5 Shifting practices: how the rise of rooftop solar has changed local government community engagement

Abstract

Australian local governments develop and deliver a range of community engagement programs designed to reduce household-based greenhouse gas emissions. In this chapter, I draw on practice theory to analyse how climate change community engagement has changed over time in response to the emergence of a new practice performed by households: distributed renewable energy production.

I draw on empirical research to examine how traditional forms of climate change community engagement practices have contributed to and are being shaped by the widespread adoption of rooftop solar as a key material in distributed renewable energy production. I find that community engagement's emphasis on climate change as a pro-social motivation for individuals to act has been supplanted by pro-individual motivations associated with rooftop solar, notably financial benefits accruing to the household. In response, local governments have explored new roles, including extending distributed renewable energy production to new audiences. In examining changes within the broader energy provision system, I identify new avenues for local governments to explore to further support the uptake of rooftop solar, including interventions based on pro-individual motivations as well as those aligning with a pro-social, collective response to climate change.

5.1 Introduction

As noted in Chapter 4, the climate change governance responses of Australian local governments include community engagement programs to directly decrease household-based emissions (Balston et al. 2013; Bulkeley 2000; Lindseth 2004; Serrao-Neumann et al. 2011). Community engagement is a bundle of practices, including recruitment to a program, engagement with the household or individual and evaluation of the effectiveness of the intervention. This bundle is influenced through its relationship with other climate governance practices, such as regulation, infrastructure provision, service delivery and advocacy, and internal process practices within local governments, such as the development and delivery of policies and programs and political management. Community engagement practices are characterised by their positioning in a constrained financial and regulatory environment, the use of climate change as a motivation to act and a focus on the individual as an actor capable of changing their behaviour.

These characteristics constrain the efficacy of community engagement practices, primarily by limiting the reach of programs to those audiences willing to engage through small-scale, face-to-face interventions and who are already sufficiently motivated by the threat of climate change to act. In

doing so, this approach falls short of the requirements of policies and interventions meeting the challenge of climate change as a super wicked problem (Levin et al. 2007). While existing forms of local government community engagement do present 'sticky' solutions, such as renewable energy and energy efficiency technologies, the relatively small scale and limited engagement techniques of local government community engagement means they are not capable of embedding these solutions within target audiences and reaching new audiences at the scale required (Levin et al. 2012).

The relationship between local government climate change community engagement practices and everyday household practices that contribute to the production of greenhouse gases is dynamic and bi-directional in nature. While climate governance practices have been established specifically to influence household practices, shifts in the performances of the latter influence the former. Nowhere is this more obvious in the widespread adoption of rooftop solar as a material element in household practices and, as a new practice in its own right: distributed renewable energy production. The development of this new practice is characterised by meanings that contrast with those that lie at the heart of local government climate change community engagement. Rather than being motivated by a pro-social, collective response to climate change, households have primarily adopted rooftop solar for pro-individual reasons, such as financial gain (Faiers and Neame 2006). For local governments, this challenge to existing climate change community engagement meanings raises fundamental questions about their framing of a collective response to climate change based upon the pro-social motivations of households and their role in the broader energy provision system.

The rapid and widespread adoption of rooftop solar is part of a broader transition within that energy provision system in Australia, shifting away from fossil fuels to renewable sources (Haines and McConnell 2013). This creates additional complexities for local governments as they consider whether their existing role as an enabler of small-scale interventions primarily designed to increase the uptake of rooftop solar for households is sufficient or whether more radical interventions are required to accelerate the energy transition within a broader energy provision system of practice. What these interventions might look like and what role community engagement might play is at the heart of this chapter.

I begin by exploring how local government climate change community engagement practices have been altered by the development of the practice of distributed renewable energy production. This includes outlining the factors behind the uptake of rooftop solar in Australia and how these constitute a new practice, detailing how rooftop solar has been promoted through local government climate change community engagement practices and how the meanings associated with those practices have been challenged. I then consider I consider pathways for local governments wishing to accelerate the adoption within households of distributed renewable energy production. This includes building from existing, successful meanings associated with the practice, namely pro-individual motivations and how these might be tied to allied technologies to improve the performance of rooftop solar. I also

consider pro-social pathways characterised by collective forms of distributed renewable energy production, such as community energy. This latter approach includes local government adopting new roles in the energy provision system and re-crafting and re-integrating community engagement practices. In considering the likely effectiveness of these pathways, I assess them against the solutions criteria for super wicked problems: is the intervention immediately popular or 'sticky' with its target audience, can be embedded within the lives of that audience and does it have the capacity to spread quickly to new audiences?

