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Distributed Energy Resources Integration – Updating Regulatory Arrangements – SUBMISSION TO CONSULTATION PAPER

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Renew (formerly known as the Alternative Technology Association) is a prominent advocate for all Australian residential energy consumers. As a member of the National Energy Consumer Roundtable, Renew works closely with other consumer advocacy organisations, providing expertise and experience in energy policy and markets, and conducting independent research into sustainable technologies and practices. It has long supported a consumer-centric approach to energy market regulation and reform, with rules and frameworks designed to maximise benefits to small consumers and allocate costs fairly, while still meeting the technical and economic requirements of our energy system.

Renew is also the direct representative of its 12,000 members – mostly residential energy consumers with an interest in sustainable energy and resource use – who, like many Australians, are increasingly investing in distributed energy resources (DER) for the financial and environmental benefits they offer. This growing group of households may not even realise they are becoming an integral part of the energy system, and it is imperative that their contribution is valued and rewarded appropriately, and their obligations costed fairly and imposed in proportion to their ability to manage them.

This submission was written as part of a project funded by Energy Consumers Australia (<u>energyconsumersaustralia.com.au</u>) as part of its grants process for consumer advocacy projects and research projects for the benefit of consumers of electricity and natural gas. The views expressed in this document do not necessarily reflect the views of Energy Consumers Australia.

The wider context and Renew's DER enablement project

Renew's vision of a world in which communities thrive in a way that does not cost the earth, and its mission to inspire, enable, and advocate for people to live sustainably in their homes and communities,¹ means a key area of interest is supporting households to invest in distributed renewable energy resources (DER) and the integration of these resources into the wider energy system in the interests of all Australians. Achieving this goal requires managing not only the technical challenges, but also the social and political ones.

One of these social and political challenges is the vexed question of whether enabling DER integration into networks is imposing costs on consumers – especially vulnerable consumers – that exceeds the value they get from that integration. This is a central question in the current rule change. Renew's key principle that relates to this is that it is appropriate for network end-users to share efficient costs where the expenditure provides a shared benefit, but not to the extent that costs materially exceed the value of shared benefits. Investors in DER can derive a private benefit that exceeds the shared benefit, and it is appropriate for them to contribute collectively to additional costs of network expenditure above the efficient cost for shared benefits to deliver these private benefits. In practice, the evidence seems clear that a considerable amount of DER enablement can occur at costs below the value of the shared benefits delivered. A robust methodology for determining the value of DER hosting capacity and incentives for networks to use the most cost-effective strategies to

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¹.<u>https://renew.org.au/about-us/vision-impact/</u>

accommodate DER will facilitate public confidence in the equity aspects of proactively integrating DER into electricity networks around Australia.

Renew's DER enablement project

In 2019, Renew was funded by Energy Consumer Australia² to undertake the DER Enablement Project,³ which sought to identify the range of technical problems associated with DER feed-in, understand the range and costs of remediation options, and – as much as possible – identify the types of approaches that deliver maximum customer benefit while remediating the problems in different types of networks and at different levels of DER penetration. Renew and consultant Energeia worked with network businesses, other energy businesses, market bodies, and consumer organisations to understand the issues enough to develop an independent view on the optimal approaches for DER enablement that were consistent with equitable distribution of costs and benefits.

With regard to the technical issues, the project:

- identified several different types of problems caused in distribution networks by DER exports that may need to be remediated
- identified several different ways to remediate these problems, with different solutions often addressing more than one problem
- found that there are also several problems that are not solely caused by DER exports but only partially caused or exacerbated by them; and others that are not caused by DER exports at all but are revealed by the presence of DER

In summary, the project found that **there are a number of low-cost measures that can significantly increase hosting capacity**, and that while more work is needed to develop a more robust methodology for determining the shared value of DER exports, it's clear that **many of the low and moderate cost approaches will be cheaper than the value of DER unlocked**. Some of the higher cost approaches (such as dynamic export limiting) are likely to be more necessary and more cost-effective in the future – but if implemented ahead of that time they could deliver private benefits in excess of their cost and thus may be a useful option for DER owners who are prepared to pay some extra charges to unlock those benefits, if such an option is allowable under the existing framework or with new rules. Such a strategy could be an example of a nuanced approach to cost recovery where costs consistent with shared benefits are allocated between all consumers, and additional costs to consumers willing to pay extra for the private benefit available.

