".

Networks have a specific role (of restoring the network) and they should focus, all hands on deck, on performing that role.

Similarly, there are other organisations for welfare services who'd be better placed to perform that role.

Skip

You dont want networks to have EXTRA resourcles just to run water in disasters

Integrated planning is critical but agree that there needs to be a open mind on who is able to deliver the support when required

Local communities vary considerably in their capacity to respond to events. Local networks are better placed to communicate assist

More public visibility for DNSP to the majority of the population who have no idea what you do.

Would need to be supported by regulatory change

Besides education and training, networks can try and understand better consumer needs.

A DNSP has the best understanding of the likely extent of an outage and time to restoration. DNSPs are also "on the ground" during an event and possibly one of the first organisations into an area when it

is safe. So a combination of working with trusted community partners, but there is also a role for DNSPs initially to respond.

---

Potentially DNSPs can assist community in developing self-sustaining power back up systems

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Ensure electricity keeps other critical services which are beyond

---

Market what is being done, not just simple communication, but more! Plenty of media options available.

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Interesting question is what will the Regulator allow to be included in DNSPs revenue allowance for any "extra" activities undertaken

---

Agree with Anna. Not sure it's the electricity network responsibility to provide welfare - partnerships seems the way to go.

---

Engagement across multiple other players will matter for the result... ABCB for example.

---

Partnership with others is critical

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Critical organisation in emergency response which starts at the first sign of trouble

---

Sharing data and research with decision makers is also very important

---

Ensuring a coordinated responses amongst recovery services

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Electricity itself is an essential lifeline (required to support life and livelihoods), and an essential enabler of other lifelines

---

Improving coordination with other services is a great idea.

---

**The network providers have played a role in helping communities respond to extreme weather events to varying degrees. What do you expect from your provider in this situation?**

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Clear timeframes

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To at least build back better. Look at other short term assistance options eg 5B / Tesla portable solar solutions instigated by Mike Cannon Brookes in 2019 -2020 bushfires

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Guidance for preparation

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Support for recovery but part of a bigger group

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Agree with the point made about focus on response. Experience shows that it will be difficult to predict where major events will occur and building mobile capacity to respond makes sense

---

The first responder needs to be appropriately resourced eg boats, protective clothing, communication mechanisms and supply of what is needed. Community groups may be better placed to support people once they arrive at the shelters.

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Being very clear on what they can and can't do - communicating capacity and surge capacity, and when that will and won't be deployed

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Regular accurate updates regarding forecast power restoration to help manage expectations

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Both ahead of during and after wwent customers expect their DB to prove accurate timely information about all supply issues incl..restoration timeline and interim energy options.

---

Communicate, engage, inform

---

In addition to restoring the service, to provide interim solutions for power to have a near-normal life during the crisis

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A quick rectification of supply, communication to keep customers informed

---

Currently to get the supply on again quickly and safely. But could be more in prevention, awareness of risks etc, and yes part of the emergency response team - probably needs reg change.

---

Timely recover and support.

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To have developed and communicated their (feasible and achievable) recovery plan in advance, and to have agreed on the 'performance' levels for varying levels of impact, and what will happen to support the community if the impact is catastrophic.

---

There is a massive difference to 'guessing' what the community needs and the network deciding what the community needs, vs the networks turning up to local government planning events to help understand what role they can play and what communities really need. This is PLACE BASED not "NETWORK DRIVEN"!

---

Accurate information about network response, time frames, support availability, access to support

---

Reconnection

Clear, timely communication

Weather proofing assets

Supporting distributed assets

---

Good information provision and support during the outage. If regulations/licence are limiting engagement or partnership then that needs to be reviewed.

---

information availability during event on timing of recovery etc

---

To not keep rebuilding the same way after multiple impacts.. e.g. put it underground in higher risk areas.

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Accurate and timely information, coordination, and speedy response.

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Be there for the community when it happens, have plans in place to address the hazard.

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Encourage customers to install renewable energy and storage to reduce dependence on the distribution network.

---

The role of the Network is to look after the infrastructure that best meets the needs of the community. Prevention of course is better than cure. So the focus on avoiding destruction should be the highest priority. Using physical measures of better waterproofing infrastructure, concrete poles etc. is fine, but we need to eliminate the risks of trees, better manage trees, trim or cut them down, engage Councils to better manage this. Have State gov legislative measures in place to drive better management of the environment in which we live. Storm drainage is another issue that requires attention, as is fire management. Councils allowing us to live in the trees needs to address all the risks of fire and storm.

---

Collaboration

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Support for and coordination with emergency services groups

---

I expect them to use their resources for matters of electricity, and any excess resources to help the community....

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Speedy response

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**Over the next 10 years, how can DNSPs best support the communities they serve in adapting to a changing climate?**

Place downward pressure on the emergence of iver electrification of our society.

Consider suggesting towns and cities deemed to suffer disproportionately from the effects of climate hazards be moved eg like they did in previous centuries.

By engaging in local resilience planning, sharing roles and capacity that Networks can play in those processes, and feeding back community needs and experience from shock events into AER submissions

Working with local governments to have input to local place-based plans and to support community needs in the transition we need to adapt to the climate we have now and coming

Please also don't forget about Cyber Security protection, really important to continue protection of the networks with such a changing cyber environment

reduce usage of their networks by encouraging local generation of renewable energy, and storage, in particular community batteries.

Improving process for off-grid back up power, improving communication during outages, strengthening two way network and storage support and prioritising areas in high risk forecast areas.

Insuring eletricity supply is as reliable as possible and rerestoration is quick as possible and communication and consulting our customer

Education is key and communicating that extreme weather is the new normal

Evidence based investment decisions fir more appropriate asset choices and greater learning off other DB'S. Some appear to have grasped challenge of climate change impacts quicker than others

I think this question is perhaps better handled at the regional level between network providers and stakeholders to get the local nuance

Design new networks with climate resilience as a LCTAS consideration. And penalise developers that don't include renewables, all-electric and battery storage.

Ongoing engagement partnerships with customers

Working in partnership with communities to understand their priorities for electricity resilience. Some of the approaches will be hardening, but other innovative approaches are possible.

Anticipating climate events and adapt accordingly

Reliability definition will need to change as normal yesterday is not a good yardstick for normal in future. Need to consider Resilient communities to inform and influence what resilient network looks like.

Work with experts, identify potential hazards and plan how you intend to address them should they eventuate, & what is the cost & the value in the tariffs in place.

Get a really good appreciation of the impact it will have on the network in order to target investments wisely.

It's not just about what the DNSP can do- engaging with the community and bringing their expertise to other non-DNSP bodies in planning for the future is key.

Invest in skilled and experienced facilitators to host community discussions (digital and face to face) about local community renewable energy generation, and their role in resilience

---

Work with them and other providers to those communities to understand what the communities value, and what trade-offs they are willing to consider to get an acceptable outcome

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Making sure they are empowering communities - particularly with decentralised solutions.

---

Taking a place based approach to community resilience. Priorities will vary from place to place.

---

Prevention is better than cure. So the focus on avoiding destruction should be the highest priority. Using physical measures of better waterproofing infrastructure, concrete poles etc. is fine, but we need to eliminate the risks of trees, better manage trees, trim or cut them down, engage Councils to better manage this.

Storm water drainage, (including creeks, rivers) is another issue that requires attention and improvement by Councils.

Local and State government need to be equally attentive to fire management and burn offs.

Many high populated areas in our state have trees over towering power lines. The network needs to have the legislative power to ensure this does happen and one risk is removed.

Many of the outages experienced in our state are basically self inflicted by laziness. Not by extreme climate impacts. Similarly with storm water drainage.

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Coordination with national and state emergency planning organisations.

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Why 10 years ?

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## D. Chat data

*(unedited, participant comments)*

## CHAT DATA

### Discussion One

some organisations do not allow chat

There's a message that says some orgs will have message related policies that will restrict their view chat might not work on some web-based versions of teams...

unfortunately those that cant wont see those messages...

will you circulate the slides after the session please

There is a 'Don't use chat bubbles' opyion under the ellipis that toggles the speech bubble

It is important that we don't look just at climate change, without also looking at, and linking, the related (and parallel) changes in communities, the socio-political environment and the economic environment

Trying to figure out if this is a presentation or a consultation. You asked people to read the paper. So let me start - you have advertised this as a consultation on resilience - it is real;ly a consultation about Major Disruptions.

Financial Risk of not having money to pay bills is a risk for many

Such a pity....

Does our potential move to a fully electrified grid with the removal of gas (potentially) and the movement towards electrical vehicles and charging infrastructure will build greater stress on the network moving forward?

Yes, but EVs also represent a possible source of mobile generation.

Yes true, but what kind of infrastructure would you need for a carpark with 100 to 200 vehicles continuity of services provided

Crikey, I can't think then text that fast ! More time please.

Us Queenslanders are slow. I need my kids here to do the responding.

There are much better collaboration tools than Teams + Slido for this.

Will you circulate the responses to all partyicipants please

Can we see all the responses on Slido?

Can we have contact points across the networks for some follow up conversations please.

### Discussion Two

Energy Networks Australia and Communications Alliance work directly together to ensure direct communication between carriers and electricity networks through an MoU, but also as Luke says, ensuring that all utilities are in the room (state control centres) during an event to support communication and coordination.

Needs to be more than just communicating during events but planning

As Govt services move to be only 'online' a call for help may depend on the internet. Loss of electricity is a social rather than economic imperative.

---

With regard to the risk based approach – how much of the monetized downside outcomes of bushfires is considered attributable to the network? Cost of bushfires where network assets are identified as the ignition source over the next 20 years will likely be measured in billions. Example: 2009 Black Saturday was assessed as ~\$4B cost, Ausnet paid a ~\$400m settlement in a class action. What does this imply for the allowable/expected investment in prevention of ignition sources?

---

The graph suggests that networks have been aware for 20 years of a changing pattern and should have made investment decisions to accommodate the change

---

Great callout Jill. At the state level, Telco's are represented by the NSW Telco Authority, nbn would prefer to be in the room as we are in the other states, which leads to much better operational collaboration with other utilities during major emergency events.

