Submission from

Derek Bolton

to the

AEMC's Draft Rule Determination

on

National Electricity Amendment (Access Pricing and Incentive Arrangements for Distributed Energy Resources) Rule 2021[1]

17/5/21

Abstract

I am pleased that the AEMC recognises the benefit of the continued growth of rooftop PV and is looking for ways to remove looming roadblocks.

My questions and comments relate to

- the technology that exists, or is presumed to arise, to support the proposal
- the interactions between DNSPs, retailers and PV households
- whether a PV household might inadvertently exceed its export cap, and the consequences of doing so

I also propose a way to make the funding of upgrades as fair as possible.

1.1. DNSPs, Retailers and signals

a) Export limit signals and enforcement

(In re 6.3.2, *"It is up to retailers to reflect network tariff structures and feed-in-tariffs in their offers"*, p122 and 2.1.2 Proposed changes, page 5.)

As the draft proposal states:

> *"Network charges are paid by retailers to DNSPs. Under the current framework, retailers have discretion to decide how to recover these costs ... as part of their overall retail charges to consumers. Retailers are currently free to manage network price signals how they choose as part of their market offers."*

I note that SAPN (p5) believes:

> *"customers should have choices that enable them to avoid some or all of the export component of the tariff ... such as ... using a smart inverter capable of responding to a 'flexible' or dynamic export limit ".*

This raises the question of how grid signals (not price signals) might work. Households under the same DNSP may deal with different retailers, and those retailers may have different arrangements with the DNSP. What technology exists, or is presumed to become available, to support this

- from the retailer?
- at the inverter?

How might the limits be enforced?

Automatically switching off a PV inverter that exceeds its limit, thereby denying a PV household its

1 https://www.aemc.gov.au/sites/default/files/2021-03/Draft%20Determination%20-%20ERC0311%20and%20RRC0039%20-%20Access%20Pricing%20and%20Incentive%20arrangements%20for%20DER.pdf

own electricity production, would be hard to accept. It could even convert inbound congestion into outbound congestion.

Allowing the inverter continue to feed power in but the householder later being hit with a fee puts an even less acceptable onus on the householder to manage the inverter manually.

b) Feed-in tariffs

FiTs are not mandatory in NSW, so not all retailers pay them. It would be particularly unfortunate to charge PV households for feed-in without also rewarding them for the power supplied.

1.2. Two- or three-tier export service

(In re 2.1.2 Proposed changes, page 5)

SAPN's proposal to fund upgrades by charging for a higher export limit has the potential to be unfair in several ways:

1. Parts of the grid may currently have a lower export capacity than others by sheer chance.
2. Having upgraded export capacity using the funds raised, the cost of ongoing maintenance is a lesser matter. The ongoing charge for export should fall. Those who did not at first opt for a chargeable level of export, or who install PV later, get a free ride.
3. The increased export of rooftop PV power thus enabled lowers the cost of electricity to *all* customers.

These same concerns arise regarding the AEC/Oakley Greenwood suggestion (5.1.3 Stakeholder Views, Alternative Incentive Arrangements, p63) of an approach involving:

> *"the customers facing cost reflective export prices and the DNSPs self-funding network investment for exports"*

A pure market mechanism would credit those funding the upgrade with a proportional degree of ownership of the extra capacity, earning income from the DNSP for its ongoing use. If this were done as a grid-wide arrangement, rather than independently for different DNSPs, or in different parts of the area serviced by a DNSP, it would solve all three issues listed above.

The fees that the DNSP would have to pay to these early funders should make the effective cost of electricity a little higher than if it did not have to do so, but still less than if there were no increased export. If that criterion would not be met then the upgrade is not worth it when assessed by medium term economics. (It might still be appropriate as part of reducing Greenhouse emissions, but that would require a government incentive.)

Equivalently, the DNSP could fund the upgrade but recoup the costs in a manner that has the same outcome as above.