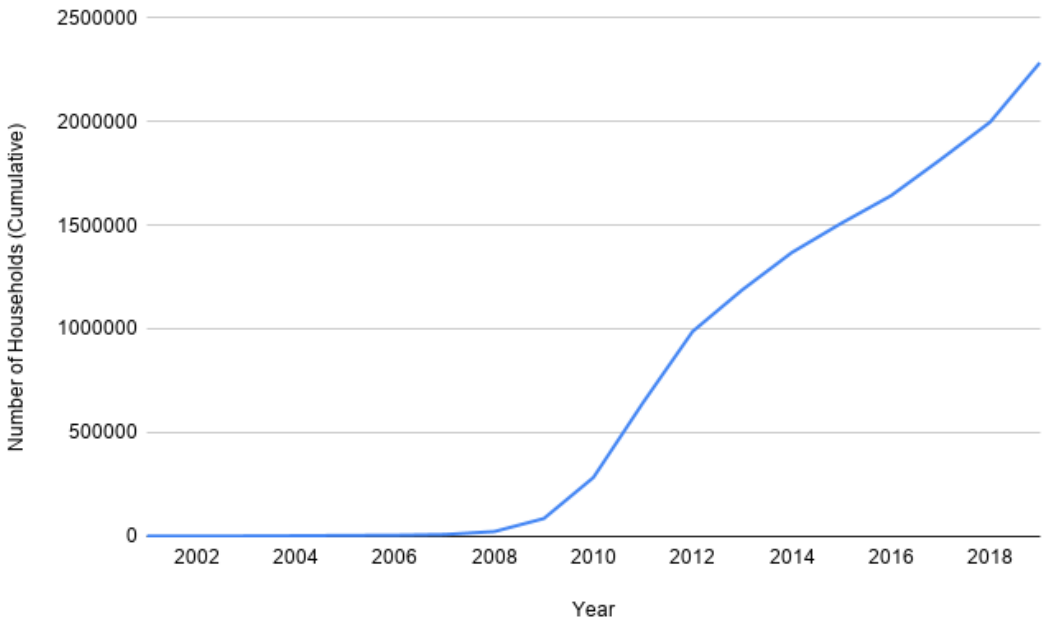
As with the previous chapter, this chapter draws upon my original research conducted through interviews with 29 local government officers managing climate change community engagement programs. In analysing the Australian energy market, there is recognition that each state and territory has a different approach to energy provision reflecting differing experiences of privatisation and state government control. However, the structures and actors discussed in this chapter remain broadly consistent across states in terms of the roles they play.

5.2 Community Engagement and the Rise of Solar

In seeking to reduce household emissions, Australian local governments have relied heavily upon materials both to improve energy efficiency within households and to produce renewable energy. These have included low-emission light bulbs and light-emitting diodes, cavity insulation and more efficient versions of products such as televisions, air conditioners and water heaters, that have improved in performance as a result of changing regulatory standards and government incentives (Essential Services Commission 2015; Essential Services Commission of South Australia 2015; Office of Environment and Heritage 2015). However, it has been the rapid adoption of rooftop solar that has not only proved effective in reducing household-based emissions but also changed the nature of community engagement practices.