---

Agree with Mike. Prioritise community key needs, and then review the types of networks and perhaps even community based solutions that will meet those needs. These may be beyond the "remit" of the "reset" scope, (because some solutions may be beyond the networks) but this is a conversation we would welcome.

---

So far I haven't heard anything about anything other than trying to avoid impact

---

What has been done / planned regarding understanding the reliance, dependency of communities on the distribution networks and the correlation of 'hardened' networks and community resilience?

---

Good diagram. The transition to EVs, and the transition of appliances away from gas, will increase the importance of network resilience, because outages will affect consumers in additional ways.

---

I think framing should be broader - more common extreme events may actually drive an assessment that a less durable (expensive) network is warranted. If it is going to be more constantly compromised - it may be more efficient to invest more in rapid responsiveness and less in hardened central network - im not advocating for this, but I think the apparent framing of this discussion is overly focussed on 'hardening' or resisting, rather than adapting.

---

Climate change isn't unprecedented or new. Its impact should be part of the Least Cost Technically Acceptable Solutions provided for new communities. New communities/developers should also not be penalised (higher costs of connections) when mandating renewables, EVs, moving to all electric suburbs that are designed to respond to our changing climate.

---

So far I have not heard any real suggestion/example of "resilience" solution

---

To take Mike's earlier point the last dot point on last slide is not a new dawn for DBs It should have always been case that where failed or aged asset is replaced the more resilient option was considered

---

Totally agree Tony, where we have evidence that in all probability that more resilient asset will be the most efficient outcome long term for customers... in our case we are only now getting that evidence

---

Hi in the 2015 -2020 Regulatory Control Period we, SA Power Networks successfully gained AER approval for funding of our Hardening the Network program which we undertook

Based on our MED performance to date our Hardening the Network program has helped the ability for our network to withstand storms & maintain supply to our customers.

---

Tree trimming and removal is not always the right response to climate change to protect networks

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What is of concern is the proactivity deficit among federal governments on this.

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agree veg management and DOE and other activities to be included to the list I mentioned

---

we need to invest money into renewables network now to cover us for future issues and demand - I don't think that governments are as convinced of this

---

happy to sell you some good old SA stobie poles :)

---

nic pic Kym, your backyard?

---

ha ha just about Craig

---

It would be great to have direct "real-time" (best of ability) sharing of data (outages, restoration times, etc.) particularly for those events that do not trigger major emergency events. Difficulties can be coordinating across multiple DBs, across multiple states and across multiple events.

---

note also that many cities are considering planting more trees to combat urban heat increases. There's a big risk that those actions may be taken without considering increased risk to networks...

---

You know what they say ... the three great survivors: cockroaches, Tupperware and Stobie poles.

---

the comment regarding individual networks capacity being 'outstripped' by the demand being placed on them whilst building resilient networks is worth unpacking a little more at some stage

---

Nirooshan, it would be good for you to provide this input into the meetings between ENA and CA members. I know NBN are involved, so perhaps contact CA to add to the next agenda or contact Jugal Bhatt at ENA.

---

... and dumb ideas.

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### Discussion Three

I think the stabilisation of investment to meet peak demand since the good old days of high investment exposes some of these issues. In the past, resilience could be to some extent be tucked inside the construction of new assets that were primarily there for capacity.

---

Portable generator's, etc are OK, but better to structure systems so we don't need to bring in temporary assets because the system can continue to operate even if the connections are disrupted.

---

Mutual Aid is something the power industry does really well, are there mutual aid opportunities across industries (e.g. power <> telco) that can further support community recovery?

---

Still missing the point - true resilience is about how to get the existing distributed resources put to best use...

---

Yes to community infrastructure

---

This is a good point Luke. The same slide could apply for a whole range of things ~ safety, housing, water, food, communications ~ how do we coordinate ? Why should networks less ?

---

The electricity network could be designed more like the Internet or as a network of networks where the nodes are buildings. Most of the cost of the total network will be in nodes and capital supplied by producers and consumers. The system could be designed with that in mind. We know markets are useful in optimisation and that means all nodes should participate directly in the "wholesale" and potentially local markets in "real time". It also means consumers should be able to invest in the whole network.

---

Couldn't agree more David - maximizing utilisation of existing assets, be they behind the meter, in front, or mobile, will always be a key objective if we are to achieve an efficient outcome long term

---

This is the research I mentioned: Clean reliable energy for people on life support at home | ECA  
(energyconsumersaustralia.com.au)

---

the more people know the better people in the community can respond therefore I think it is important to help educate the community (understand what is happening and what they can do by the way cannot click onto the clido app)

---

meant cannot logon to slido.co,@climate app

---

This need for coordination and partnering with NSW resilience and other suppliers of essential services has been a very strongly recurring theme today

---

Like all "Lifeline services", networks need to support preparation, in place. In NSW, local governments have a key role to create local plans, and networks need to be involved to understand what role they can best play to needs the local community needs in that place. That may mean reconnecting the pub first (social infrastructure), so everyone has somewhere to meet and plan how they respond and recover, in place.

---

For instance, a DNSP could work with the community to develop an "emergency hub/retreat" that provides power via PV, batteries (& genset) during a major outage. Can also help community manage battery life to maximise support (apps) and to prioritise restoration (as Luke said) - hospital, supermarket, mobile tower, emergency services etc. DNSP has to work with community. Every community will be different and likely to have different priorities to support resilience and recovery.

---

Correct Jill

---

that is why each community needs to be assisted to develop their own response plan and to prioritise their own needs

---

That is resilience

---

An in-the-weeds comment.... is there merit in considering changes to the building code in at-risk regions, to require that the electrical installation for standalone domestic homes be designed to easily be supplied by a temporary generator? It would likely be very low cost at time of construction; an inlet and a manual changeover switch... possibly the regulatory domain of the ABCB, maybe the SIRs?

---

Hearing that loud and clear Louise - i'm not sure we can establish comfort that the aggregate investment in a response to resilience will be efficient unless we have a robust vehicle for integrated planning (and operations) between the networks, govt agencies, and other infrastructure providers.

---

Great point Ross

---

Louise B is right - the unit of planning analysis needs to be LGAs

---

as we see the role of the network vs other parts of the community in resilience - how do we decide if it is the networks role to provide a diesel generator vs the local council vs the local Coles/woollies?

---

See Ergon Energy's Nomad solution (this is not new) that supports communities during natural disasters/major outages <https://www.abc.net.au/local/stories/2007/07/17/1980387.htm>

---

Be interesting to see if AER has an appetite to support funding for non-network solutions for customer support such as additional customer communications / support and things like emergency hub

---

BBQs as a network asset. Depreciation rate ? Utilisation modelling ?

---

Would a customer care who provides the genset, so long as they have access to electricity? I'm not sure ring fencing is a priority concern for customers when your fridge is defrosting, or you can't charge your phone or run your water pump...

#### Discussion Four

assurance system

quantification of customer benefits from proposed solutions?

You miss the point of risk appetite

Might need a stronger focus on the counterfactual ~ sometimes do nothing is an option. Could be clearer in this slide.

We are starting to see new hazard and weather patterns / events that are unlike past experience - how will these be imagined, and incorporated, as they are unlikely to be picked up from any of the climate models.

Communication Networks / streams / methodology maybe? Not just consultation.

I think you may be conflating resilience and 'resistance' We want a fully resilient energy system but it need not be achieved through one that is resistant to all hazards.

Go Stobie Poles! They are the best.

as a customer I am very interested in the most efficient way of providing the service and the costs are subject to market competition tests; and the AER has very good reasons to have ringfencing to protect consumer or else it would allow networks to do anything they wanted

Be good to have a standardized climate predictor model

- Electricity Sector Climate Information (ESCI) Project only covered \ high temperature days and fire danger index
- Be good if ESCI project developed a methodology for assessing the escalation of severe storms

Where do the risks from destruction of, de-energising of, transmission lines come into the risk assessment for the supply of electricity to customers?

To the previous slide on the risk assessment framework. Might need a prioritization arrangement like what Luke mentioned, developed in concert with the LGA - maximal benefit to the community may come from temporarily sorting out supply to specific enterprises first (supermarket, local government buildings, etc), then other locations.

the protesters against Humelink are calling for undergrounding, apparently without an understanding of how much cost that would add - networks will need to be able to quickly and clearly articulate the costs implied by different options for building resilience...

First good slide - but still way too much hardening

Where did WALDO go? Widescale And Long Duration Outages by AER

Just need to be careful DNSP do not get penalized for Major event days

Why isn't storage and micro-grids part of hardening and damage prevention?

We have had a methodology for 'worst performing feeders' which is not largely different .. they are essentially WALDO events

I have but I have said too much already

---

Does the AER need to revisit the WALDO work? Or do we need to provide a regulatory route to facilitate delivering resilience approaches (be they SAPS, behind-the-meter, islandable microgrids, not just putting in chunky poles (Stobie poles to emigrate, obviously!))

---

Doesnt the insurance sector have an evolved (evolving) method for valuing risk of large scale events?

---

The continuing undergoing of Perth's distribution system (now 60% of metro area) demonstrates there are alternative ways of tackling some resilience related issues.

---

Good point jill

---

I think there is value in networks developing a methodology to understand the granular value of aspects of local network reliability - for instance how to differentiate between the impact on key community infrastructure and household energy. Communities may not only have different priorities according to where they are but also different ways of valuing reliability of different aspects of their network during events.

---

The answer is no - because we keep missing what managing through the event means.

---

Australian Business roundtable was exploring a standard methodology for costing resilience investments...

---

Hello Everyone, heading off to the next meeting but great session and I am very interested in doing some follow up in this arena.

---

Need to stop thinking that that what has been normal in the past is normal in the future.

---

### **Final Discussion (last thoughts)**

STPIS should keep in MEDs? That would be a huge step change in the process and "reliability" would deteriorate dramatically & probably drive significant investment, since that is the aim of the STPIS... There are a variety of ways to support response to MEDs either outside a routine reliability measure or part of a reliability measure...

---

Societal impacts include that by 2030 a third of Australia will be over 50yrs - a potentially less resourced and more vulnerable group and the impact that this may have when managing hazards and the provision of networks.

---

It would help if we could type in responses on a keyboard bigger than a phone.