The three rule change requests

Renew sees merit in all the rule change requests, which between them cover many of the key areas that need to be considered in updating the regulatory arrangements to facilitate DER integration. Here we summarise Renew's views on the three proposals.

St Vincent de Paul's

This proposal makes a strong case for DER owners to make additional contributions to some of their DNSP's DER integration costs to increase hosting capacity. Its recommendation of a per-kWh charge on exports seems an appropriate mechanism. We understand that some analysis on such a scheme suggests charges in the order of approximately \$30 per year. If that estimate is based on a 5 kW solar system, it comes to around half a cent per kWh which will not adversely impact the economics of investing in solar PV, while avoiding what would be a material impact on low-income households' energy bills.

While charging differently by substation is most cost-reflective, it seems overly complex and could potentially lead to significant locational inequity – rural customers in particular may be subject to very high charges. Making it consistent across an entire network would be the simplest approach, and supports a network-wide DER Integration Strategy that may involve investment in different parts of the network at different times –

² The project was funded as part of ECA's grants process for consumer advocacy projects and research projects for the benefit of consumers of electricity and natural gas. The views expressed in this document do not necessarily reflect the views of Energy Consumers Australia. ³ See https://renew.org.au/research/distributed-energy-resources-enablement-project/ for more information and the project reports.

though at the expense of being unable to give locationally specific price signals. Perhaps a middle ground of some variation between a few distinct areas with markedly different hosting capacity within each network would strike the right balance between cost-reflectivity, simplicity, and equity.

TEC-ACOSS's

This proposal has some key elements which strongly and proportionately support the objective of increasing DER hosting capacity to optimal levels with appropriate regulatory oversight. In particular, Renew supports:

- requiring DNSPs complete a 5-yearly DER integration strategy;
- requiring DNSPs to optimise, document and be accountable for delivering their export hosting capacity wisely via a KPI;
- extending the RIT-D 'net market benefit' principles to cover DER integration investments; and
- ensuring everyone is entitled to a reasonable base level of DER exports, abolishing zero-export limits for all but those in extremely challenging locations.

There is some potential for complexity in the option to purchase additional export capacity – this would need to be done simply to be effective and accessible. We expect that if done right, it will almost always be worth it for DER owners to pay an appropriate additional fee to substantially increase their export capacity – so consumers need to be able to understand this value proposition.

TEC/ACOSS's proposal to allocate unlocked hosting capacity fairly is admirable but challenging to deliver on. A documented, principles-based approach will be needed – and it will need to be consistent with whatever grandfathering provisions are decided on.

SAPN's

This proposal well-encapsulates several key principles, including:

- explicitly recognising exports as a distribution service;
- setting service standards for exports, similar to imports, with compensation for households if KPIs are breached; and
- grandfathering existing solar households though Renew believes grandfathering should be timelimited.

The inability to provide firm access is realistic but challenging in terms of the overall model – consumers paying for something (additional export capacity) should get the benefit they are paying for. Being open to innovative solutions such as network-managed batteries to absorb excess exports may be necessary and would be consistent with delivering the benefit to households who pay export charges.

Similarly, it is realistic to propose that service standards and export tariffs will need some time to design, formulate, and implement, but this does raise the question of what is done on the meantime, especially in the case of South Australia where DER impacts are currently more significant than elsewhere. DER enablement investment between now and the time when the right mechanisms are in place will still need to be managed and the costs shared equitably.

Other issues

• Renew supports obligations and rights being clearer than they are now, with DNSPs' approaches to export management being very different in different places and seemingly arbitrary in some areas, and the dominant export capacity allocation method being "first in best dressed". More certainty and accountability will improve consumer outcomes and support optimal DER integration and enablement.



- It's unclear how these provisions will apply to households supplied by the DNSP via a small off-grid system. Should they also be allowed to export and receive a FiT? They probably should, as they'd be contributing to the microgrid, reducing diesel costs, and so on. Dynamic export limiting is supported by some inverter-based systems, and this should be considered when designing such systems.
- Renew's informed view is that in the longer term, dynamic export limiting will be necessary in managing state-wide and NEM-wide power balances. So while presently we need to take full advantage of the low hanging fruit of transformer voltage adjustments, demand management, and basic network upgrades, regulatory reform in this area should be flexible to a future regime of dynamic demand and export management.
- Lastly, it's foreseeable that governments (from consolidated revenue via progressive taxation) may step in to invest in stronger, fairer networks. For example, a number of state governments have alreadycommitted substantial funds to solar and battery rebates that, arguably, could be better spent on improving the hosting capacity of distribution networks. This approach reduces the risk that more vulnerable households pay more than the value of benefits received, and would well complement a nuanced and progressive regulatory regime.