Policy incentives, established by state and federal governments, combined with a hike in energy prices from 2010 and a decline in the average unit price have driven a substantial increase in the installation rate of household rooftop solar from 2008 onwards (Kent and Mercer 2006; Chapman, McLellan, and Tezuka 2016; Zahedi 2010; Anti-Dumping Commission 2015; Climate Commission 2013). By 2020, more than 2.5 million homes had installed rooftop solar, accounting for approximately 21 per cent of residences (Australian Government 2020), as set out in Figure 5.1:

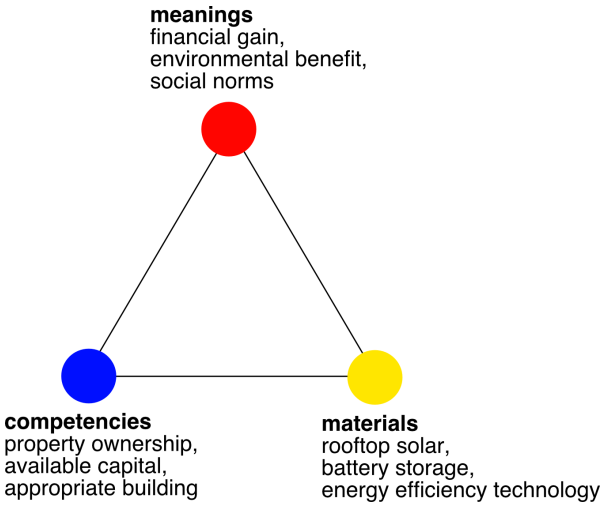
Figure 5.1: Australian Grid-Connected Solar 2000-2019 (Number of Households)



Source: (APVI 2020)

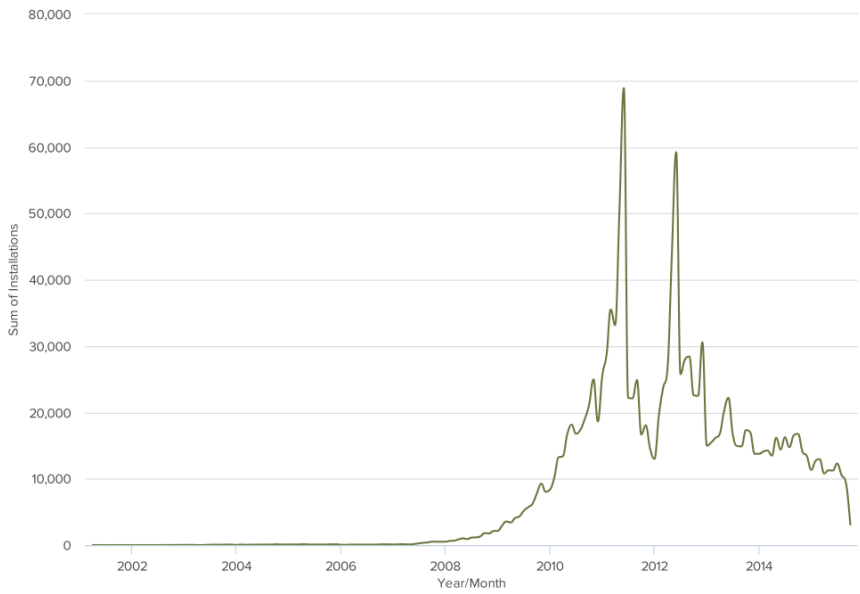
While rooftop solar can be regarded as a material in other household practices that consume energy, such as heating, cooling and lighting, it is also useful to think of it as an element of a new practice: distributed renewable energy production. This takes the form of small to medium sized solar installations; in Australia, regulators identify installations of less than 100 kW as small (Clean Energy Regulator 2015). Within this classification, households account for the majority of installations with average sizes ranging from 1.5 to 5 kW (Australian Government 2020). The purchase, installation and management of rooftop solar on households represents one form of the practice of distributed renewable energy production. It is characterised by meanings associated with personal financial gain for the household, materials including the solar unit itself as well as aligned technologies such as battery storage and energy efficient appliances, and competencies of home ownership, available capital and the influence of social norms, as set out in Figure 5.2:

Figure 5.2: Distributed Renewable Energy Production as a Practice (Household Version) (Shove et al. 2012)



Rooftop solar purchasing decisions within the Australian household market have been heavily influenced by financial meanings, both with regard to the immediate up-front cost of a system and expected benefits to be received through its operation. By contrast, meanings of responding to climate change or pro-environmentalism are only weakly associated with purchasing rooftop solar (Colmar Brunton 2015; UMR Strategic Research 2016). Financial motivations are evidenced by high uptake of rooftop solar in areas with lower than average household income, suggesting a greater price sensitivity to energy costs is driving consideration of alternatives to only grid-supplied electricity (Green Energy Trading 2014; Carbon and Energy Markets 2012). This is reinforced by purchasing behaviour responding to changes in government financial support; as this has reduced over time households have sought to take advantage of existing offers of support resulting in peaks in buying behaviour in 2011 and 2012 ahead of announced changes to subsidies, as demonstrated in Figure 5.3:

Figure 5.3: Number of Solar Installations Per Month, 2002 – 2014



Source:(Australian PV Institute 2017)

Ongoing financial benefit, once the system is installed, is gained from alignment between distributed energy production and energy consumption practices, and from feed-in tariffs set by state governments. The financial meaning attached to feed-in tariffs has varied historically reflecting shifts in government policy and a steady decrease in the up-front costs associated with the purchase of rooftop solar since 2008 (Mountain and Szuster 2014).

Early feed-in tariffs were set at rates substantially above the price that the households would pay for power imported from the grid to encourage take-up of rooftop solar (Ma et al. 2016; Martin and Rice 2013). This scenario benefitted those households that were not drawing power from their system during the day, such as working individuals, couples and families, and so were able to export the bulk of their renewable power to the grid and maximise their financial gain. As the feed-in tariff prices have dropped to a level well below the price paid for importing power, the financial beneficiaries of the change in tariff have also changed; now, those who are more likely to be at home during the day, such as the elderly and families with pre-school age children, gain more as they are encouraged to use the renewable energy produced rather than seek value from exporting it to the grid. The financial beneficiaries of tariffs will likely shift again with the adoption of home battery storage (Sue et al. 2014).

Additional factors driving distributed renewable energy production include the required competence of home ownership combined with sufficient up-front capital to purchase solar and suitable materials,

in the form of houses with larger and stronger roofs and less conflict in terms of overshadowing with adjacent properties (Newton and Newman 2013). This is reflected in uptake in outer and new-build suburbs in major metropolitan areas and regional centres. Mandurah in Western Australia, Werribee and Hoppers Crossing in Victoria, and Hervey Bay in Queensland have recorded the highest levels of installation in those areas with lower than state average household income (Green Energy Trading 2014).

Finally, rooftop solar installation rates are also influenced by social norm meanings associated with the purchase of renewable energy technology. As the number of installed rooftop solar systems reaches a critical mass within a suburb, it generates additional installations through peer effects, including social learning and image motivation (Bollinger and Gillingham 2012). The spread of solar systems tends to follow geographic waves with social norm effects strongest in smaller towns and distinct urban centres, with limited peer effects for income of the household (Graziano and Gillingham 2015).

5.3 Local Governments and Distributed Renewable Energy Production

For local governments, the advent of rooftop solar provided an opportunity to achieve ambitious community greenhouse gas emissions reduction targets (Brimbank City Council 2012; City of Darebin 2009; City of Moonee Valley 2010; City of Whitehorse 2009; Frankston City Council 2012; City of Newcastle 2011). The degree of ambition of community emissions reduction targets is influenced by internal cultural factors, such as stated climate change leadership roles allied to 'stretch goals' to drive concerted action on climate change (City of Moreland 2007; Coffs Harbour City Council 2002), as well as external factors, such as changes in Federal and state government policy (City of Moonee Valley 2010; City of Port Phillip 2011). In the most ambitious circumstances, local governments have set themselves targets of becoming carbon neutral in terms of the emissions produced through both their corporate operations as well as those of their communities (Storey 2012). Ambitious targets can generate policies and programs that favour technological solutions, such as rooftop solar, as their emission reductions are more easily measured, as opposed to seeing such problems as the result of social problems that need to be addressed (Vare and Scott 2007).