---

Can I ask why the timeframe? That's a reasonably short timeframe to address a big new area of thought

---

As in why is the deadline for responses this month?

---

apologies need to step out to other meeting, great work

---

Imagine the level of investment needed to address the upward trend in SAIDI in the figure on page 2 of the report... I'm not sure including MEDs as "typical" is the correct approach.

---

Great job Fiona, thanks

---

Thank you for hosting this discussion, we look forward to building relationships for further planning for resilience, in place.

---

## **E. Verbal data**

***(unedited transcript, participant comments)***

## TRANSCRIPT OF PARTICIPANT COMMENTS

### Discussion One

First time, Oh yeah, I'm from Ambien and I guess, UM, regarding obviously the red cycle Paul electricity. And as any other service provider, consumers tend to be users of multiple services. So both electricity water, gas Internet nights with stuff and I guess how from planning actions. How does that coordinated between other service providers and each evening the probably the best outcome for consumers. Obviously, when the powers down obviously internets down, and obviously we deploy plans and actions to get the Internet back up, but how can we better coordinate outcomes and in particularly in responding to climate change thing? I could think changing the sharing of information both pre and during events I think will help a lot. Obviously MVN as a national footprint, so it's across Australia across a lot of the DBS so I guess.

From my point of view, and probably from NBN point of view, it's really how are.

As a service provider, elections tips for how is that coordinated between other service providers 'cause the end consumer sees multiple servers and experiences saying outcomes and then also how during an event, how is information shared, particularly around restoration times and durations and also stuff, because that allows us to obviously then respond with temporary measures and allow us to respond in getting network back up as quickly as possible.

---

Firstly, thanks very much for DSP's for preparing the sort of thought providing document, and it's good to see them working together. It's terrific, I've got two comments, won't use on the definition of resilience. And. To me it's not the definition. That's probably a question the the definition that we're asking about, which is, uh, or it's about, resist, absorb, adapt, transform stuff. Networks have been doing that since Benjamin Franklin went and flew a kite. Wait, there has been a core of network design is to be for a long time has been to resist, absorb, recover safeties in there somewhere. The question to me, or when we start asking what is resilience is the scope. That it's a wider conversation than just electricity. It's a far broader conversation about community needs, community empowerment, the relationship of the many key resource is that are impacted or key infrastructure that are impacted in a in the sorts of events we're talking about becoming more common under climate change, so for my it fit to develop this paper further or to take this further, I'd love to see a bit more conversation about the scope of what resilience means, not necessarily just the key steps which are important.

My second comment is on the principles for response, which was a slight little while ago, and I think it's on page five of the discussion paper. Target targeted customer benefits, risk approach evidence based. Again, they are 100% correct and they are largely the sorts of investment principles within using for a long time, thinking about risk taking a customer benefits straightened CBA or something.

For resilience though, I think that the principles are a different animal. They are more questions about. What are we trying to achieve for the Community? Are there alternatives to network based solutions? Wait is communication and empowerment fits? Uhm, joint solutions. Critically identifying prioritized community needs 1st and then match to them, so I'd love to see in in the next iterations document the next conversation. The principles to extend from what is roughly what we expect DNS PS to do now as part of their core business or not. Roughly, we expect we do expect them to do. But take a more community based approach thinking about you know, even back fitting some of the events we've seen, such as floods and fires, and asking ourselves or how do we prioritize the expenditure? How do we understand the committees key needs? So anyway, they're the two comments I had.

## Discussion Two

Thanks Fiona. I just wanted to say that I think proactive is a really broad word and we just need to look at it as not just meaning BAU cap ex that it should mean working with communities education campaigns.

Backup generator fleets. All the stuff that's happening in the chat, which is different, so I just don't.

And proactive to be code for. Here we go. Why did you give this answer so we can all put the key?

But let's talk about it at the same time, whilst people using it.

Anyway, so that's my view. Proactive, yes, so long as we take a very broad view about all the different opportunities to improve individual resilience, community resilience, coordinated and planned response times, etc.

But I certainly think I think proactive. I mean, it was a bit of binary question, so it's a bit hard to not say that. Yes, but I think the rationale behind the answer is learning networks need to integrate with the broader emergency planning and sort of systems resilience work that's being done at the federal and state levels as well. I mean obviously the army responds to major events with portable generation in many instances, and portable shelters and all of those sorts of things, so I think.

It obviously is. The solution is not just more network or more streamline power systems or whatever it might be it you know it's this integrated planning that I think others forming that we're also referring to. That's gonna be critically important to dig, optimize game. Best outcome for consumers.

## Discussion Three

One thing I just wanted to draw people's attention to that you might have seen is some work that the Australian Energy Foundation did with energy consumers. Australia on life support customers, which a number of distributors were involved with. I think it's really important that energy, electricity networks think about their core capability, which is around to my knowledge, asset management, infrastructure management and that's really important for particular getting the right.

Infrastructure assets to vulnerable groups that might be adversely affected more than others with disruptions. However, they also have a great role to invest in Community partners. Existing trusted partners to deliver some of the roles that have been mentioned. I think part of resiliency is making sure that the Community themselves are supported. So the idea is mentioned there about working with community leaders. Seems like a really sensible good one.

It doesn't sit quite right that, uh, network would be coming in at a time of an adverse event and providing the sort of this sort of welfare supports that have been mentioned. It might be better to view thinking about working in partnerships with others.

Look you mentioned? Uhm, how do we stop the thing happening or how do we educate customers? I would expect that later on the conversation and also talk about the response because there is a school of thought that says if it's going to happen, we don't really know where it's going to happen or what form it's going to take. And so perhaps some of the best approach will be. But when it does happen, we will respond as effectively as possible, so I'm hoping a bit further down the track. We'll talk about response as a viable option.

One is if we widen the conversation of the role of the network now, there's no doubt about it and they work has to be a good Community citizen. It's a critical infrastructure provider. It is entered when the community it has to be with the role of a good Community citizen. But somewhere you start bumping into the neo. Or the actual license and role of a of a network which is to supply electricity. So if you get

2, widen your definition of the community role of a network we start to have a bit of a think we start to create some regulatory issues.

About the the breath and involvement of what all communities? What all customers will fund through a regulatory rate case. It gets wide, so we've got to be careful that there has to be some limit unless you know it. It's not a. It's not an open ended conversation. Now why did you go? The second point is the slide we had on a bit early, which was a really good one. I think that Luke had, which said, you know, we've got to do all these sorts of things that slide could apply for anything in a major emergency. It could be safety, it could be housing safety. It could be the supply of water, the supply of food.

So I still scratch my head a little bit about networks leading this we sort of look. We sort of tend to suggest that Nick was the leading this issue.

But we've got some I don't know if we've got anybody on this workshop today, but there are some state based coordination committees that really should be having us a loud voice in this space.

---

Oh, absolutely I agree. And of course there's a grumpy old retired distribution engineer. We can have all these resilience conversations and boards and committees we like. But sooner or later someone's gotta climb the pole and put the wires back up and you've got time to talk for it. When you do that.

---

Thank you. Love just listening with interest just to just to go back to the point of bad connectivity with other state based actors. And I think the important thing here is integration would be existing arrangements that are in place because I do. I do believe that the distribution networks have a place on state based, you know arrangements, regional based arrangements and certainly input onto the local based arrangement. So there are there are. I've got statues in place and I think it's a key element is make sure that they're integrated in that space.

---

It says that I'm. I think there's a really important role and you know, I don't wanna be mentioned about how these things are coordinated. You know networks are not standing out on their own. And yeah, and I think when you think about it only from a network structure, you think about the network doing all these things and then networks and the way networks behave. But networks are part of a system in a place, and but these events happened in place and I had been structurally. And those places are different and they have different parameters and different people and different. These authors, and so they're going to need slightly different things in it because of the vulnerability of that community or the kind of context. So I think one thing we've been frustrated here in Sydney is actually just making sure we have access to the network operators to come and be involved in our planning process, so you understand that context in place so that comment about being available at different levels to be involved in thinking about how we do that work in place is super important, but you guys need to resource it so that we can actually. Have the context between the layers and also we can understand what you need and what's likely to happen and how do we contact you when we need to. So it's just all the basics of both the communication plan or also in response with the coordinator of the local emergency plans is super important, but it also helps us build relationships, understand how we're working together, and think more structurally about all those other climate change and future things as well. When we have these relationships in place. So that's I, think what we'd love to say and would be really welcome to you.

#### **Discussion Four and final thoughts**

Yeah, thank you, maybe it's slightly beside the point, but I haven't seen in this framework the criteria to ensure that whenever an investment is planned is happening that all the resilience factors. Uh, and elements to the design of whatever investment is being undertaken. I'll take it into account so that to

leverage whatever cap ex and investments are happening to ensure their made in the most resilient way. If I can put it this way.

---

Yeah, I guess we don't really wanna go be careful what we wish for two sometimes because we don't want to turn around that we actually have some sort of penalty scan from major event days 'cause we sort of had that with guaranteed service level payments over the years and it's pretty hard to sort of try and mitigate and manage those, but. At sign, so we've used, but just the standard VCR for hardening the network programs and also the low reliability programs which seemed to work OK. But yeah, that maybe there's an idea to escalate the VCR weightings when it gets over certain. Uh, duration my benefit. So I sort of agree.

---

Nervous about this idea that we want to develop a web valuing alive scale major events in network investment decisions.

Because I, I think what I'm, I think there's one way of framing this conversation which says that in fact, what we've historically regarded as unusual major events are no longer unusual. Major events. Right there now, just part of the distribution of events. In which case you don't need a separate mechanism. You need. I'm a single mechanism. My second comment is that I've not. I've never been camping with VCR's, and mechanism of valuing anyway. Right? 'cause ultimately what you need? What consumers need to know? And This is why I consumer engagement is really what you want to get to is not. What is the how did we get to this outcome? By putting a VCR number in as a variable in the calculation. They want to see you sit there and say if I spend this much money on the network, this is the set of expected outcomes you're going to get very. If I spend this much money on the network, this is the expected set of outcomes you're going to get. None of that requires you to value the expectation of major events. Get requires you to only talk to the consumers about what is the actual price quality. Trade off that you are considering.

