



public interest
ADVOCACY CENTRE

Submission on assessing DER integration expenditure

28 January 2020

About the Public Interest Advocacy Centre

The Public Interest Advocacy Centre (PIAC) is an independent, non-profit legal centre based in Sydney.

Established in 1982, PIAC tackles barriers to justice and fairness experienced by people who are vulnerable or facing disadvantage. We ensure basic rights are enjoyed across the community through legal assistance and strategic litigation, public policy development, communication and training.

Energy and Water Consumers' Advocacy Program

The Energy and Water Consumers' Advocacy Program (EWCAP) represents the interests of low-income and other residential consumers of electricity, gas and water in New South Wales. The program develops policy and advocates in the interests of low-income and other residential consumers in the NSW energy and water markets. PIAC receives input from a community-based reference group whose members include:

- NSW Council of Social Service;
- Combined Pensioners and Superannuants Association of NSW;
- Ethnic Communities Council NSW;
- Salvation Army;
- Physical Disability Council NSW;
- St Vincent de Paul NSW;
- Good Shepherd Microfinance;
- Affiliated Residential Park Residents Association NSW;
- Tenants Union;
- Solar Citizens; and
- The Sydney Alliance.

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The need for DER integration

PIAC commends the AER for consulting on how it should assess the Distributed Energy Resource (DER) expenditure proposed by Distributed Network Service Providers (DNSPs).

DER uptake continues to increase since the current EFA Guideline was developed. The potential value of the efficient use and integration of DER in the system similarly increases for consumers as

- a) a way to generate their own energy and receive a FiT
- b) a way to defer or avoid more expensive network expenditure
- c) a way to decarbonise by integrating more renewable generation into the system
- d) a way to maintain a stable and secure system
- e) a way to increase resilience for communities and the system as a whole.

The current revenue assessment and determination framework for DNSPs is better suited to traditional network expenditure (such as distribution lines and substation upgrades) and does not fully reflect some of the important characteristics or benefits of DER. As uptake of DER continues to rise, and new DER systems and business models such as batteries, electric vehicles and local energy trading emerge, different types of investments will be needed to extract the most value to consumers from DER throughout the system. This is, therefore, an opportune time to review and supplement the current Expenditure Assessment Framework.

Resilience

As part of assessing DER integration costs, PIAC considers that the AER should include any improvement to resilience offered by better utilisation of existing DER and the efficient integration of further DER.

For instance, the resilience of the NEM as a whole can be improved by incorporating greater amounts of DER as a means to:

- meet transmission and distribution network reliability standards
- maintain supply adequacy¹
- maintain system stability and security
- accelerate decarbonisation.

The resilience of individual communities to extreme weather events such as bushfires and floods can be improved through better use of DER. For instance:

- Batteries and PV systems for individual customer premises, groups or communities with the ability to operate in island-mode
- greater visibility and self-healing technologies, especially on a DNSP's low voltage network
- islandable or standalone microgrids including stand-alone power systems (SAPS)
- a greater focus on the backup power and ancillary service needs of critical infrastructure.

¹ Such as the Reliability Standard which requires there be sufficient generation and bulk supply such that there no more than 0.002% expected unserved energy per region per year.

Consumer engagement

The AER should incorporate the outcomes of consumer engagement and consumer preferences in assessing DER integration expenditure. The value of increased DER integration is closely related to what services consumers prioritise and value – be it increased capacity to share energy locally, faster decarbonisation or increased resilience.

This also raises the question of what to do where an agreed position reached through meaningful engagement and collaboration between the DNSP and consumers differs from what the AER determines to be economically efficient and prudent. This issue is not isolated to the assessment of DER integration expenditure and has been raised in other discussions such as the NewReg process.

Responses to consultation questions

Question i

Are our assessment techniques outlined in our Expenditure Forecast Assessment Guideline (the EFA Guideline) sufficient to assess DER integration expenditure?

PIAC supports reviewing whether the current set of assessment techniques outlined in the AER's EFA Guideline are appropriate for DER integration. Further, we support reconsidering whether the current interpretation and application of these techniques is the most appropriate way for the AER to assess DER integration expenditure proposals due to the different characteristics of DER compared to more traditional network expenditure (e.g. in terms of the types of benefits to consumers and the risk of over- and under-investing).