While the uptake of rooftop solar proceeded at such a rate that local government targets that were previously considered aspirational were now achievable, the meanings that drove this growth sat at odds with those used by local governments to promote solar. In particular, financial savings from reduced energy bills were reflected in the rapid uptake of residential rooftop solar responding to government rebates and incentives, declining costs of technology and increasing energy prices. As a result, Australian households have grown more receptive to pro-individual financial motivations

than to collective notions of playing their part to reduce greenhouse gas emissions. Local government practitioners have identified the impact of this shift upon their programs:

> "If we go out with the usual quite earnest green messaging … we attract a lot of people from (notable environmental suburbs) and when we promote workshops with green or greenie messaging that's the audience. There's … a lot of people we've not reached so, who are those people? How do we speak to them? What messages are going to resonate with them? How do we find that hook?"
>
> (Interviewee A)

Consequently, practitioners find that other interventions to reduce emissions, such as installing energy efficient appliances, suffer in popularity even if they are potentially aligned:

> "For the energy efficiency ones, we'll have a workshop that has twenty spaces, but we'll only get ten bookings or something like that. They just don't seem to fill up."
>
> (Interviewee I)

Practitioners face a dilemma between sticking with traditional approaches based upon using climate change as a motivating factor or turning to more individualistic motivations, which have proved successful in increasing solar uptake. Increasingly, practitioners seek to solve this dilemma by deploying the technology first and developing community collective responses later:

> "What we need to do is say, you have to get solar on your roof. It's actually in your interest and you have to do it. We'd like you to come and do this next bit. I think the expectation that people will go beyond the individual thing is something that I think is… we need this big rapid change, but we need to work out which bit we actually need."
>
> (Interviewee S)

In addition, local government has found that its role has shifted as solar moved from its niche popularity amongst early adopters towards a broader audience. Increasingly, the role of promoting solar has moved away from being the responsibility of actors like local governments, to commercial providers advertising through the mass market. Instead of being a promoter, local government practitioners find that their role is more acting as a trusted source of information for individuals negotiating a complex market:

> "Understanding it and what's involved, what are the pitfalls, what are the things to look for, what are the questions to ask your supplier, that sort of thing. But also helping them understand their own household so

> they know, one, whether they're ready for solar but, two, how to size a system correctly, that type of thing. I get quite a lot of calls from people saying 'okay, so I've got these quotes and I'm really confused because both companies say they've got the best product in the world and I don't know what I'm doing' and that sort of thing, I'm a sounding board for them."
>
> (Interviewee C)

As rooftop solar has moved from the niche to the mainstream, commercial actors, such as solar installation companies, are increasingly meeting the demands of the mainstream market and local governments have sought new roles including serving sectors of the community currently excluded from that market. This includes low-income households and renters, supported through the re-integration of community engagement and regulatory practices such as the aforementioned *Solar Savers* program developed by the City of Darebin (Chapter 4). This imposes a special rates charge on properties for additional works to provide no-upfront cost rooftop solar to low-income pensioner households unable to afford to buy a commercially priced unit (Irwin 2014; State of Victoria 1989). Local governments have also sought to re-craft existing forms of community engagement practices, such as bulk buys of rooftop solar bringing together households to negotiate a cheaper price for the technology with suppliers than if each household was to buy it individually (Barrett 2015). Along with enabling the purchase of rooftop solar, councils have encouraged deeper participation by members of the community in the development and management of such programs, building a collective response:

> "They'd each done a bit of research into it for their own houses … and they figured there were a lot of other people in the community who were having the same problem and they were hoping that, by working with us, that they could demystify that process and reduce the information barrier and the trust barrier. Particularly because a lot of people were having that experience of feeling like they were having something sold to them and they weren't really convinced of the credibility or the integrity or the trustworthiness of a lot of this information. So, they were keen to be the neighbourhood face, like somebody they could trust, but also with having the backing of council… gave it credibility that they weren't just enthusiasts who were do-gooders who didn't know what they were talking about."
>
> (Interviewee Z)

Through their promotion of and support for households installing rooftop solar, local governments have also been drawn into considering their role in the broader energy provision system. While not taking on a role as an energy producer, through its encouragement of distributed renewable energy production local government certainly acts as an enabler in the shift towards renewable energy. For practitioners, this has required understanding their emerging role both in terms of the capacities of their governance practices and their likely impact on the energy provision system:

> "With the community solar program that certainly came out of a niche where the community wanted support for solar and we went through the process of wanting to do a bulk buy program but politically and risk wise we couldn't so we came up with a solar program where we developed all the resources for everyone, we ran what's similar to a tender process to get ten suppliers that would comply with our high standards and actually presented that to the community with all the tools they needed to make an informed decision themselves. That was a good kind of niche project that managed to adapt to all the barriers and limitations."
>
> (Interviewee B)