To get all the rest of it, just talk to consumers about the price quality tradeoff as the end of the planning process.

---

Hi, uh, just to put a consumer perspective on the table here. I don't understand the in's and outs of the equations, but from a consumer perspective I can certainly say that those major events are very front of mind for everybody. And I think that points very clearly made through the presentation today and I think you know from a consumer perspective that certainly needs to be built in.

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Thank you very much. It's great session.

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## F. Evaluation survey results

# Joint DNSP engagement

## Evaluation survey results

**Audience:** general public and stakeholders

**Activity:** DNSP joint online forum (network resilience)

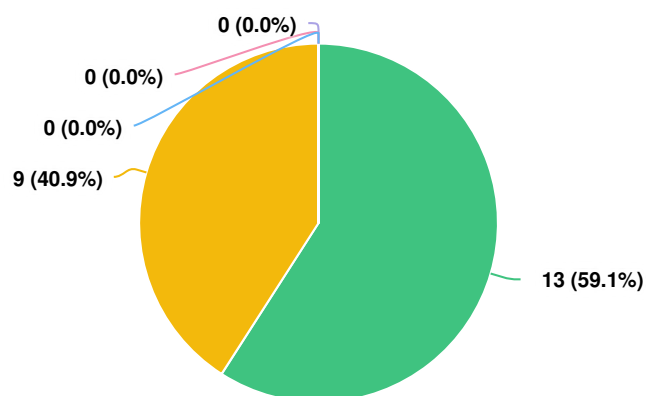
**Activity date:** 8 February 2022

**Report date:** 22 February 2022

**Prepared by:** Liz.Dimmlich@tasnetworks.com.au

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**Q1** I understood the purpose of today's forum



**Question options**

● Strongly agree    ● Somewhat agree    ● Neither agree nor disagree    ● Somewhat disagree    ● Strongly disagree

*Mandatory Question (22 response(s))*

*Question type: Dropdown Question*

---

**Q2 Please tell us why you gave this answer:**

Screen Name Redacted 2/08/2022 04:01 PM	I thought I knew what it was intended to achieve but hadn't seen an agenda or other artefacts before the session
Screen Name Redacted 2/08/2022 04:01 PM	Clear topic and good pre-reading material
Screen Name Redacted 2/08/2022 04:02 PM	It was clear from the information provided
Screen Name Redacted 2/08/2022 04:03 PM	Presenters were clear and concise with good opportunities for participant feedback
Screen Name Redacted 2/08/2022 04:04 PM	It was pretty complex and unfamiliar but I think I got the main purpose
Screen Name Redacted 2/08/2022 04:07 PM	It was clear that the session was to try and gain stakeholder perspective on network resilience in a changing climate
Screen Name Redacted 2/08/2022 04:08 PM	No
Screen Name Redacted 2/08/2022 04:08 PM	The consultation purpose was clear with good briefing from presenters and facilitator.
Screen Name Redacted 2/08/2022 04:12 PM	Because I understand the nature of consumer collaboration in DNSP regulation
Screen Name Redacted 2/08/2022 04:24 PM	Not much background in this field, but it seemed well put together.
Screen Name Redacted 2/08/2022 04:54 PM	Yes - but cynically I think the purpose was trying to justify more asset investment by networks to strengthen networks under guise of resilience
Screen Name Redacted 2/08/2022 06:35 PM	It was well explained in the background material

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Screen Name Redacted

2/10/2022 01:46 PM

It was clear what we were discussing, and the underlying challenges networks are facing, but it wasn't entirely clear if there is an outcome that the process was driving towards.

Screen Name Redacted

2/10/2022 01:50 PM

The 2022 Network Resilience Collaboration Paper provided before the meeting set the scene.

Screen Name Redacted

2/10/2022 02:07 PM

Although we are not a DNSP, TNSP need to deal with identical climate change issue in order to satisfy our customer hunger for continuous electricity supply.

Screen Name Redacted

2/10/2022 02:13 PM

The preliminary documentation that was available on the web was well written and set the agenda. The forum followed the structure of the documentation, referred to various pages etc.

Screen Name Redacted

2/10/2022 02:36 PM

Background documents were comprehensive

Screen Name Redacted

2/10/2022 02:49 PM

I wasn't sure if I could contribute anything. The Slido system worked well.

Screen Name Redacted

2/10/2022 03:54 PM

It was good to hear from the network operators however I thought there would be more suggestions on how to be more resilient

Screen Name Redacted

2/10/2022 04:55 PM

Clearly articulated in the emails and again at the beginning of the forum.

Screen Name Redacted

2/11/2022 09:29 AM

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Screen Name Redacted

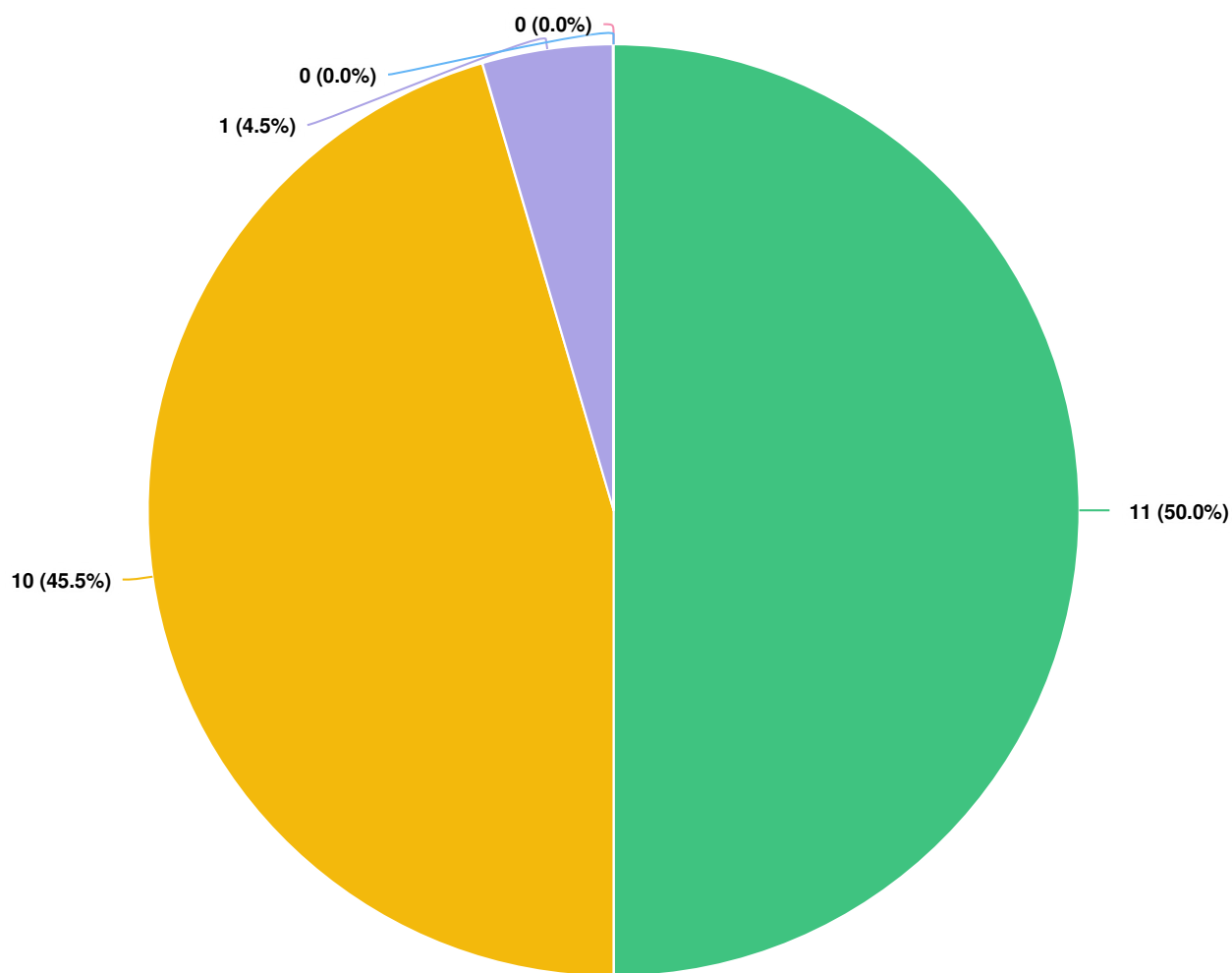
2/11/2022 12:47 PM

The pre reading outlined the questions pretty clearly, but given it was the first time that I have participated in a joint consultation of this nature I wasn't entirely clear on how it would progress.

**Mandatory Question** (22 response(s))

**Question type:** Essay Question

**Q3** I feel I received enough information before today's forum to participate to the best of my ability.



**Question options**

Strongly agree   Somewhat agree   Neither agree nor disagree   Somewhat disagree   Strongly disagree

Mandatory Question (22 response(s))

Question type: Dropdown Question

---

**Q4 Please tell us why you gave this answer:**

Screen Name Redacted

2/08/2022 04:01 PM

it was open if you wanted to contribute

Screen Name Redacted

2/08/2022 04:01 PM

same as above

Screen Name Redacted

2/08/2022 04:02 PM

A little more on how the session would run would have been helpful

Screen Name Redacted

2/08/2022 04:03 PM

More info the better to understand this important topic

Screen Name Redacted

2/08/2022 04:04 PM

Yes that information was ample. Maybe a bit more on who they really wanted to attend

Screen Name Redacted

2/08/2022 04:07 PM

The information provided gave a basis to the discussion.

Screen Name Redacted

2/08/2022 04:08 PM

no

Screen Name Redacted

2/08/2022 04:08 PM

The report was very useful.

Screen Name Redacted

2/08/2022 04:12 PM

The level of curation of issues precluded other topics as was evident from the chat

Screen Name Redacted

2/08/2022 04:24 PM

The paper gave a good idea of the 'why', but without rich background knowledge the 'what' was still not 100% clear

Screen Name Redacted

2/08/2022 04:54 PM

I didn't like the format of the paper - pay the graphic designers less and don't include pointless pictures - I know what a tree on wires looks like

Screen Name Redacted

2/08/2022 06:35 PM

I felt I was well informed to participate in the forum having reviewed the forum's pre-reading.