The assessment framework

Question 1: approach to rule change assessment

1. Is the assessment framework, specifically the criteria outlined above, appropriate for considering the proposed rule changes?

Yes. The assessment framework and criteria proposed by the Commission are appropriate. In particular, a regulatory framework that encourages optimal levels of DER integration and fair allocation of costs, obligations, and risks is essential to facilitate "efficient investment in, and efficient operation and use of, energy services for the long term interests of consumers of energy"⁴ as the energy system continues to be transformed by technological changes and market evolution. Renew especially commends the identification of robustness to climate change mitigation and adaptation risks as a key consideration.

2. Are there any other relevant considerations that should be included in the assessment framework?

Renew's recent DER Enablement Project⁵ developed a set of *Customer Principles for DER Management* to articulate the consumer perspective needed in assessing and implementing DER management strategies in distribution networks. Because updating the regulatory arrangements for DER integration will form the future framework for DNSPs' DER management approaches, the assessment framework for this rule change should also consider how the new regulatory arrangements will enable these principles to be realised. These principles are:

- Access: As much as possible, customers have fair and equal access to the network
- **Choice**: Customers can continue to connect and get value from DER,
- **Cost-reflectivity**: Where customers' use of their DER creates net costs to the network (i.e. costs materially greater than the benefits realisable by network users as a whole), they should pay their share of those costs and by paying they should be able to continue this DER use. At the same time, where

⁴ Consultation paper p. 12

^s See <u>https://renew.org.au/research/distributed-energy-resources-enablement-project/</u> for more information and the project reports.

their DER use reduces costs in the network, they should be rewarded for those benefits. Where both costs and benefits to the system exist, only the net cost or benefit should be passed on to the customer.

- **Materiality**: When assessing the costs of managing DER and how they should be allocated to customers, the materiality of these costs must be determined considering transaction costs, simplicity, practicality, and the extent to which costs are offset by corresponding benefits. Only material (i.e. substantial) costs (or benefits) should be passed on
- Additionality: Where a network cost partially attributable to DER is also caused by other network activity or dynamics or where a proposed solution to a network problem caused by DER also addresses other network issues the costs imposed on DER customers should be proportional to the extent of the problem caused by DER, or the extent of the mitigation that directly applies to DER.
- **Simplicity**: Where there is a choice of responses to better allocate a cost or mitigate an adverse impact of DER and their feasibility, efficacy and consumer impact are otherwise similar, the cheapest and simplest measure should be chosen.
- **Transparency:** Customers installing new DER should have enough information at hand to consider the impacts of any direct costs (such as network charges) and indirect costs (such as export limits or anything else that reduces generation or exports) when determining the value proposition of their DER investment.
- **Certainty:** Customers with existing DER should not have the value of their investment materially reduced by changes to policies and practices impacting its capacity to produce or export energy without being adequately compensated or given an opportunity to recover value.
- Value: Solutions should deliver the greatest net outcome for all customers, not just those with DER. (This should also consider the additional benefits of a solution, which may not be directly attributed to resolving the export management challenge (for example, dynamic DER management may increase visibility and thus enable publication of clear information on network limits and opportunities for network services value streams).
- **Optionality:** Solutions should have regard to potential future customer choices, technology and market framework uncertainty

Updating the regulatory framework

In updating the regulatory framework to enable optimal DER integration, two things must be held in tension:

- the *desirability* of enabling excess DER generation (as much as possible within the technical constraints of the grid), due to its value to other electricity consumers and society more generally; and
- the fundamental *essentiality* of delivering electricity to end users according to their demand, in order to meet their energy needs.

It is appropriate for the regulatory framework to support and encourage DER integration by DNSPs to the extent that the shared benefits equal or exceed the shared costs; but where there is a conflict between enabling DER and meeting demand, meeting demand must take priority. Similarly, DER enablement measures should not indirectly make it more difficult for customers to access their essential energy supply (e.g. by imposing costs on consumers greater than the value of benefits they receive).