> "We had some discussions about the impact on the grid and the economy of the grid and if the grid was renewable, would we want a grid …. and then how that would impact upon others in the community or whether it's better to be trying to work towards localised grids where you can have renewables."
>
> (Interviewee C)

Australian local governments have demonstrated an awareness of changes with regard to how their community engagement practices can be performed as well as their position within the broader socio-technical system of energy provision, both resulting from the rapid adoption of a new technology. To think their way forward on furthering the adoption of distributed renewable energy production as a practice, local governments must consider whether to stick with current meanings associated with climate change community engagement, notably an adherence to the need for a pro-social collective response, or whether alternative collective meanings can be created or whether they should be abandoned altogether in favour of pro-individual meanings that have proved effective in encouraging uptake of rooftop solar.

5.4 Distributed Renewable Energy Production: Individual and Collective Gains

In mapping potential pathways forward, whether on a pro-individual or a pro-social basis, it is useful for local governments to understand additional influences upon the performance of distributed renewable energy production as these provide pointers for future forms of engagement. Even for passive forms of distributed renewable energy production (a 'set and forget' approach to managing rooftop solar), households are aware that they are influenced by external factors other than price. In particular, electricity distributors (akin to electricity utilities in other countries) have sought to manage the impact of rapid uptake of rooftop solar upon the network through the granting of permission for the practice to be performed at all or for it to be performed in a constrained manner in which benefits for the household are restricted.

Distributors hold the power (and have exercised it) to refuse connection to the grid for households installing rooftop solar in regions where the grid is assessed to have insufficient capacity to deal with power fed back in (Martin 2017). Aligning with this rather crude form of influence is the practice of load shedding in which distributors are ordered by regulators to cut supply to specific regions during periods of extreme grid pressure (such as during heatwaves) (CUAC 2015). While this measure applies to all households, it may be viewed by solar households as particularly egregious. On the one hand they have invested in a technology which helps reduce the overall peak pressure on the grid (a social contribution) while on the other, they may find their power disconnected with no control over the matter.

Distributors have also experimented with emerging technologies associated with distributed renewable energy production, such as battery storage, micro-grids, virtual power plants and energy management systems that take advantage of price fluctuations in energy markets, to influence the performance of everyday practices (Blythe 2017). These new materials offer both distributors and households the opportunity to create a form of distributed renewable energy production in which power and responsibility between the two is more evenly shared (Strengers 2011). This aligns with strategic thinking conducted by distributors that seeks to re-purpose the grid away from a mechanism for the one-way delivery of electricity to a platform in which households (and other customers) have a role in shaping future network operations and services (Energy Networks Australia 2017).

These examples demonstrate the ongoing influences on how distributed energy production is performed and open avenues for local governments to engage with households on the basis that the technology of rooftop solar has implications beyond the energy bill of the household. This could take the form of a pro-individual motivated approach in which local governments can extend such existing meanings associated with distributed renewable energy production, through alignment with energy efficiency and battery storage technologies to provide additional benefit to the household. Alternatively, local governments may be able to re-emphasise pro-social collective meanings through greater involvement in the energy provision system, whether as an enabler of community energy or taking on new roles as producers and retailers.

5.4.1 Community Engagement based upon Pro-Individual Meanings

As noted, the pro-individual meanings associated with distributed renewable energy production (primarily, financial gain) are reflected in the response to purchasing incentives and ongoing benefit from feed-in tariffs and alignment between production and consumption within the home (Mountain & Szuster, 2014). The latter influences meanings associated with household energy consumption, simply due to the presence of the technology, including energy efficiency technology improvements, turning off high-energy consuming devices if not required and seeking to use as much of the power generated by the system as possible (Dobbyn and Thomas 2005). In this respect, the practice of making energy by households in the form of rooftop solar is akin to traditional fuel sources, such as wood for a domestic fire or hot water heater, in which the practice of distributed renewable energy production is closely aligned with energy consumption practices (Strengers 2013). However, this role in which households are active managers of their energy seeking to make the best use of what they have produced is by no means a given.

