



## **Response to the 2022 Collaboration Paper on Network Resilience**

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Western Sydney Regional Organisation of Councils Ltd.

February 2022

## 1. Introduction

Thank you for the opportunity to provide feedback on the *2022 Collaboration Paper on Network Resilience*.

WSROC welcomes consideration of the issues outlined in the Paper and believes that collaboration on issues of resilience across the sector is critical to achieving the outcomes this Paper suggests.

WSROC councils are particularly vulnerable to the risks of bushfires, floods and heat. In addition, Western Sydney is one of the most rapid growing regions in Australia exacerbating existing challenges and increasing pressure on the grid. Our member councils stretch from highly urbanised areas to remote communities. As such, challenges, needs and opportunities for grid resilience will be different across the region.

Many of our councils have declared climate emergencies and are participating in the [Western Sydney Energy Program](#) and the [Turn Down the Heat](#) initiative which address emission reductions and resilience to heat respectively. WSROC therefore strongly supports the intent of the Paper and for a joint approach between DNSPs to respond to climate change. We particularly support the statement:

*“those people being supplied by the electricity network in 2065 will be living with the risk and cost implications of the investment decisions we make today. It is therefore critical that electricity networks, and regulatory authorities, consider how our climate might change over the next 40-50 years, not just the next 5-10 years.”*

A long-term vision that prioritises human safety and resilience should form the basis of the proposed approach.

WSROC has identified several areas where the Paper, or subsequent strategy for investment, can be improved. We also recognise that there is substantial opportunity for Endeavour Energy to collaborate with WSROC and its member councils to better the resilience approach as outlined.

We welcome the opportunity to work further with DNSP's in our region to promote the resilience of energy networks, as well as innovation in the sector.

## 2. The definition of resilience

WSROC broadly supports the definition of resilience that DNSPs have taken, however we believe the definition could be improved by broadening its scope to include hazard reduction, and by recognising the broader settings in which energy networks operate.

WSROC has developed its [own definition and approach](#) to resilience based on the best-practice PPRR approach to hazard management as outlined in the *Australia's National Disaster Resilience Framework (ANDRF)*. The first step of the PPRR approach considers the prevention or reduction of hazard and its impacts. Hazard reduction is not currently included in the DNSP's model of resilience but could play a significant role in the pressures that energy systems will face in future.

Secondly, *ANDRF* notes that resilience building is necessarily collaborative and society-wide process. As such, we would like to see this Paper better articulate the role of DNSPs in supporting broader efforts towards resilience, and the ways in which other parts of the system both impact and are impacted by energy network resilience.

The example below demonstrates why hazard reduction and addressing broader operational settings are important.

#### **Example: Heatwave**

One of the major challenges for energy networks is the impact of excess demand during extreme weather events such as heatwaves. While DNSPs can invest in networks to better manage peaks in demand, there are also avenues for reducing both heatwave severity and energy use during extreme events.

Urban design and housing construction standards are known to play a critical role in both the severity of heat events (via the urban heat island effect), and the amount of energy required by households to manage heat events. WSROC has been strongly advocating for updates to the National Construction Code, NSW BASIX SEPP, and NSW draft Design and Place SEPP to deliver urban design that mitigates

#### **WSROC Resilience approach**

1. **Awareness:** Assessing the physical conditions in the area, and the vulnerability of residents and urban infrastructure to climate change impacts.
2. **Reduce:** Reducing impacts as much as possible (e.g., via mitigation of climate change and urban heat islands).
3. **Adapt:** Not all climate change impacts can be mitigated. It is also important to design to help people thrive and survive in a changing climate.
4. **Respond:** There will still be residual climate change-related risk in extreme events. Emergency preparedness and response measures are required; particularly to help communities most at-risk.

the severity of extreme heat, and homes that require less energy to maintain thermally comfortable temperatures.

While DNSPs do not have control over planning and construction, we believe they have a responsibility to advocate for policy change that would support the resilience of their infrastructure assets i.e., reducing demand on energy networks during extreme events, reducing the likelihood of network disruptions, and thereby deliver more resilient, safer communities.