Question 2: definitional issues

1. Should export services be recognised as part of the network services provided by DNSPs to customers?

Yes. Export services should be explicitly recognised as part of the network services provided by DNSPs because this will best facilitate key aspects of the new framework that may be introduced, such as:



- appropriate regulatory oversight of DER enablement investment and any export tariffs or supplementary connection charges that may levied
- guidance for determining and allocating DER hosting capacity
- assessment framework for DER integration planning activities such as the DERIS proposed by TEC/ACOSS
- 2. Are the proposed definition changes necessary and appropriate to enable export services to be recognised as part of the services provided by DNSPs to customers?

In the main, yes. However, Renew does not believe it is necessary to add the 'prosumer' definition to the NER to classify retail customers who are able to export separately from other retail customers. Rules applicable to customers who can export should hinge on the act of exporting or capacity to export, rather than a specific customer classification.

3. Are there any unintended consequences that could arise from SAPN's proposed amendments to definitions?

While SAPN's proposal to define export service as a network service enables key aspects of the new framework (as discussed above), there is a risk that it could lead to unfair allocation of costs – as we have already seen with the inequitable cross-subsidies between customers with non-peaky vs peaky loads but similar volumetric consumption due to non-cost-reflective consumption tariffs. However, this can be addressed by the regulatory framework:

- explicitly recognising the greater essentiality of meeting customer demand vs enabling DER exports (as we have discussed above); and
- applying a net market benefit test to DER enablement expenditure, as proposed by TEC/ACOSS.

In relation to the second point: customers' willingness to pay for DER enablement works should be a consideration in assessing expenditure proposals; but proposals should still be assessed according to net benefit – noting that enabling customers to voluntarily pay extra for additional works whose costs materially exceed benefits could be consistent with fair allocation of costs.

- 4. Are there more appropriate approaches to enable export services to be recognised under the framework that are not considered above?
- 5. Are there any other issues related to definitions that the Commission should consider?

No further comments.

Question 3: proposed changes to definitions

1. Are the proposed approaches to the classification of export services necessary and appropriate?

Yes, the proposed changes seem appropriate. In particular, Renew endorses SAPN's proposals that export services be classed as standard control services (because it is appropriate that export services be subjected to a similar form of regulation as consumption services, and if any export tariffs are imposed they should fall under a similar level of regulatory oversight as consumption tariffs) and that network augmentations for export services be planned and funded on an ex-ante basis (because this promotes efficient expenditure and cost allocation for this type of augmentation, especially in an environment of steady growth of DER).

2. Are there more appropriate approaches to enable DNSP expenditure on export services to be economically regulated that are not discussed above?

Nothing that Renew is aware of.



3. Are there any other issues related to service classification that the Commission should consider?

As noted above, it is important to recognise that there is an *essentiality* of access to energy for household and commercial/industrial customers that does not apply to the capacity to export generated electricity, no matter how desirable enabling those exports may be. This must be reflected in the framework, and warrants some differences in the approach to assessment of expenditure proposals for export services compared to the treatment of similarly classified consumption services. For example:

- In order to avoid imposing DER integration costs over and above the value realisable by customers who are unable to privately benefit from DER, expenditure on export services should be assessed against the value of benefits realised by all customers not the higher value realisable by customers with DER, and not simply whether it meets expressed demand for export services.
- Given the number of different types of approaches to managing technical issues associated with DER injections and the materially different cost-effectiveness of these various approaches (as discussed in Renew's DER Enablement project Stage 1 report⁶ and currently being assessed in more detail in the Stage 2 project), there should be a requirement for DNSPs to demonstrate why the approach taken is appropriate, with reference to the specific issues that need to be managed or addressed, and the longer term benefit of consumers.

Question 4: obligations on DNSPs

1. Should the NER be amended to impose obligations on DNSPs to provide export services as proposed?

Yes, such obligations are necessary to have the right level of regulatory oversight, and to ensure that consumer equity issues can be appropriately considered. Renew understands that the regulatory regime is an economic, not social, instrument. But the recent history of regulatory reform is notably marked by attempts to redress inequitable pricing outcomes from previous technological change – such as the cross subsidies between high and low demand customers with similar volumetric consumption that arose from the air conditioner boom in the 1990s and 2000s and have been a driver of the cost-reflective tariff reform agenda. Regulatory oversight with a focus on ensuring expenditure is efficient and costs are allocated proportionately will avoid a similar outcome from DER integration.