Benchmarking

While we consider using benchmarking can be an instructive tool, we question the merit of applying benchmarking in a deterministic manner given the potentially unique nature of many DER integration projects and the potential dearth of comparable projects to develop a robust benchmark from.

Resilience

PIAC considers that the AER should include any improvement to resilience offered by better utilisation and integration of existing and future DER. This should include impacts on the resilience of the NEM as a whole as well as on the resilience of individual communities such as to extreme weather events.

Risk allocation and cost recovery

Given the direct beneficiaries of a particular DER integration project may be restricted, PIAC considers the AER should also consider whether the DNSP has appropriate risk allocation and cost recovery mechanisms. For instance, the direct beneficiaries may be restricted to a particular location within the DNSP's network (such as a particular feeder) or restricted to those who use a particular asset or service (such as use a community battery).

PIAC considers risk should be borne by those best placed to manage it. PIAC's principles for cost recovery are that costs are recovered according to a beneficiary-pays framework in the first

instance, such that those who benefit from a given investment should also pay for that investment. Where there are multiple beneficiaries, the costs should be recovered proportionally to their share of the benefits. Where it is not practical and transparent to identify the beneficiaries, a causer-pays principle should be used. Cost recovery should also include the risk, to the extent it exists, of the underutilisation of assets and hence asset stranding. Cross-subsidies should only be permitted where they are accepted by informed consumer feedback or immaterially small.

A DNSP might meet these risk allocation and cost recovery requirements through a number of mechanisms, such as by having an appropriate strategy of cost reflective tariffs for cost recovery or they may bear a portion of the speculative risk of the investment rather than passing it on to consumers.

Consumer engagement

As noted above, the AER must incorporate the outcomes of consumer engagement and consumer preferences in assessing DER integration expenditure. This also raises the question of what to do where an agreed project or position, reached through meaningful engagement and collaboration between the DNSP and consumers, differs from what the AER determines to be economically efficient and prudent. This issue is not isolated to the assessment of DER integration expenditure but, as has been raised in other discussions such as the NewReg process.

Question ii

What form of guidance should we include to clarify how our assessment techniques apply to DER integration expenditure? For example, should we update the EFA Guideline to be more prescriptive, or only include principles to allow for greater flexibility in our assessment and information requirements as DER integration matures?

PIAC supports the AER providing transparent principles and direction in this guideline but retaining discretion in how it applies it to each particular DNSP or revenue determination. While there is merit in developing more prescriptive processes, such as the binding Rate of Return guideline, it is unlikely such an approach would be appropriate for assessing DER integration expenditure.

The current state of DER penetration, the effect it may have on the network, the types of value it provides to consumers and the potential benefit to be gained by more effectively integrating further DER are likely to vary considerably across different regions and DNSPs, making a uniform procedure more challenging, and possibly problematic, to develop and enforce. Further, applying an overly prescriptive methodology is risky and may limit efficient outcomes given the rapidly changing nature of DER with new technologies emerging, new business models being developed and a range of other related reforms also underway.

Question 1

What information is reasonable and necessary in identifying and evidencing the impact of DER on the demand for standard control services and hence on maintaining the quality, reliability or security of supply of standard control services?

Consumer engagement

As noted above, the DNSP must provide clear evidence that they have sought and incorporated consumer engagement and consumer preferences in their proposals, and the AER must incorporate the outcomes of this in their assessment. These preferences may be regarding trade-offs in price and reliability, between reliability from their grid-supply and reliability from an alternative supply source, or between difference mechanisms for recovering costs such as tariff designs.

It is essential that consumer preferences are sought from consumers who have been furnished with appropriate information and context to properly inform their decisions. For instance, many DER owners are not fully aware of the potential impacts – both positive and negative – their DER use has on the broader grid and other consumers. Similarly, many non-DER owners are not fully aware of the benefits they may receive from DER systems.

Question 2

What range of options should DNSPs consider for DER related investments? Does the Regulatory Investment Test – Distribution provide the appropriate starting point for this analysis?

PIAC considers that the RIT-D provides a suitable starting point for identifying potential solutions. While it is a good starting point, we expect the framing of identified needs would be different from traditional investments given the inherent difference between projects to better integrate DER and more traditional projects, in particular the distributed nature of DER. Therefore, the range of solutions which may address this would also be different. For instance, customer-driven options such as energy-efficiency upgrades of customer premises may prove a viable alternative to network investment.