WSROC's recommendations for cooler, safer, less energy-intensive developments include:

- Integrate urban heat mitigation measures into the NSW planning system (for further information see [Urban Heat Planning Toolkit](#) and [Cool Suburbs](#)).
- Assess the performance of new dwellings against future climate projections – to ensure homes can provide community safety and efficient energy usage in decades to come.
- Establish thermal autonomy standards – to ensure that homes can maintain survivable temperatures in the absence of mechanical cooling, reducing risk to community during network disruptions.

### 3. The role of electricity networks in responding to climate change

Energy networks have a responsibility to both mitigate and respond to climate change where possible.

We commend energy networks for acknowledgement of the need to address climate change beyond the current practices of cost pass through investment. We further acknowledge that timely investment in climate resilience will result in financial benefits down the track, including avoided costs (damages and repairs, failing infrastructure, reduced maintenance costs, etc).

Overall, the electricity network providers have a duty of care to their customers, to ensure they have safe, reliable, and affordable energy. In view of a changing climate, WSROC argues that this means that DNSPs have a responsibility to:

- Reduce demand on the grid
- Improve the security of supply during peak demand
- Improve power supply to remote communities
- Facilitate the uptake of large-scale new renewable energy sources
- Locate power supply closer to end users.

Key areas where WSROC would encourage DNSPs to play a stronger, more proactive role are:

### **Underground cabling**

Underground cabling has been identified as the key mitigation action that is required for climate risks as outlined on page 19 of the Paper. WSROC stresses that undergrounding of cabling will have flow on benefits for climate mitigation, where vertical space may become available for street trees. Underground cabling should be mandated for any new developed (where that is not yet the case), but WSROC would also like to see strategies implemented that work towards retrofits of existing suburbs. While such retrofit programs are no-doubt costly, as pointed out in the Paper, investment in network resilience now, will avoid escalating costs in the future.

### **Virtual Power Plants (VPP) and community batteries**

WSROC acknowledges the importance of community resilience and the need for more distributed and diverse energy systems including projects such as the Bungarribee community battery in Blacktown LGA. Councils would support scaling up such initiatives and rolling out additional virtual power plants and community batteries to reduce peak demand and ensure stronger community resilience. This is particularly important to Western Sydney, which is vulnerable to extreme heat events, which puts enormous pressure on the grid. We would particularly like to see option for DNSPs approved, aligned, and enabled VPP options with retailer independent options (approved providers, standardisation, etc.). This will increase transparency for both consumers as well as providers. WSROC believes VPPs can play a critical role in grid stability.

### **Smart technology solutions**

We agree with the Paper that smart technology can play a critical role in building resilience. Smart network sensors, drones, real time data, can all ensure that impacts to the grid are detected early, and appropriate response strategies are put in place in a timely manner. We also see a role for smart technology in improving early warning systems for communities.

### **Community education**

We agree with the statement in the Paper that education is critical, and WSROC believes the DNSPs have an important role to play to educate communities on preparedness for emergencies. WSROC has delivered a range of heat preparedness workshops with Western Sydney communities, and beyond the need for more awareness on how community members can contribute to demand management, there is also a need to ensure communities are aware of the cascading impacts when the electricity grid fails. We have noticed a false sense of security around solar panels, with many community members not being aware that their solar panels will not work when power fails (unless islanding is incorporated). For our workshops we collaborated with the Red Cross (preparedness training) and

councils. We see an opportunity for the DNSPs to collaborate with councils and the Red Cross on educational programs. We have included more information in section 7 of this response.

### **Alternative energy supply and microgrids**

We strongly support the need to invest in alternative, autonomous energy supply for those areas that are at risk (e.g., remote, at-risk communities). Many of WSROC member councils were impacted by the 2019/20 bushfires, including Hawkesbury, Blue Mountains and Lithgow Local Government Areas. Scaled-up and improved microgrid systems in regional and remote communities will be an important step in improving the resilience within those communities.

### **No-one left behind**

We strongly believe that the principle of ‘no-one left behind’ should be at the core of investment for climate resilience. For example, WSROC supports increased uptake of household solar and batteries. But we reject the notion that those who are not able to transition to solar should be charged more (e.g., those renting or those who cannot afford solar).