Placing obligations on networks with respect to export services will also ensure that consumers across the NEM have equitable access to opportunities to invest in DER as much as is compatible with secure and reliable operation of the network – in contrast to the current situation whereby consumers' ability to invest in and get value from DER depends on the extent to which their DNSP proactively supports DER enablement. It's worth noting that Renew's DER Enablement project was inspired by the very different experiences of our members seeking to install DER in networks that were taking an over-cautious approach to DER connections, compared to those who were in networks that were more accommodating.

Such obligations also support the appropriate level of regulatory oversight on things like connection policies, connection charges, export tariffs, the cost-effectiveness and economic efficiency of DER enablement measures chosen, and the longer term planning of DER integration (including minimising the risks of stranded assets due to future technological change).

2. Would it be appropriate to impose obligations on DNSPs to consider network planning solutions in relation to DER integration?

Yes. The proposal for a DER Integration Strategy is a fundamental part of this reform. As Renew demonstrated in the DER Enablement project, the problems caused, exacerbated, and surfaced by high levels of DER integration manifest across the network in an interrelated fashion, and while much of the mitigation needs to be done at the local level, there are strong interrelationships across the wider network. (The inability to

⁶ See <u>https://renew.org.au/research/distributed-energy-resources-enablement-project/</u> for more information and the project reports.



capture these interrelationships was widely viewed by stakeholders as a limitation of the Stage 1 project, and the main reason Renew designed the Stage 2 project to look at whole-of-network dynamics.) Additionally, while currently the most cost-effective mitigation measures are local (e.g. manual tap changes to distribution transformers⁷), DER enablement will increasingly require network-wide architecture (such as remote monitoring and control and remote dynamic voltage adjustment) and forward planning will enable investment in these solution to occur in a staged and responsive manner.

A DER Integration Strategy, as proposed by TEC/ACOSS, would also facilitate stakeholder engagement with DNSPs' DER integration plans, providing an opportunity for external expertise to critique proposals and for consumer perspectives to be articulated and considered in concert with the network perspective. This process already works well with respect to DNSPs' revenue proposals (which are primarily five-year strategies for serving demand) and tariff structure proposals.

2.(a) Is there a need for the introduction of specific arrangements to guide network planning and investment decisions around additional DER hosting capacity?

Yes. Optimising existing hosting capacity and expanding hosting capacity when the cost is no more than the benefits unlocked represents efficient expenditure that gives more value to customers at no extra cost. Identifying a hosting capacity goal with a clear pathway to it via the DER Integration Strategy is a clear and transparent approach and provides metrics upon which assessments of expenditure can be based. Currently, without this obligation and the associated mechanisms, many DNSPs are not taking full advantage of their existing infrastructure and low-cost measures to proactively give this value to their customers.

2.(b) Do you consider that a net market benefit test is a useful way to guide DNSP network planning and investment for export services?

Yes. DER provides material private benefits to households that invest in it, in addition to the shared benefits it also provides. But many households are unable to invest in DER even though it would benefit them, due to lack of access to capital, lack of home ownership, or owning a type of dwelling that precludes DER installation (such as without an accessible roof space for solar PV or with shading on the roof space). There is a risk that these households will end up paying through network charges for DER enablement works that they cannot benefit from – which could be exacerbated, at least in the medium term, by volumetric network tariffs that already result in some DER owners underpaying their fair share of network charges.

Applying a market benefit test to proposed DER expenditure as described in the TEC/ACOSS proposal will give confidence that consumers without DER will not be financially worse off due to DER enablement even if it leads to some increase in their network charges. The proposal aligns with one of the findings of Renew's DER Enablement project: that it's impossible to fully assess the costs and benefits of DER enablement without assessing the broader market benefits, including wholesale energy market benefits.

(A consideration of the further financial benefits of the emissions reduction due to DER would also be warranted, though it is not clear at this stage how the quantum and the distribution of these benefits would be assessed.)