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Screen Name Redacted

2/10/2022 01:46 PM

Great background paper, good opportunity for discussion about each of the sections

Screen Name Redacted

2/10/2022 01:50 PM

The 2022 Network Resilience Collaboration Paper was a very balanced & useful document.

Screen Name Redacted

2/10/2022 02:07 PM

although it was received the night before it was not that long a paper that it could be read before presentation.

Screen Name Redacted

2/10/2022 02:13 PM

The paper was good, but some of the views about addressing resilience varied. I have my own views on this which differ from some of the speakers.

Screen Name Redacted

2/10/2022 02:36 PM

As above, Docs were sent in a timely way

Screen Name Redacted

2/10/2022 02:49 PM

see Q 2

Screen Name Redacted

2/10/2022 03:54 PM

Good pre-reading pack

Screen Name Redacted

2/10/2022 04:55 PM

I didn't realise or didn't read that I be participating via survey. It was a bit nerve wracking when mentioned but is was actually great.

Screen Name Redacted

2/11/2022 09:29 AM

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Screen Name Redacted

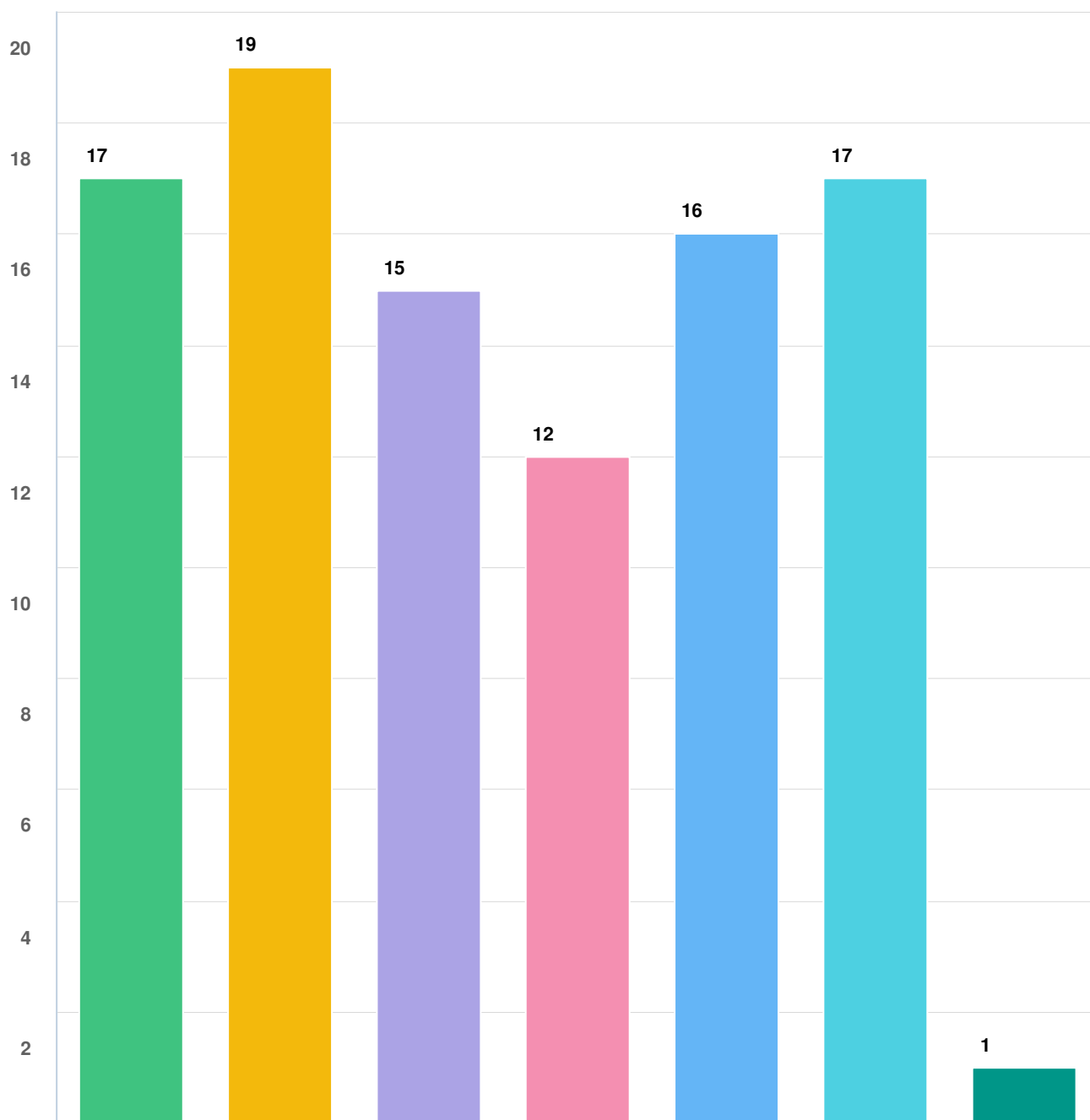
2/11/2022 12:47 PM

good pre reading

**Mandatory Question** (22 response(s))

**Question type:** Essay Question

**Q5 I think the following aspects of today's engagement worked well (select all that apply):**

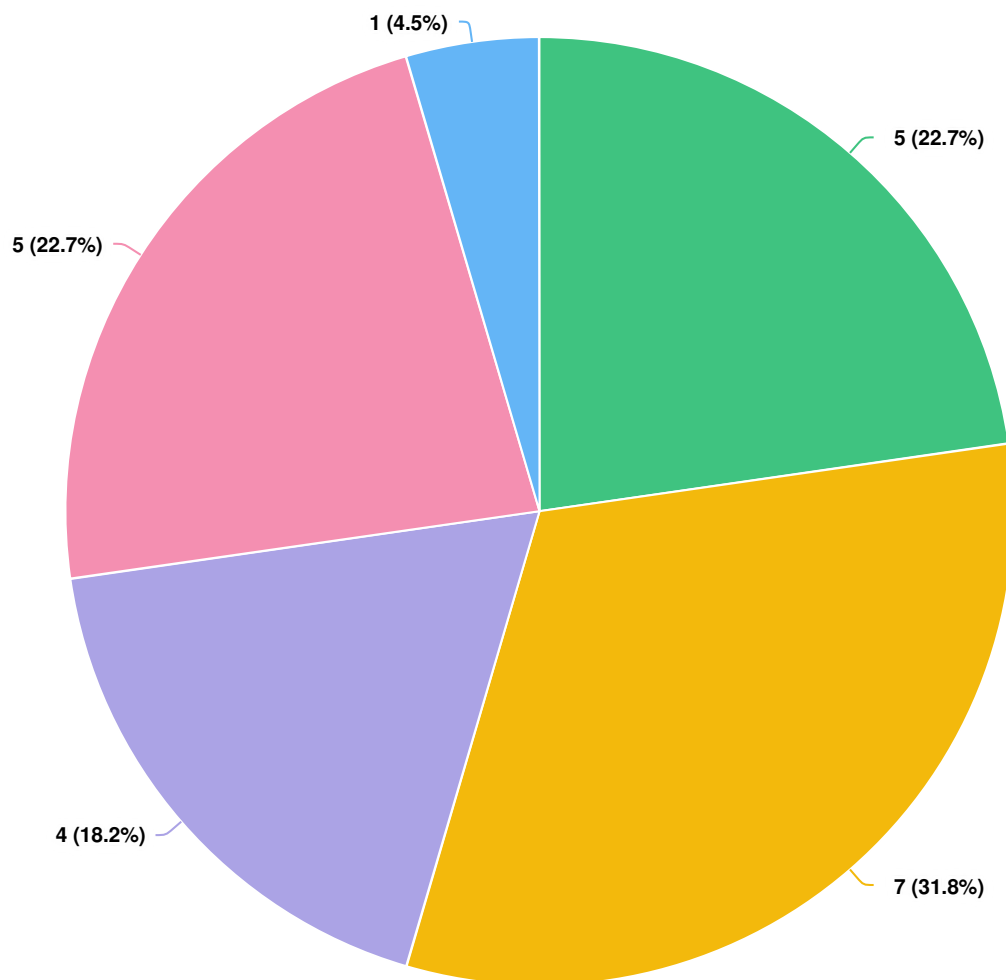


**Question options**

- Holding the forum online      ● Participation by multiple network service providers
- Topic information/reading was provided in-advance      ● There was dedicated space for questions
- Subject matter experts were on-hand to answer questions      ● Using online tool 'Slido' to capture and share live feedback
- Other (please specify):

*Mandatory Question (22 response(s))*  
*Question type: Checkbox Question*

**Q6** I believe aspects of today's engagement could have been done differently/better:



**Question options**

Strongly agree   Somewhat agree   Neither agree or disagree   Somewhat disagree   Strongly disagree

Mandatory Question (22 response(s))  
Question type: Dropdown Question

**Q7 | If you agreed with the previous statement, can you tell us what could have been done differently/better?**

Screen Name Redacted

2/08/2022 04:01 PM

There could have been more space for exchanges and debate, by relying more on the assumption that people had done the pre-reading and therefore some of the time for presentations was probably not needed

Screen Name Redacted

2/08/2022 04:02 PM

It's hard with Covid, but in-person session likely to be more vibrant and evocative

Screen Name Redacted

2/08/2022 04:04 PM

I think it was handled well

Screen Name Redacted

2/08/2022 04:07 PM

It was hard having the chat function, slides, presenters and the sildo at the same time. It would have been great to maybe limit this to three.

Screen Name Redacted

2/08/2022 04:08 PM

breakout into smaller groups for discussion with hosts- eg local government authorities, utilities

Screen Name Redacted

2/08/2022 04:12 PM

Sli.do is not useful for such a large group unless the "vote up" function is used. If you have pre-reading, you can assume that the reading has been done - don't spend half of the meeting repeating what was in the document. Especially, when you say that you want comments. Remeber, many of the people on the session cannot make a submission, but will be key in determining the success of the "collaboration".

Screen Name Redacted

2/08/2022 04:54 PM

The Teams/Slido combination was not good. Mira or one of the other virtual 'sticky note' sessions would have been better for collating comments.