Strengers (2013) points out that the presence of rooftop solar has the potential to act to both activate as well as to pacify the householder. Active households can become *prosumers* (combining both the production and the consumption of energy) ensuring that the system is well integrated with other relevant household technologies and behaviours, such as taking advantage of the structure of current feed-in tariffs to use or exporting solar energy at a point in time most financially beneficial to the household. This new role may encourage households to invest in technologies that support the more effective performance of their systems, such as automated technologies in which intelligent consumer units can take control of the energy use within the home (Strengers, 2013) or shift their energy consuming practices where possible, such as running washing machines during the day when solar production is at its height. By contrast, a more passive approach to management of household produced energy may be implicit in emerging materials, such as battery storage.

The advent of affordable battery storage as an additional material element of the practice of distributed renewable energy production is likely to bring about further shifts in how the financial benefits of existing feed-in tariffs are distributed (Jelenic 2015). Those households with low energy use during the day will be able to capture the power generated by their systems to cover their evening, peak-time usage; the only likely variation to this might be if feed-in tariffs are restructured to encourage peak hour production of solar (Wood and Blowers 2015). The advent of battery storage is likely to allow members of the household to continue high energy consumption behaviours as this will be covered by the power they have produced. At this point, battery storage is in the early stages of diffusion throughout society, even amongst owners of rooftop solar systems (CSIRO 2013). Governments are yet to state a position on whether they will offer the same degree of support to grow the battery storage market as was offered to rooftop solar, although at least one local government is

subsidising battery storage connected to rooftop solar within its municipality (Adelaide City Council 2015).

In both instances, local governments can re-craft existing community engagement practices to promote aligned energy efficiency and battery storage technologies, using the same techniques originally employed for rooftop solar, such as workshops and bulk buys. In addition to the new materials, the major element to be re-crafted in the community engagement practices is the use of the pro-individual meaning that has driven the uptake of rooftop solar. Thus, local governments can build from existing motivations that influenced purchasing decisions and transfer these to the ongoing use of the technology, encouraging a shift from passive usage to more active, *prosumerist* management (Haines and McConnell 2013).

5.4.2 Community Engagement based upon Collective Pro-Social Meanings

A return to the use of pro-social, collective meanings within climate change community engagement opens a range of possibilities for local government but in a manner that requires consideration of new roles within the energy provision system. In particular, while local government has provided support for community energy projects (in which community members come together to create local renewable energy generation), its role has generally been marginal in comparison to other actors, such as state governments and regulators (Mey, Diesendorf, and MacGill 2016). The degree of involvement may vary from simply allowing a community energy group access to council properties to an approach that re-integrates distributed renewable energy production practices with other local government practices.

Of particular interest would be the re-integration of community engagement to encourage distributed renewable energy production with local government infrastructure provision practices, including those originally purposed to address corporate emissions. Australian local governments have increasingly opted to build, own and operate their own renewable energy assets in order both to meet their own emissions reduction or use of renewable energy targets, as well as to reduce operating costs over the long term. For example, the Sunshine Coast Council is building a 15MW solar farm, which will offset council's total energy consumption, while the City of Newcastle is constructing a 5MW solar farm to be built on a former landfill site, which will help council meet a target of procuring 30 per cent of corporate energy from renewable sources (City of Newcastle 2017; Sunshine Coast Council 2016). In each instance, local governments have adopted new roles as renewable energy producers, initially to meet their own needs but with the possibility that a retailer could sell excess renewable energy to the broader community.

Local governments may also seek to adapt climate governance practices originally designed to reduce emissions for other audiences, such as businesses or councils' own corporate operations. The City of Darebin *Solar Savers* program employed a financing mechanism that had originally been designed to assist support of businesses, such as local beautification schemes (State of Victoria 1989). In this example the council re-crafted the practice to allow households to repay the cost of a rooftop solar installation through their rates (Mey et al. 2016). Similarily, in Victoria, the City of Melbourne has led two consortia of local governments, private companies and academic institutions to develop joint tenders to invest in new-build renewable energy infrastructure through the Renewable Energy Purchasing project (Milman 2014). This use of infrastructure provision also has potential to be adopted for a household audience.