Customers' willingness to pay

As SAPN's proposal notes, a DNSP's customers may express a willingness to pay for more expenditure on DER enablement than the value of the shared benefits unlocked. Such a willingness could be considered in assessing expenditure for which there is a material probability that the costs may only marginally exceed benefits; but Renew's view is that ultimately, the significant impact of energy unaffordability on vulnerable households cautions against a 'majority rules' approach to willingness-to-pay assessments. This is a nuanced issue: an immaterial cost increase is less problematic (noting though that 'immaterial' means different things to different people), and cost impacts might be manageable if they are relatively small and lead to additional

⁷ Energeia, *Distributed Energy Resources Enablement Project – Discussion and Options Paper*, Renew, Melbourne, May 2020. (https://renew.org.au/wp-content/uploads/2020/06/Energeia.pdf)

benefits in the medium term – and if measures are in place to manage transitional impacts on vulnerable consumers. This is a perennial issue in network price regulation, and is best addressed by clear principles, good consultation and transparency. DNSPs' engagement with their customers and clear indications of willingness to pay are key factors in resolving this issue in a way that best meets consumers' needs.

We note that all three rule change proposals include allowing DNSPs to levy additional charges (as connection fees of tariffs) on DER customers to enable DER exports above the level that efficient expenditure allows. This is an alternative way for customers to express their willingness to pay.

Additionally, state governments may elect to invest in DER enablement by funding DNSPs for the requisite works from their own revenue. This is another way for a community's willingness to pay for higher levels of DER enablement to be fulfilled with costs distributed more fairly due to the generally progressive nature of taxation

The value of DER enablement.

A characteristic of the DER enablement aspects of recent DNSP pricing proposals in Victoria and South Australia has been significant variance in the way DER exports are valued for the purposes of cost-benefit analyses. Some DNSPs used the value of the regulated feed-in tariff; some use a value based on the daytime wholesale price of electricity. In Renew's DER enablement project, consultant Energeia used the regional reference price (RRP). But all of these approaches are inaccurate. They are also materially different – the minimum or typical FiT in most jurisdictions is significantly higher than the typical daytime wholesale price and almost certainly higher than the value that flows back to non-DER customers; while the wholesale price probably undervalues it.

As part of the net market benefit test, an approach to valuing DER enabled must be developed and used consistently across networks – the values may differ jurisdictionally or even sub-jurisdictionally, but the approach should be the same. This was a recommendation of Renew's DER Enablement Stage 1 project, and a methodology is being developed for the purposes of the analysis in the Stage 2 project. We look to the AER's *Assessing DER Integration Expenditure* work as an opportunity to develop an approach that can be used consistently across the NEM.

3. Should a principle for the allocation of export capacity in the NER be introduced? If so, what principle should be included?

Yes. Renew is extremely concerned about the temporal inequity that exists when early adopters of DER have greater ability to derive value due to unlimited or less limited exports than later adopters. And this temporal inequity also has a socioeconomic dimension, because early adopters are disproportionately wealthier households, while more recent DER investors are more likely to be lower income households because they have only been able to afford DER after prices came down low enough and, for many, thanks to recent state government rebate programs.

Newer DER households – and in particular, lower income DER households – are thus are more likely to have exports constrained than more established ones. So as DNSPs increase their hosting capacity as a result of the changes discussed above, the allocation of new hosting capacity should seek to redress the balance where practicable. This would require a DNSP to articulate a per-customer export allowance that reflects the network's target hosting capacity (as expressed in the DERIS), and a principle to allocate new hosting capacity as much as possible to customers who are constrained below that limit. Clearly this may need to be done at a localised level, because it may be more cost-effective and practicable in some areas of a network than others to increase hosting capacity. It should also be recognised that per-customer need not only be implemented as fixed export limits: where some form of dynamic limiting is practicable and cost-effective, it may well be a more effective way of optimising DER integration while still managing capacity limits at peak times.



Incentives for efficient expenditure

Question 5: efficiency incentives

- 1. If 'distribution services' expressly include export services, are there any regulatory barriers to adapting existing incentive schemes to export services?
- 2. Should the STPIS be extended to export services or is a new incentive scheme required?
- 3. If the STPIS or a new incentive scheme is to apply to export services:
 - a. What are the practical challenges of designing relevant performance measures and collecting robust data? Can these challenges be overcome over time?
 - b. Should the details of the scheme be prescribed in the NER or is it appropriate for the AER to design the scheme?
 - c. Are there any additional factors the AER should be required to take into account (eg, under NER clause 6.6.2 relating to the STPIS)?
 - d. Do export service standards (to meet customer expectations) need to be established to set a performance 'baseline' for the incentive scheme?