Screen Name Redacted

2/08/2022 06:35 PM

I had no access to the Chat function on Teams. Upon checking google as to how I could access Chat I found it is not available on the Mac version of Teams. If I am wrong then please advise how I can access it as there is nowhere on the screen where the Chat can be found. The conveyor, knowing there were people without access to the Chat, made constant references to what was on the Chat, effectively excluding me from the broader meeting content. Also the

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QR code for Slido did not work and I only discovered towards the end of the meeting that there was a Slido app that would allow me to access the questions and make comment. All in all a very poor choice of tools and they were very poorly explained and used by the convenor.

Screen Name Redacted

2/10/2022 01:46 PM

given the number of people on the call, some smaller group sessions may have created the opportunity to hear from those voices not willing to speak up in a large peer forum

Screen Name Redacted

2/10/2022 01:50 PM

The huge number that participated in this engagement proved it was a success.

Screen Name Redacted

2/10/2022 02:36 PM

A little more time for discussion

Screen Name Redacted

2/10/2022 02:49 PM

I think it went well

Screen Name Redacted

2/10/2022 03:54 PM

A better engagement tool. slido did not allow for participants to view what others were saying or group them together for similar issues

Screen Name Redacted

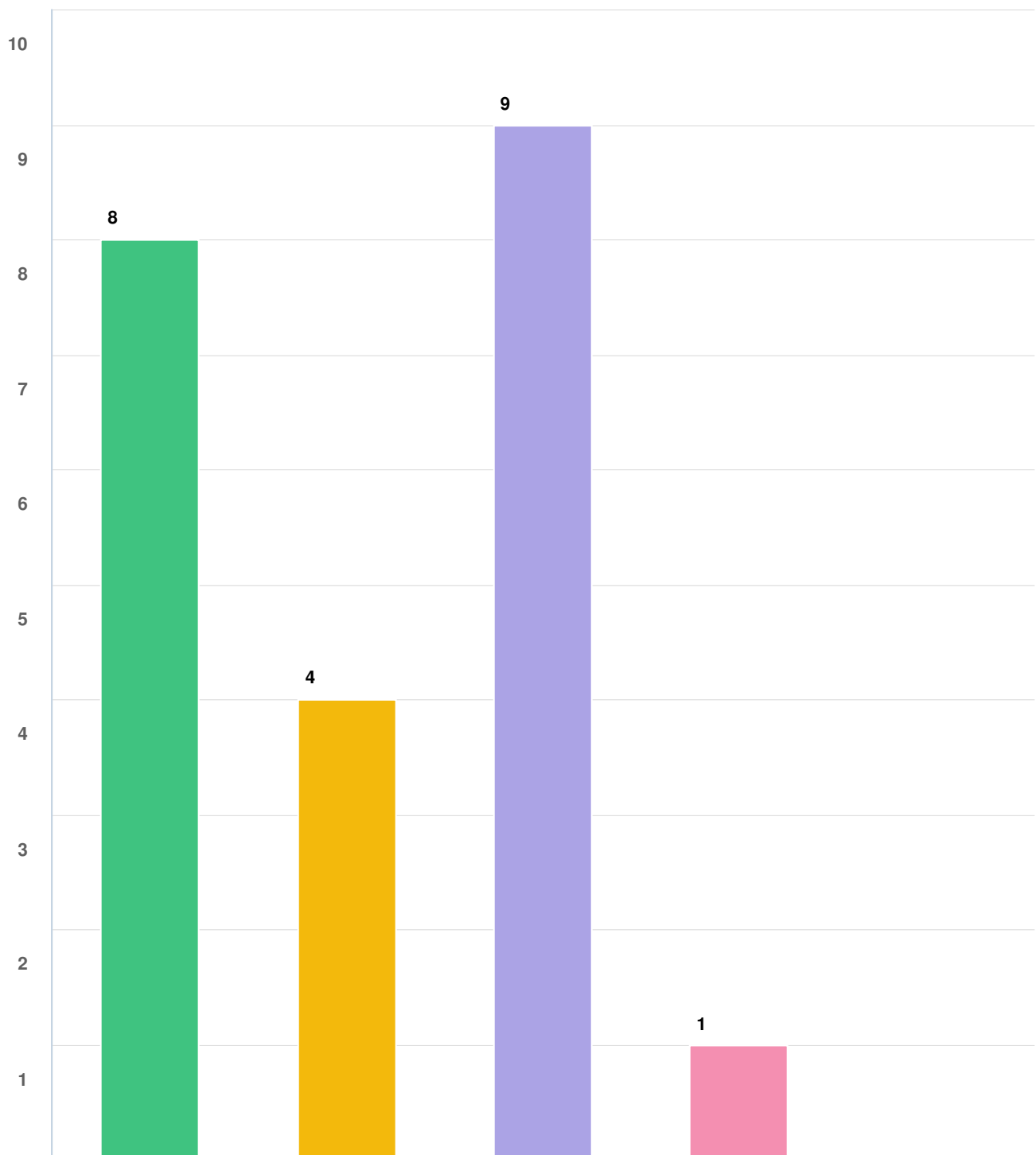
2/11/2022 12:47 PM

More inclusive tech options are key to good engagement with the community sector.

**Optional question** (14 response(s), 8 skipped)

**Question type:** Essay Question

**Q8** I think there are other topics that could benefit from joint engagement:



**Question options**

● Strongly agree ● Somewhat agree ● Neither agree nor disagree ● Strongly disagree ● Somewhat disagree

Mandatory Question (22 response(s))

Question type: Checkbox Question

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**Q9** If you agreed with the previous statement, can you tell us what those topics are?

Screen Name Redacted

2/08/2022 04:02 PM

Electricity is part of multiple lifelines, engagement outside of the network provider groups is important

Screen Name Redacted

2/08/2022 04:08 PM

If data driven approach is listed as methodology, what is happening with smart meter rollout beyond Vic??

Screen Name Redacted

2/08/2022 04:08 PM

Forecasting/fore-sighting future energy demands and impacts on distribution network due to increasing digitisation and electrification; How to deal with vulnerable households in a more empathetic/proactive way.

Screen Name Redacted

2/08/2022 04:12 PM

All reset issues.

Screen Name Redacted

2/08/2022 04:24 PM

Microgrids and community batteries

Screen Name Redacted

2/08/2022 04:54 PM

As I said - the issue for the regulator is to determine the appropriate balance between price and service quality - that is an overall position not made up of incremental decisions. And consumer communities are different - if anything we would be better off engaging on the old County Council footprints.

Screen Name Redacted

2/10/2022 01:50 PM

Future grid.

Screen Name Redacted

2/10/2022 02:13 PM

The question is a bit open and not limited to power network and distribution. Water authorities, Councils etc could all benefit from such an approach, particularly their customers.

Screen Name Redacted

2/10/2022 02:36 PM

Advocates are called upon by multiple businesses and resources and time are stretched, Embedded networks, tariffs

Screen Name Redacted

2/10/2022 03:54 PM

Proposals for resilience - community battery, undergrounding powerlines, EV ready networks, peer to peer trading, community solar, micro grids etc

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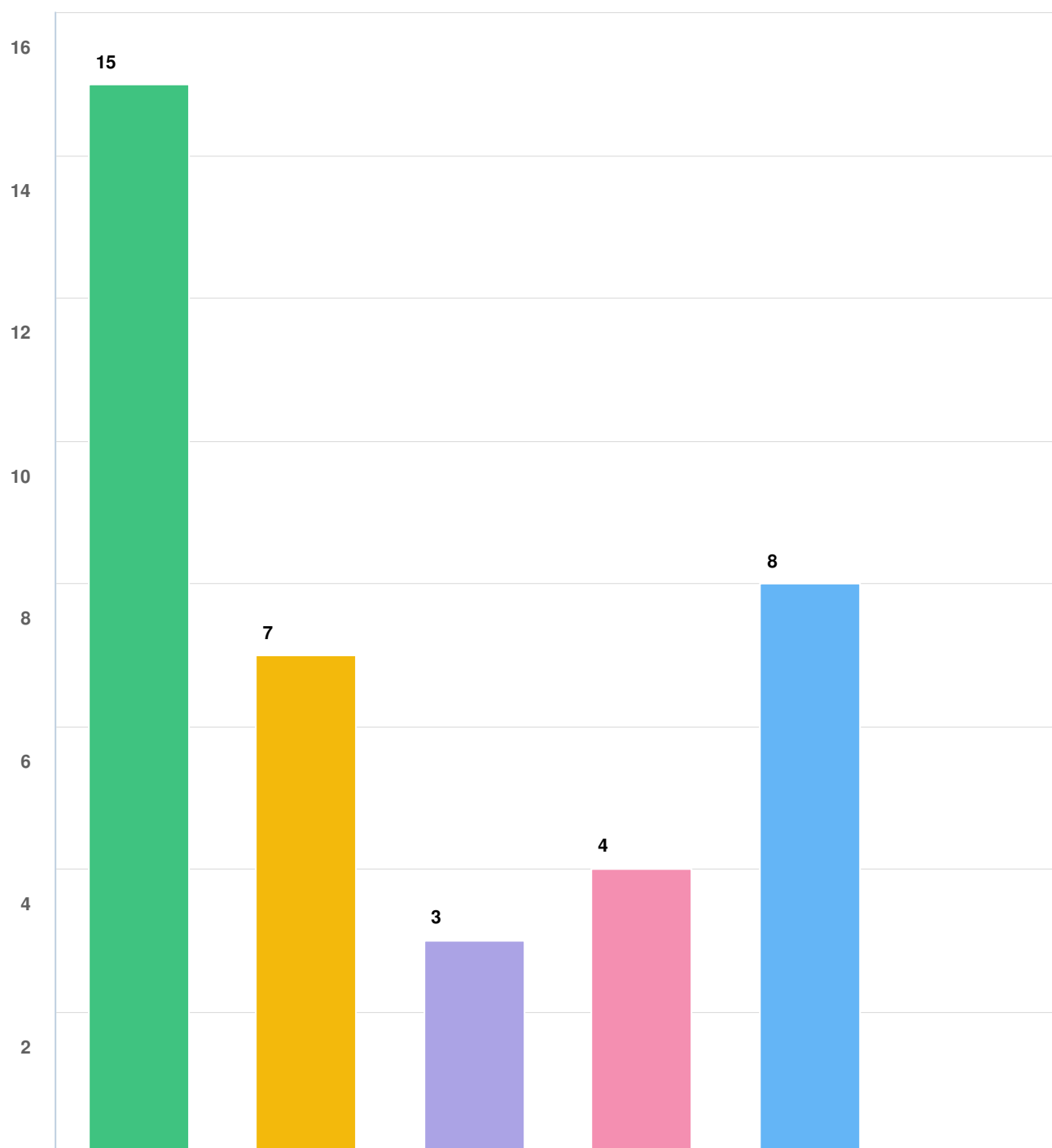
2/10/2022 04:55 PM

I have ticked this only because it was such a good forum, pre reading  
was excellent and I didn't feel that the feedback was just a formality.

