

The role of community engagement in planning resilient microgrids

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Community microgrids are increasingly being considered and trialled as a way of supporting rural and remote communities during grid outages. This paper discusses two current proposed microgrids in New South Wales (here referred to as the 'coastal' and 'inland' microgrids, with further identifying details excluded), both undertaken by DNSPs to address network constraints in edge-of-grid contexts. Based on observation of community meetings and interviews with the DNSPs, and drawing on scholarship in the social sciences, we reflect on some aspects of the relative success of the DNSPs' engagement with these communities around the design of the microgrids.

For the DNSPs, who traditionally have relatively little direct contact with the users of their networks, this engagement represented new territory, adding cost, time and complexity to their planning process, with the aim of securing social licence for the microgrids and developing skills and capability to apply to future projects, as much as informing the specific system design. Scholars of Science and Technology Studies have argued that public participation processes such as these must be understood as constructing the very issues, objects and actors involved, rather than discovering them pre-existing (Chilvers and Longhurst 2016; Chilvers and Kearnes 2015). In this context, this means that understandings of the problem that the microgrid addresses and how it offers a solution – including the very definition of the community that is to benefit from it – are negotiated and constructed in interactions among the DNSP and the community.

One aspect of this process of construction of the microgrid is an implicit or explicit confrontation of the questions of for whom and how it is supposed to deliver benefit. The coastal microgrid was initiated by the DNSP as an alternative to upstream infrastructure investment, and was presented as *'the best possible solution for this community'*. The interests of the network and of the community were constructed as synonymous, with the DNSP presenting their proposed orchestration of behind-the-meter batteries as being *on behalf of* and *for the benefit of* the community. Crucially, the community were willing to see it the same way, and referred to the deployment of their private assets for collective benefit as a continuation of community solidarity that began in the Black Summer bushfires of 2019-20: *'It happened for the first time in the bushfires – we felt like a community who could help each other. It feels good to think that we could help each other when the grid is down'*. In the inland case, a participant of an early focus group perceived a distinction between the interests of the community and those of the network, asking *'You're talking about the resilience of people to cope with the loss of power, not the resilience of the network?'*. The response from the facilitator clarified that *'In this particular case we're looking more at the network's ability to actually provide network services and recover those services when subjected to disruptive events'*. Where the community perceives that a microgrid primarily serves the interests of the network over its own, as it may have done following this exchange, the project may be undermined.

The engagement process also involves constructing modes of participation by the community. In this, successful microgrid development may build on an existing sense of 'energy citizenship' within the community – which refers to the ways that the people actively engage in the energy transition through forms of consciousness and material actions (Devine-Wright 2007). In the coastal microgrid, for example, subsidies were offered for the installation of batteries in households that

already had or were considering installing PV, with the expectation that these batteries would participate in the microgrid (along with a network-owned community battery located at community facilities, and a diesel generator). Utilising and enhancing distributed energy resources (DER) for the purposes of the microgrid was the approach chosen by the DNSP because it was seen as a way of *'optimising what was already there, as well as potentially maybe helping customers transition [to DER] faster'*. The microgrid thus leverages existing DER in the community and, equally if not more importantly, it also leverages an active interest for DER within the community. The community also claimed a sense of agency – evident in statements such as *'I'm excited that we're doing it ourselves, in partnership with [the DNSP]'* – that has been crucial to the relative success of that particular microgrid proposal.

In both of the proposed microgrids we observed, an understanding of the membership of the community also had to be negotiated. Indeed, what is assumed to be *one* community is often in fact *many*. In early engagement, the inland microgrid proposal was perceived as benefitting the residents of a town but excluding outlying farming properties, and was met with concerns that *'If you're going to service just the town, it's the country that is going to miss out again'* and *'While you're powering up the businesses in the main street, you're not powering up the businesses that are running out of town'*. There was strong feeling that the microgrid would need to be able to meet the needs of both the 'country' as well as the 'town' residents and businesses. The coastal microgrid project also navigated questions about who belongs to the community. It was ultimately agreed that only permanent residents and not holiday home-owners would be eligible for battery subsidies, and that subsidies for the batteries should be distributed to include some lower-income households that would otherwise be unable to participate in the microgrid, because *'It's not a good feeling for a small community if people get left out'*, in the words of one resident.

This abstract has outlined some of the ways that DNSPs and communities both contribute to building an understanding of the microgrid and who and what it is for. This is not to say that these processes of negotiation and construction necessarily result in understandings that are shared between these actors, or that shared understandings are necessary to success. Some of the interests and perspectives of the DNSP and the community cannot be – and perhaps need not be – held in common. However, our observation of these case studies suggests that some alignment in DNSP and community understandings of the who, what and how of the microgrid is necessary for success, and it is where microgrid engagement processes fail to generate this convergence that the project may not be able to proceed. For DNSPs, this suggests a need to develop new capabilities for understanding community perspectives and needs, as well as strategies for adapting both their design processes and communication approaches in response. Practical suggestions include:

- Allow plenty of time for conversations with the community
- Don't rely on consultants to communicate with the community
- Enable different channels of communication with the community
- Define a common language to enable shared understanding
- Be open about the scope of consultation and DNSP motivations and constraints
- Help the community to understand the issues at hand – provide explanations at different levels and address questions and misconceptions
- Listen to community priorities and concerns and respond. Be open and frank about where they do or don't align with the DNSP's.

References

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