### **Collaboration to identify vulnerable facilities and vulnerable communities**

There is a need to collaborate with councils, state agencies, communities, on identifying vulnerable facilities and vulnerable communities where additional focus is required to secure safety. For example, cool refuges, nursing homes, social housing, childcare centres, etc. Our Heat Smart Resilience Framework has found that there is a distinct lack of coordination across stakeholders in this space. Ensuring these places have back up energy supply or can be prioritised in terms of brownouts is critically important.

We would further encourage DNSPs to partner with the NSW Government and councils to identify pilot projects for resilience building for vulnerable communities, particularly collaborations with social and affordable housing programs, and programs supporting renters.

## **4. Proposed general principles for considering resilience investments**

While the principles appear logical, further detail is required to determine how these principles will be applied in practice. It is concerning that the principles focus solely on net economic benefits, and do not reflect understandings communicated later in the Paper, namely that resilience building and disaster recovery require an understanding and appreciation of less tangible community benefits.

WSROC recommends that further work is undertaken to understand cost-benefit of climate action. This should take into account avoided costs and allow for a finer grain understanding of localised climate impacts.

**Targeted: Resilience investments will be targeted at the assets and areas most at risk (e.g., bushfire prone areas)**

While generally this principle is supported, further detail on how risk is assessed is requested. Assessments should not only account for risk of network damage from hazards, but also risks to community health and wellbeing. Certain communities will be more significantly impacted by network disruptions than others, and this should be factored into any risk assessment. This is particularly important given the proposed federal legislation that states DNSPs will be required to minimise impacts caused by disruption to assets by natural hazards.

We would also like to make the point that while we in principle support an ‘evidence based’ approach, we would request for more information to be made available around what evidence would be considered. Because it is critical for energy infrastructure to remain functional and safe for many years to come, we strongly recommend that any climate data used to inform such an approach is based on future projections, and a high emission scenario (e.g., CSIRO RCP8.5 for 2050 and 2070).

**Customer benefits: Decisions to invest, or not invest, will be based on what unlocks the most net economic benefits.**

When considering customer benefits, it is important to acknowledge that:

- Distribution of benefit varies significantly across the network; with different customers facing varying levels of physical and financial risk from network disruptions
- Customer benefits are far broader than just economic benefits.

First, focusing on the net economic benefit for customers as a collective, fails to understand how costs and benefits of investment vary across the energy network i.e., Overall net savings to the customer base can come at the cost of network resilience in communities exhibiting highest levels of vulnerability.

In WSROC’s experience, across the population of Greater Sydney, those areas experiencing the highest levels of network disruption risk (i.e., in Western Sydney) are also the most socio-economically disadvantaged areas and exhibit higher levels of vulnerability during hazards such as heatwave. For such communities resilient power is critical to life-safety during extreme heat events such as those

experienced during summer 2019-2020, and these benefits cannot be expressed in terms of net economic benefit.

WSROC implores that in assessing customer benefits, DNSPs consider carefully what is included and excluded from assessments. We strongly pose that traditional cost benefits will not be adequate in view of climate change, as acknowledged by [NSW Treasury](#). Often, avoided costs to customers are overlooked, as well as broader costs to state health systems. It is noted that many of the social costs of natural disasters outlined on page 7 of the Collaboration Paper would not be addressed by this principle.

**Risk based approach: *Economic benefits will be calculated by comparing forecast costs and the monetised value of risk***

While it is understood that DNSPs are corporations that are required to make sound economic decisions. Many aspects of resilience, and particularly community resilience, are not easily quantifiable in monetary terms. Please also refer to the previous point.

WSROC further seeks clarification regarding how climate risk is being assessed, and what modelling is proposed to be used. WSROC suggests that DNSPs look for best practice approach to risk assessment (e.g., [CSIRO RCP8.5](#) for 2050 and 2070 climate files) and considers avoided costs to the business as well as society.

## 5. Network resilience

### **Proposed risk assessment and solutions process and framework**

We note that heatwave is included in the suite of climate risks facing energy networks. As outlined previously, we would suggest that there are additional opportunities to consider how DNSPs reduce heatwave impacts via the planning system (urban heat) and rising temperatures (climate change).

### **Proposed framework for valuing the risk of large-scale major events**

There is significant merit in developing a way to value large-scale major events in network investment decisions. However, WSROC also recognises that place-based impacts should equally be considered. The way major events impact local areas is highly dependent on local geographic and socio-economic conditions. There remains a need for build-in flexibility to be able to do justice to these localised factors.