Renew agrees with SAPN and TEC/ACOSS that an incentive scheme is appropriate, and considers that it complements the DERIS proposed by TEC/ACOSS in encouraging efficient expenditure. We are not aware of any regulatory barriers to this, and consider that a new incentive scheme is probably not necessary and a modified STPIS is likely to be sufficient.

A STPIS-type approach could also allow for GSL-type payments for customers whose exports are constrained below the baseline allowance due to network infrastructure for which it is cost-prohibitive to upgrade to the necessary standard. This is a similar situation to compensation payments for customers experiencing more outages than service standards allow for due to infrastructure or remoteness issues. In this case, compensation would reflect the amount paid in network charges for export services not delivered, rather than hypothesised lost oncome from FiTs which is not a network responsibility.

Renew agrees with SAPN that the STPIS for exports may need to be introduced progressively so that the right metrics, data collection and reporting can be determined and implemented. During this implementation period the question of whether and how a performance baseline and service standards might be set can be explored. Given this progressive and iterative approach, and the need for ongoing stakeholder engagement during this period, it is appropriate for the AER to design the scheme.

Pricing of export services

Renew's DER Enablement project, like UNSW's recent analysis of Solar Analytics' voltage data,⁸ has shown that there is considerable scope within distribution networks to unlock significant additional hosting capacity via low-cost strategies. We expect that a DER integration strategy with a robust methodology for valuing DER and a net market benefit test will show further opportunities for hosting capacity increases at costs lower than the value to all customers realised.

Still, there are likely to be further hosting capacity increases available that may be more costly than the value realisable to all customers, but less costly than the value realisable by customers with DER, who can derive additional value from DER exports.

Question 6: pricing arrangements

1. Should DNSPs have the option to propose to the AER charges for export services?

Yes. With an optimal level of hosting capacity available due to DER enablement works carried out under the provisions of the rule changes discussed above, all DER owners will have access to export services and the

^a Anna Bruce et al. 'Voltage Analysis of the LV Distribution Network in the Australian National Electricity Market', UNSW CEEM, May 2020



opportunity to derive predictable value from their investments, and network customers will pay no more than the value of the benefits they receive from this work. The greater private value available to DER owners for exporting above that level means that for many, it may be in their interests to pay some additional fees or charges in order to export more energy. This opportunity should be available in the interests of customer choice, so long as it has the right level of regulatory oversight. This oversight must ensure that:

- DER customers still have access to as much export capacity as is available due to efficient investment and equitable sharing of costs and benefits through regular network tariffs;
- any additional charges for extra export capacity are justifiable, cost reflective, and fairly calculated (in particular, with respect to the proportion of expenditure that is above the value of shared benefits, and the proportion of costs that are attributable to DER exports); and
- consumers who pay additional charges get access to the additional export capacity promised, or receive compensation when it can't be provided.

2. What are the potential benefits and costs of enabling export charges?

The primary benefit is that it will enable customers who are willing to pay more to increase hosting capacity beyond the efficient amount and can derive additional benefit from that increase, to do so without forcing additional inefficient costs on customers who are unwilling to pay. In effect it is like a cost-reflective tariff in that the consumers who are driving additional net costs in the system pay those costs, and then get to enjoy the benefit of what their extra expenditure has enabled.

There is likely to be a flow-on benefit that, over time, this additional investment enables increased hosting capacity and greater resilience to other network customers. In a sense, the additional expenditure may bring forward network augmentation that would otherwise have happened later. The approach to determining the additional charges should reflect this.

A third benefit, as articulated in the St Vincent de Paul proposal, is that charges for additional exports above the efficient capacity of the network will set a price point for competing technologies and services, helping to stimulate the growing energy services market that will become increasingly important in the energy system in coming years.

3. If customers can already negotiate 'deeper' connection agreements, is a 'supplementary' connection arrangement required to allocate DER-related costs – as proposed by TEC/ACOSS?

Delivering additional export capacity to a specific customer may require different approaches in different circumstances, depending on the nature of the constraint (whether that is a literal constraint facing that particular customer or feeder, or a theoretical constraint that applies to the network as a while even though some parts of the network may be physically capable of allowing additional capacity already). As such, the investment necessary to allow that one customer to export above the limit could range from nothing at all, to the upgrade or new installation of a major piece of equipment. Thus, to be effective, the additional connection charge needs to be able to be applied to either local works directly related to the customer's connection point or other works not directly related, as the case may be. If this is not possible with a 'deeper' connection agreement, then a 'supplementary' connection agreement such as proposed by TEC/ACOSS may be necessary.