How the overall benefit should be apportioned between the upgrade funders and customers in general is an open question.

1.3. Evaluating and Incentivising Export Services

a) STPIS

(In re 5.1.1, p54.)

SAPN notes that extending the Service Target Performance Incentive Scheme is likely to include :

> *"determining exactly what distribution networks should be incentivised to do for customers. For example, consideration would need to be given as to whether incentives should be applied to improve export capacity on average for applicable customers, in aggregate*

across all customers, or both."

In evaluating the export service provided, consideration should be given to the benefit of lower power prices to those using the exported power. I note this comment by SVDP (p129):

> *"Non-DER participants have already subsidised this initial shift to a DER future and while this has incentivised the DER uptake, largely in the form of rooftop solar, this does not justify ongoing subsidies from non-DER participants to DER participants into the future."*

This view completely ignores how much lower power prices are for all customers than they would have been without the rollout of rooftop PV. On balance, there has been little or no subsidy from non-DER to DER.

Several commentators recommend (over) voltage as a proxy for a poor export service level (5.1.3, Stakeholder Views, pp62-72). The details are not provided in the draft, but presumably voltage would only indicate how the provided service compares with net export demand. If so, it would appear that switching off inverters would give the impression of improving the export service! Perhaps the idea is to couple the voltage data with direct measures of the export flow.

AGL notes that:

> *"DER is typically not the sole cause of voltage issues"*

However, given that DER is already widespread, using voltage to manage DER will ameliorate the problem whatever the other contributory causes.

b) WTP and VCR

(in re 5.3 VCR equivalent for export services, p104 on.)

Much is made of the "Willingness To Pay" and "Value of Customer Reliability" aspects of service value. This is understandable in regard to grid reliability – how much is a customer willing to pay to avoid a one hour blackout? - but it is unclear why this need be relevant to exports.
The cost to a PV household of lost export is the FiT that would otherwise have been earnt. If the curtailment mechanism turns off the inverter completely, there is also the cost of having to use grid power instead. Both of these are measurable, and should not be a matter of second-guessing the householder's priorities.
The remaining consideration is in regard to householders considering PV who may become inhibited, but this too could be fairly estimated.

1.4. Glossary

Term	Expansion	Description
AEMC[2]	Australian Energy Market Commission	Rule maker for Australian electricity and gas markets
AEMO[3]	Australian Energy Market Operator	Manager of the electricity and gas systems and markets
AER[4]	Australian Energy Regulator	Rule enforcer for gas and electricity networks, except WA
DNSP	Distribution Network Service Provider	A distribution network operates at voltages up to 33kV and consists of the poles and wires one sees in the streets. Because it would make no sense to have competing networks in the same street, DNSPs are regulated monopolies.

2 https://www.aemc.gov.au/
3 https://www.aemo.com.au/
4 https://www.aer.gov.au/

Term	Expansion	Description
FiT	Feed in Tariff	
IPART	Independent Pricing and Regulatory Tribunal	
NEM[5]	National Electricity Market	Wholesale market operated by AEMO across ACT, Qld, NSW, Vic, Tas, SA
SAPN	SA Power Networks	
STPIS	Service Target Performance Incentive Scheme	A mechanism rewarding DNSPs for achieving service targets in respect of power supply
SVDP	St Vincent de Paul Society Victoria	
VCR	Value of Customer Reliability	An estimate of the value the average power customer places on a given level of reliability
WTP	Willingness To Pay	Similar to VCR, but generalised

5 https://aemo.com.au/en/energy-systems/electricity/national-electricity-market-nem

The below submission has been lodged and confirmed on the AEMC Web site.

Submission Type: Rule Change

Reference: Access, pricing and incentive arrangements for distributed energy resources

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I also take issue with some of the funding methods proposed and offer a counter proposal to make the funding of upgrades as fair as possible.

See attachment for details.

Submission Document: AEMC Access Pricing PV-nonCCBR.doc