**Optional question** (11 response(s), 11 skipped)

**Question type:** Essay Question

**Q10** Thinking about those topics, what would be the best ways to engage on them? (select all that apply)



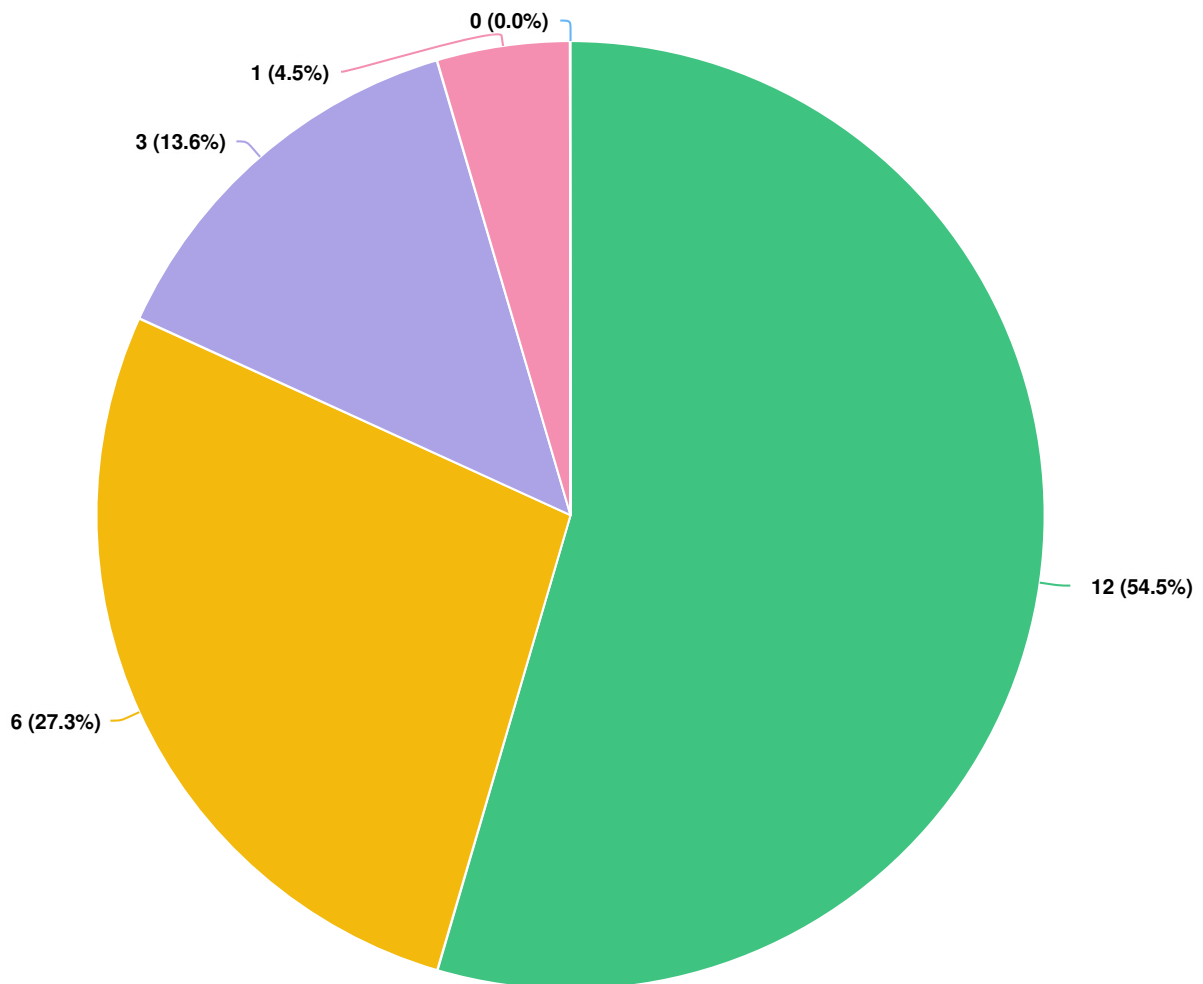
**Question options**

- Online forum   ● Face-to-face forum   ● Discussion paper with written submissions   ● Online survey  
● Online study circle/workshop   ● Other (please specify)

*Optional question (16 response(s), 6 skipped)*

*Question type: Checkbox Question*

**Q11** Overall, I am satisfied with the way the forum was run today.



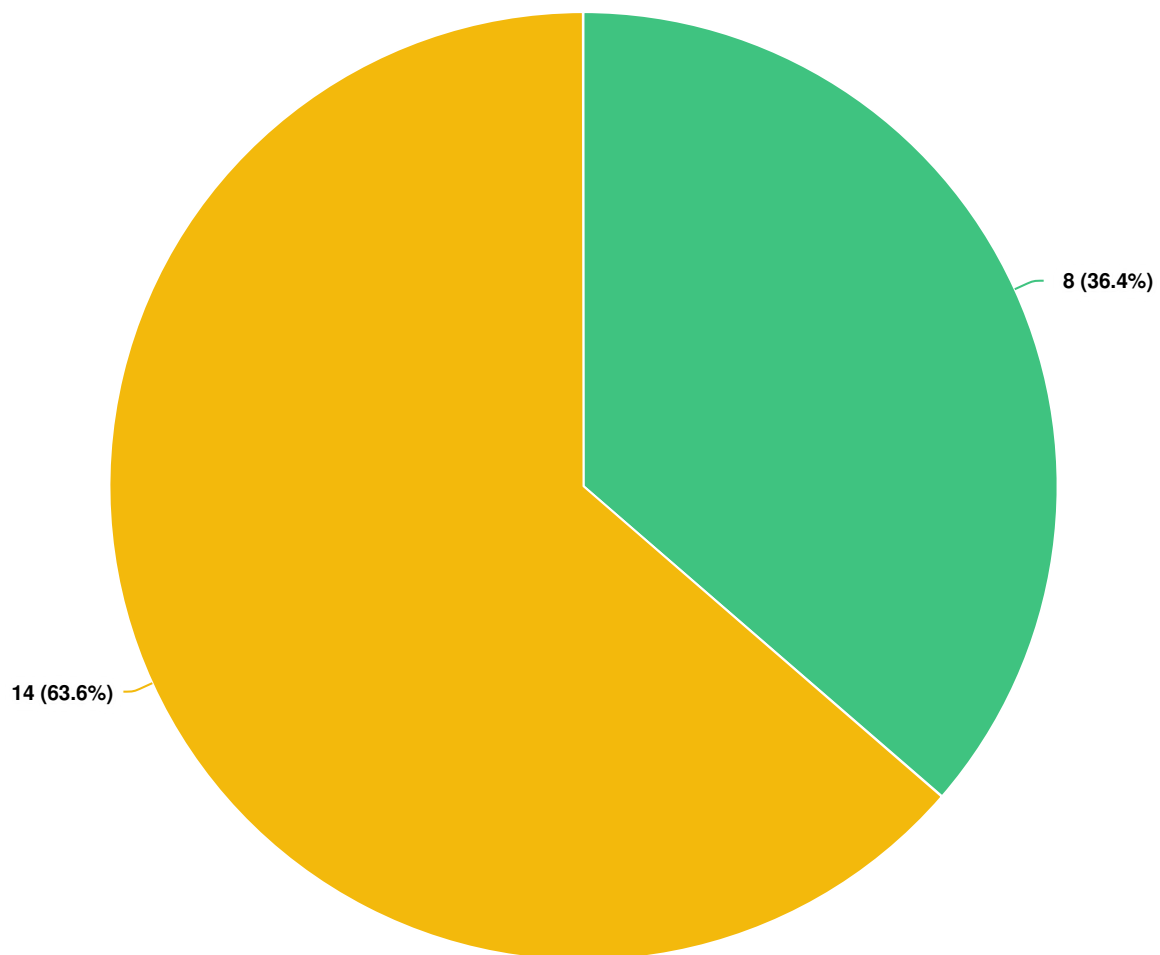
**Question options**

● Strongly agree ● Somewhat agree ● Somewhat disagree ● Strongly disagree ● Neither agree nor disagree

Mandatory Question (22 response(s))  
Question type: Dropdown Question

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**Q12** Please tell us why you gave this answer:



**Question options**

☐ No ☐ Yes (please specify):

*Mandatory Question (22 response(s))*  
*Question type: Dropdown Question*

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**Q13 | Do you have any other comments about today's forum, or network resilience?**

Screen Name Redacted

2/08/2022 04:01 PM

congrats to Nicole, Sandra and Scott for their presentations, involvement

Screen Name Redacted

2/08/2022 04:04 PM

No

Screen Name Redacted

2/08/2022 04:08 PM

To get a sense of popularity of responses to open Slido questions, would it be better to have common multiple choice options & other open text box??

Screen Name Redacted

2/08/2022 04:08 PM

I think the overall experience of the forum could benefit from some 'practical examples' that might help people understand better the effects of network resilience. Maybe some potential future resilience-challenging scenarios and different ways of approaching it will help the audience to visualise the problem and collaboratively develop interesting solutions and analysis.

Screen Name Redacted

2/08/2022 04:54 PM

Network resilience is not necessarily associated only with major events...and not enough thinking about what the network needs to do to help the community respond to the event. The biggest opportunity for networks is in giving community guidance on how long restoration will take. It can be the difference between staying put and going elsewhere, .