- 4. If NER clause 6.1.4 is removed, and DNSPs are able to develop tariffs for export services:
 - a. What are the implementation issues?
 - b. Should the existing tariff structure statement process and pricing principles apply? For example, is a principle required to guide DNSP decisions on cost allocation between consumption and export services as proposed by SAPN?
 - c. Are transitional or 'grandfathering' arrangements needed and, if so, should they be prescribed in the NER?

Removing NER clause 6.1.4 and allowing DNSPs to charge for exports raises a number of implementation issues. The most significant ones are:

- Degree of localisation: there are pros and cons of postage stamp vs nodal approaches to tariffsetting. A single tariff applied across a DNSP's entire network has the benefit of simplicity, and also fits better with the reality, expressed by SAPN in their proposal, that works to increase hosting capacity typically comprise a number of 'lumpy' investments that may need to occur sooner in some parts of the network than elsewhere (if at all). Conversely, localised charges can be more cost-reflective and incentivise the behaviour or investment that suits local circumstances or conditions.
- **Regulatory oversight:** consumer confidence will be maximised if there is transparency and accountability in the way charges are set and applied. Export tariffs should be subject to the same requirements as consumption tariffs with respect to cost-reflectivity, assessment of consumer impacts, and so on through a similar process to the TSS process used with network tariffs currently. The difference between the essentiality of energy consumption and the optionality of energy exports should inform the process and the customer impact assessments, as well as the role of broader market mechanisms such as FiTs and third-party energy services.
- **Grandfathering:** there is clearly an equity issue when many current DER households have less limited exports then future DER households will have. Many of these consumers invested in more expensive systems and did so under the expectation that the value would be redeemed in part via unfettered feed-in. Retrospectively changing the rules and unduly impacting their value proposition is problematic. Grandfathering existing DER households is appropriate to a point, but hard to justify indefinitely. An appropriate middle-ground would be to grandfather existing DER for a fixed time period, or until a trigger point such as an inverter replacement is reached. Inverter replacement as a trigger has an additional advantage that inverters meeting current and future standards are more able to facilitate dynamic limiting and manage voltage issues thus limiting possible adverse impacts in the first place.
- 5. Should the regulatory framework better recognise the benefits DER services provide to DNSPs? For example, does SAPN's proposal to allow for negative prices address the issue?

Yes. to reflect that DER brings benefits to networks in the right circumstances⁹ even if in other circumstances it drives costs, DNSPs choosing to charge for exports to recover costs should also be required to pay or otherwise account for exports that reduce costs. In sum, it is appropriate for DNSPs to consider the net outcome of costs and benefits when determining both the level of hosting capacity that can be delivered at no additional cost beyond what is realised by customers as benefits, and the quantum and application of additional charges and payments to DER customers wishing to export above the baseline allowance that reflect additional costs and benefits those exports create. Overall, the DER Integration Strategy should clearly identify the threshold(s) beyond which export charges or payment might apply. The degree to which the interplay between costs and benefits separately in order to incentivise investment or behaviour should also be articulated in the DERIS.

⁹ Many examples are discussed in Essential Services Commission 2017, *The Network Value of Distributed Generation: Distributed Generation Inquiry Stage 2 Final Report*, February 2017



6. Should these reforms only apply to small customers?

Renew supports the approach proposed by TEC/ACOSS to limit these reforms to small customers (i.e. those consuming under 100 or 160 MWh per year depending on jurisdiction), pending an assessment as to whether doing so would unduly hinder or favour larger customers' DER exports. We also agree with SAPN's proposal to exclude large distribution connected generators, for the reasons SAPN articulates.

Conclusion

Please also refer to the attachment *Enabling Distributed Energy in Electricity Networks*, the summary report from Renew's Stage 1 DER Enablement project. This documents the DER integration challenges being experienced by distribution networks and demonstrates the extent to which hosting capacity can be increased by low-cost interventions.

Thanks for the opportunity to respond. If you have any questions or additional matters you'd like our view on, please contact me at <u>dean@renew.org.au</u> or (03) 9631 5418

Sincerely yours,

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