Other community energy models make use of council roof space or land to install solar and generate renewable energy, such as virtual power plants or solar gardens, can also be more directly supported by local governments (Ghavidel et al. 2016; Langham et al. 2013). For example, Lismore City Council, in New South Wales, has developed a financial vehicle that allows community investment in renewables based on council property. Two community-based companies have been developed to lend funds to the council to construct two 100KW solar farms; the loans are expected to be paid back within seven years (Wallace 2014).

While local governments have invested in large-scale renewable power for their own operations (Milman 2014; Sunshine Coast Council 2016), they have not yet followed the lead of German local governments in taking back control of the energy system through the process of remunicipalisation (Moss et al. 2015). Although the energy provision regulatory frameworks differ between Germany and Australia (Kallies 2016), local governments in Australia do have the ability to act as either a producer of energy, feeding it into the grid, and as a retailer, selling renewable energy directly to consumers (Dunn 2018). As with more direct support for community energy, taking on the role of a retailer requires a greater degree of engagement between local government and its community.

In considering all of these potential interventions, both those based upon pro-individual and those upon pro-social motivations, it is necessary to judge their likely efficacy as a response to climate change. The super wicked framing of climate change requires that proposed solutions be capable of being immediately popular with their key audience, able to be embedded in their everyday practices and capable of spreading rapidly to new populations. The recent history of the uptake of rooftop solar suggests this is a technology with the capacity to meet requirements of the super wicked solutions criteria; aligned technologies, such as battery storage, may be at too early a stage to judge their effectiveness against this framework (Agnew and Dargusch 2017). In terms of the proposed interventions, community energy may struggle to meet the super wicked solutions criteria as projects

tend to be complex and subsequently slow to develop (Bomberg and McEwen 2012; Mey et al. 2016). Local governments taking on new roles within the energy provision system, such as acting as a producer and retailer of renewable energy, meet the criteria of being ‘sticky’ from a governance perspective in that adopting such roles would be difficult for future policymakers to reverse, particularly if the interventions were successful in meeting the objectives of emissions reduction.

5.5 Conclusion

Australian local government community engagement programs designed to reduce household-based emissions exist in a dynamic relationship with the very household practices (such as space conditioning, cooking and lighting) that they seek to influence. Just as local governments develop and deliver community engagement practices to shift household practices to lower or zero emissions settings, so changes in household practices have caused shifts within community engagement. This has been most notable in the emergence of a new practice - distributed renewable energy production - based upon rooftop solar.

While the widespread adoption of this technology has proved helpful in assisting local governments to achieve ambitious emissions reduction targets it has been at the expense of the pro-social environmental values that informed local government strategies and policies. Rather, pro-individual motivations, such as financial benefit for the household, have driven the adoption of distributed renewable energy practices. Local governments seeking new ways forward using community engagement, along with other climate governance practices, to support and accelerate distributed renewable energy production must consider whether they wish to adapt their climate engagement practices reflecting these pro-individual meanings or develop new forms of pro-social collective based practices.

In this chapter, I suggest two particular pathways, based on competing primary meanings attached to the practice of distributed renewable energy production. The first is an extension of pro-individual motivations, such as financial gain, that have driven much of the uptake of rooftop solar. I suggest interventions based on allied materials, notably energy efficiency and battery storage technologies, in order to better manage existing rooftop solar and gain additional financial benefits. The second is a return to pro-social, collective meanings through new roles for local government, such as deeper integration with community engagement initiatives and acting as a producer and retailer of renewable energy.

While the first approach requires re-crafting of existing community engagement practices, the second requires a more substantial consideration of the role of local government with regard to the broader energy provision system of practice. It would necessitate governance skills that can support the spread of distributed renewable energy production with an awareness that such an approach can be disruptive to the energy provision system. This awareness may result in more ‘disruptive’ forms of climate governance to enable the broader uptake of renewable energy. Assuming a role as a ‘disrupter’ will also result in changes to the competencies required to perform climate governance practices. Perhaps inevitably, becoming a disrupting agent will take on a political edge often missing from local government climate change community engagement practices. It may require identifying

other actors that stand in the way of achieving an energy transition and consideration of how they may be overcome.