Screen Name Redacted

2/08/2022 06:35 PM

When seeking community engagement give consideration to generic tools such as zoom which function better over a wider range of platforms. Just because you have these tools for in house use does not mean they are the best tools for community engagement. I feel I waster two hours today plus the time taken to review the documentation. This makes me reluctant to be involved in future sessions using teams where chat is a core part of the process. Unless of course there is a way to use chat on a Mac and you can provide information on how to access that function.

Screen Name Redacted

2/10/2022 01:50 PM

NO.

Screen Name Redacted

2/10/2022 02:07 PM

great presentation and engagement from attendees

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Screen Name Redacted

2/10/2022 02:13 PM

Resilience is the ability to basically bounce back from an incident of difficulty. The more planning, preparation, understanding and mitigation put in place, the less effort and lower incidence of the bounce back required. The Networks have identified this in the very first step in the definition of Resilience, "Resist". Basically this is about prevention .... and it is much better than cure. So the focus on avoiding destruction should be the highest priority. Using physical measures of better waterproofing infrastructure, non-flammable poles, relocating infrastructure out of harms way (such as flood zones, poor storm water channels) etc. is fine, but we need to eliminate the risks where we can, including the very obvious, which is never done, better managing trees, trim or cut them down, engage Councils to better manage this. Tasmania has many outages because of this. Storm water drainage, (including creeks, rivers) is another issue that requires attention and improvement by Councils, another problem in Tassie. Local and State government need to be equally attentive to fire management and burn offs. Many high populated areas in our state have trees over towering power lines. The network needs to have the legislative power to ensure this does happen and one risk is removed. Many of the outages experienced in our state are basically self inflicted by laziness. These are Not caused by extreme climate impacts. The idea of the Networks giving out vouchers or food or any other benefits to those who have lost power is not appropriate. The state and local governments should focus on this type of support. The Networks support should be getting the power restored and perhaps some reimbursement for losses where the Network has contributed to the loss due to poor maintenance or other planning. Thanks again everyone, good session.

Screen Name Redacted

2/10/2022 02:36 PM

It was good to have a wide variety of stakeholders in numbers at the forum

Screen Name Redacted

2/10/2022 02:49 PM

Nope

Screen Name Redacted

2/10/2022 04:55 PM

It is wonderful to see a community that is actually trying to define resilience.

Screen Name Redacted

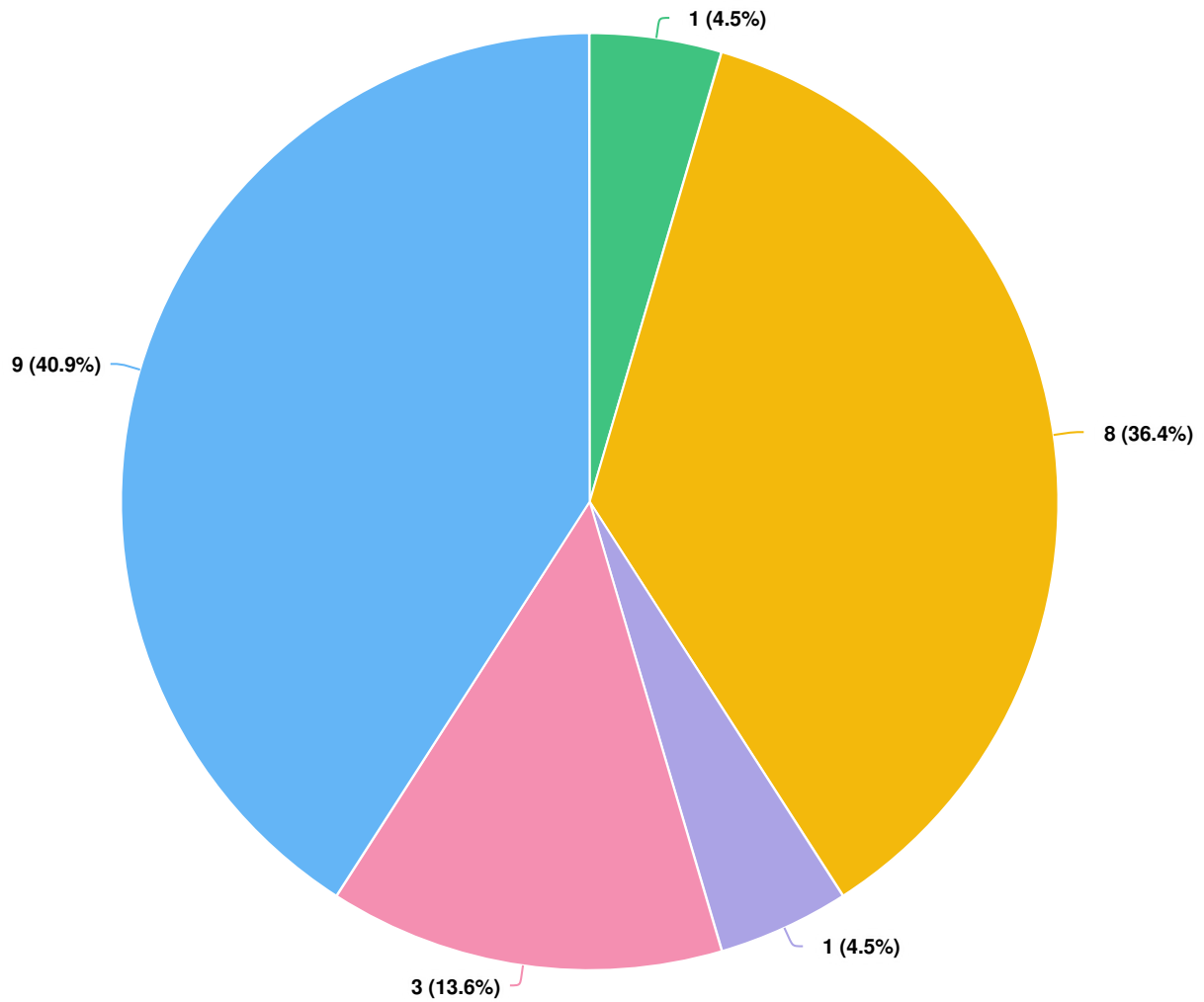
2/11/2022 12:47 PM

No

**Optional question** (13 response(s), 9 skipped)

**Question type:** Essay Question

**Q14** I participated in today's forum as:

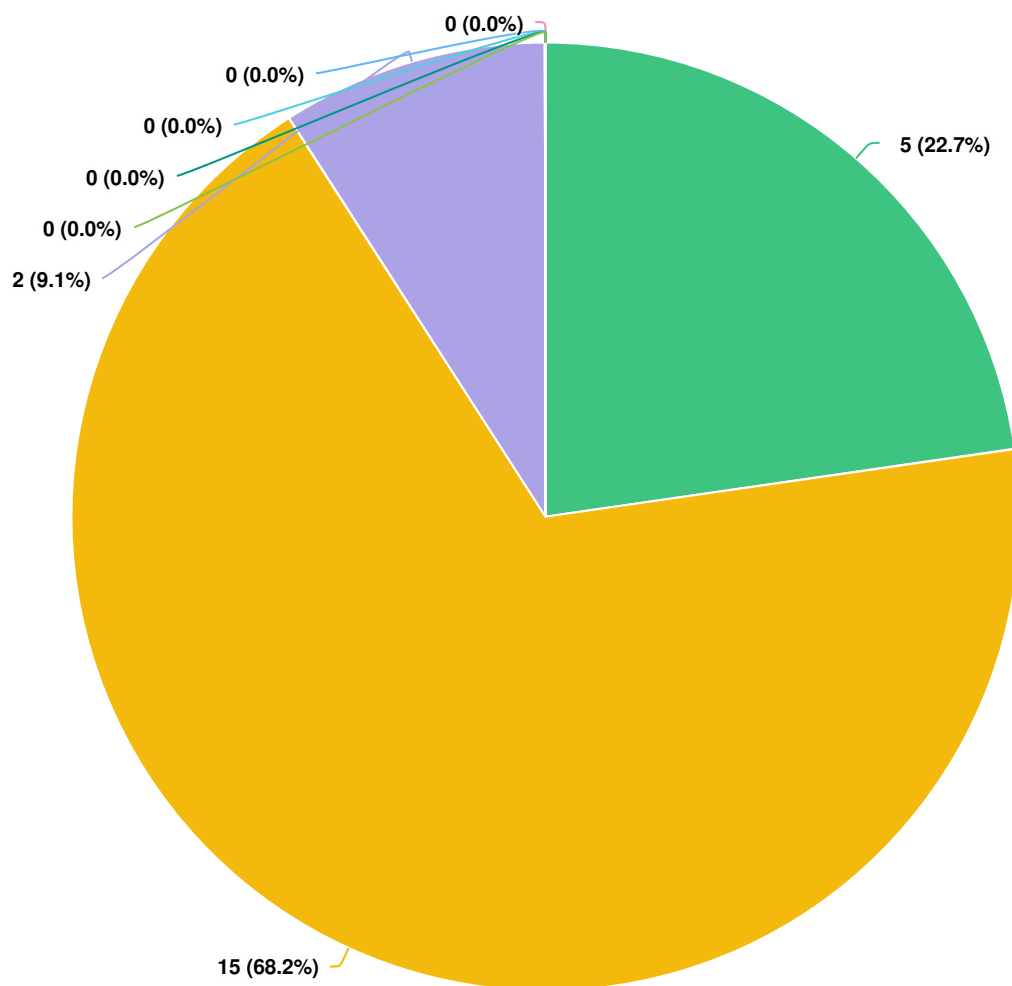


**Question options**

- Myself (private individual)
- a representative of a consumer group
- a representative of an industry group
- a representative of an energy organisation/business
- Other (please specify)

Optional question (22 response(s), 0 skipped)  
Question type: Radio Button Question

**Q15** I am located in:



**Question options**

- Tasmania New South Wales Victoria Northern Territory ACT Western Australia  
South Australia Queensland

Mandatory Question (22 response(s))  
Question type: Radio Button Question



## Contact

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