Accurately valuing risk and resilience is an ongoing challenge for governments due to the many intangible elements to be considered (e.g., social costs and avoided health costs). For example, NSW



Treasury's 2021 [paper](#) estimating the impacts of climate change on the NSW economy, outlined that the costs of heatwaves to state health systems are known to be significant but remain unquantified.

Similarly, Resilient Sydney's report [Insights into Community Urban Resilience Experiences](#) highlights that the impact of power outages to workplace productivity, family budgets, mental and physical health and social wellbeing are multi-faceted and complex resulting in under-representation in impact evaluation.

In developing a process for valuation of major events, WSROC urges DNSPs to consider how less-tangible costs of network outages can be effectively valued and used to inform network investment decisions.

## 6. Community resilience

WSROC agrees with many of the challenges and opportunities identified within the community resilience section of the Paper, and to our understanding the conclusions drawn reflect those reported by councils and communities. However as noted above, we find it difficult to see these conclusions reflected in the General Principles for investment outlined in section 1.

WSROC sees significant opportunities for collaboration with DNSPs to drive greater community resilience to future network disruptions.

## 7. Recommendations from Heat Smart Western Sydney

WSROC agrees that building resilience relies heavily on the involvement of community and local organisations, and that education plays a critical role in this process.

Over the past 12 months, WSROC has been working on improving heatwave resilience across Western Sydney under the [Heat Smart Western Sydney](#) program. More recently we have conducted community heatwave preparedness workshops in partnership with the Australian Red Cross under a grant program due to be completed in March 2022.

During this program, we have found that many individuals and local organisations are unprepared for heatwaves including management of power outages. This is particularly the case for urban populations who may feel fewer pressing needs for disaster preparedness due to their distance from other hazards such as bushfire or flood.

There is still much work to be done to build awareness and understanding of the potential for network disruptions and flow on implications for other critical infrastructure such as transport, water and telecommunications, and options for improving personal resilience (e.g., many community members

are unaware that solar panels will not work during a power outage due to anti-islanding requirements).

WSROC also sees a role for DNSPs to participate in community resilience building beyond education and communication. WSROC's [Heat Smart Resilience Framework](#) (enclosed), identifies several additional areas where energy providers can partner with, or support governments to assist communities prepare for and respond to extreme weather. The recommendations were developed via broad-ranging consultation with state, local, federal, industry and community partners (including Endeavour Energy) to identify areas for improving heatwave resilience. These include:

### **Improve infrastructure resilience**

It is understood that improved infrastructure resilience is core-business for DNSPs and is required under legislation. However, the Heat Smart Framework outlines community-focused elements of infrastructure resilience that require additional consideration:

- Develop a strategy for improving energy network resilience to heatwave prioritising the safety of vulnerable facilities and communities.
- Prioritise the installation of localised backup power in areas of high heat risk.

WSROC would welcome further discussion with network providers in Western Sydney (Endeavor Energy and Ausgrid) to further explore these opportunities. We note that the rapid development of Western Sydney provides significant opportunity to trial new technologies and approaches to resilience building.

### **Improve electricity affordability for vulnerable groups**

In the extreme temperatures seen in Western Sydney, air-conditioning is critical to health. Unfortunately, energy affordability issues may prevent those most vulnerable to heat (particularly the elderly) from cooling (or heating) their homes. Heat Smart recommendations include:

- Investigate new solutions for reducing cooling costs e.g., district cooling or solar rebate schemes.
- Investigate policies to incentivise at-risk individuals to utilise cooling measures during heat events (e.g., The UK Winter Fuel Payment helps low-income individuals over 65 years pay energy bills through extreme weather).

It is envisaged that DNSPs would have a key role to play in partnership with government and other industry stakeholders.

**Plan for the provision of cooling shelters (emergency centres) and integration of partner organisations**

We agree with the Paper's suggestion that there is a need for more community facilities that can double as emergency shelters during disaster events such as heatwaves. WSROC would welcome collaboration with DSNPs on how to best design multipurpose facilities with resilient energy supply including secure connections, backup batteries and standalone power systems etc.

## 8. Contact

WSROC would welcome further discussion and collaboration on the points raised in this submission.

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