Question 3

Electricity networks have utilised sampling and modelling techniques to forecast energy demand and consumption for decades. These processes have proven effective for large cohorts of consumers where diversified behaviours can be predicted with sufficient accuracy. Is it reasonable to assume that sampling and modelling techniques will play a part in developing dynamic models of the electricity networks?

Yes. However, the nature and detail of sampling and modelling techniques may need to evolve to better integrate forecasts of demand and consumption with those of DER's interactions with the grid. We consider there is potential for lessons and insights from sampling and modelling techniques by DNSPs, AEMO and a range of other stakeholders which may help lead to savings in such expenditure proposals.

Question 4

Distributed energy resources are, by definition, located at the end of the electricity network. Typically networks have less visibility of this part of the network. What

approaches or information is reasonable to assess whether DNSPs have considered purchasing the necessary information from metering or DER data providers rather than building their own assets and systems?

PIAC agrees that visibility into the LV network is necessary but is currently lacking in many parts of DNSP networks. While purchasing metering data must be considered alongside other means of acquiring the necessary data, this may not be available given that the roll-out of smart meters is not uniform across different DNSPs and indeed within different parts of the same DNSP's network. It is therefore important that the DNSP clearly establish what type and amount of data is required to address a need, and therefore what options they have pursued to acquire this data before proposing to build their own assets.

We look forward to continuing to engage on this issue.

Question 5

The optimisation of DER can be improved through many different approaches. Factors such as tariff reform, connection standards, technical standards, energy efficiency standards, etc. can greatly impact the way that DER operates on the network and impact on network performance. How should these options be integrated with the development of network DER proposals?

PIAC agrees that tariff reform is an important part of efficiently and equitably integrating DER into the energy system – not only to provide signals for the use and investment of DER to defer or avoid network augmentation, but also for fairly recovering costs of investment. However, the adoption, and hence the impact, of network tariff reform has been slow for a range of reasons. In order to realise the benefits of moving to more cost reflective tariffs, better collaboration is required between DNSPs, retailers, governments and other stakeholders.

Standards reform such as changes to connection standards, technical standards or energy efficiency standards should be incorporated into the DNSP's cost benefit analysis. This may be done as part of scenario analysis, testing of sensitivities and as an alternative option to network investment.

Question 6

Project justifications will require detailed analysis on the costs and benefits of each option. Many of these benefits may be external to the DNSP's cost base, and may accrue directly to DER users. What level of analysis is required?

A level that provides confidence in the findings and limits risk of inefficient investment and operation.

Question 7

With DER being able to provide services across the electricity supply chain, how should DNSPs identify and value customer benefits? These benefits can include reliability outcomes, increased export potential, greater access to energy markets, access to network support services, etc. Should a common approach to valuing consumer exported electricity be established?

PIAC considers that a robust, quantitative metric for valuing consumer exported electricity would aid the transparent assessment of DER integration expenditure. We note that part of the ARENA-led Distributed Energy Integration Program (DEIP) project is to develop a such a metric.

Question 8

Noting the technological rate of change and the typical asset life of 65 years of many network assets, it is important to test whether current research could provide a more efficient option in the near future. Should an assessment of emerging alternative approaches be a requirement for DER forecast expenditure? Should there be an 'options value' placed on this?

No comment.

Question 9

The development of common platforms, communication standards and shared systems may reduce the overall cost and complexity of facilitating DER. Should DNSPs need to show how they have considered options that leverage shared learning, common standards and common systems to provide efficient solutions, and that they have consulted and implemented learnings from prior works and trials across the NEM?

Yes. Sharing learnings and insights between projects and between DNSPs is essential to preventing unnecessary duplication of effort. Failure to do this would mean consumers pay multiple times for the same lessons to be learnt and that opportunities to improve consumer welfare are missed.

Question 10

As a corollary to the above question, it will be increasingly important for the industry to work together to provide customer outcomes that are consistent across the NEM (or with international standards if applicable). What approaches or information is reasonable to show that any DNSP-specific communication protocols, interfaces, connection standards, etc. will not lead to increased cost and complexity for consumers and industry providers?

No comment