Making room for more solar: 10 facts you should know

In March the AEMC released draft proposals designed to prepare for a future where rooftop solar and batteries are anchors of our power system.

If we do this well, we will keep energy bills down for everyone and the electricity sector will decarbonise faster. If we do nothing, the benefits of all this new technology will be limited – both for solar and non-solar owners, and everyone will pay more than they need to.

We welcome a healthy debate on these proposals, which is important in releasing them for consultation. At the same time, it's important that people have the facts about what these proposals are – and what they are not. This will lead to a more productive conversation.

FACT 1: Traffic jams and congestion on the grid are already costing solar customers

Solar owners are already being financially penalised by traffic jams on the grid because they are being prevented from exporting their power. This problem is getting worse – and will cost them more than any potential export charges that may apply. As the amount of solar generated by homes and businesses grows, the power system will reach its technical limits. Some customers are being told they can't export power at all. And even if they can export now, being blocked from doing so just 10% of the time would see owners of 4-6 kW systems lose about $70 per year in solar earnings. This drop would reach $300 if they were blocked 50% of the time. We are not alone in acknowledging that serious work has to be done not only to address this and reap the rewards of solar for all customers. The energy regulator, market operator and Energy Security Board have recognised this issue too. That's why we need to plan now – so we can prevent later problems and deliver solar rewards for everyone.

FACT 2: The proposals allow power networks to offer two-way pricing – there is no proposal for a mandated solar charge

This means networks will have the flexibility to come up with a range of tariff structures designed to solve another problem: that most people are paid to send energy back to the grid during the middle of the day when few people need it. This is not the same thing as asking solar owners to pay a mandated fee every time they export to the grid. The range of tariff options could include not paying a fee at all but having an upper limit on the amount you send to the grid, or it could include being able to export whenever you like and pay a premium. It could also include tariffs that pay customers to export during times when the grid needs it the most – like the evenings when energy demand is the greatest. If you don't have a battery or an electric vehicle to help you send energy at peak times, you could maximise your financial return by using more of the solar energy you produce. It would be up to each household or small business to pick a plan that delivers the best value for them after using the energy they generate to meet their own needs.

Importantly, we are not 'recommending' a charge or pre-empting any decision on what network tariff structures would look like. The legal provisions in the national energy rules require network tariffs to be based on the cost of providing the service. We have also built consumer protections into the reforms. More on this below.

FACT 3: Different networks will have different charges and rewards

That's because there are different penetrations of solar in different areas and the network investment needed to cater for more solar is different in each area so costs and rewards to customers will vary. For example, charges are likely to be minimal in areas with ample ability to support new solar. That's because less work would be required on that network to get more solar in. In areas where there is little or no network capacity to cater for more solar connections, any export charges might be higher – but rewards for exporting at other times of the day could be higher too. Customers will also have different needs in different areas – that's why we propose letting networks get on with the job of working with communities to develop a localised solution.

FACT 4: Pricing options will take some years to develop and need regulator approval

The process of developing new pricing options would have to be done in consultation with communities and would need to pass certain threshold tests – like being easy to understand. Then, the Australian Energy Regulator would need to vet each of the network plans and be satisfied they were in the interests of consumers before they were allowed to proceed.

People expect energy market leaders to plan ahead for what's coming, this is what we are doing now. This will take some years to roll out and get right, so by getting ahead of the curve we will avoid the need for expensive crisis solutions later.

FACT 5: We modelled potential impacts of any charges, finding solar owners would still be in front and non-solar owners would save.

We looked at some hypothetical scenarios, based on different solar system sizes, to assess the upper limit of what people could pay if networks charged to export energy at times of the day when it wasn't needed. As part of this modelling exercise, we asked power businesses to give us an estimate of what they might need to recover from customers to ready their networks for more solar. The range was $10 to a maximum of $100 per customer per year. While that's the dollar range networks say they would need to recover – it's not what customers would actually pay. This amount would depend on how solar-ready each network is, how much of their own power people consume and how much they export. In determining solar benefits, we looked at the whole picture to include savings from self-consumption as well as paid exports. The potential impacts could be:

System size	**Annual benefits before export charges**	**Annual benefits after export charges** (Charges would not apply in all areas or in all cases)	**Effect on annual earnings** (Upper limit of effect)
0-2kW	$353	$359	Save $6
2-4kW	$630	$598	Less $33
4-6kW	$962	$892	Less $70
6-8kW	$1284	$1178	Less $106
8-10kW	$1609	$1458	Less $151

We found non-solar owners would save on average $15 a year if they were excluded from any recovery fees to help their poles and wires handle more solar. The figures in the second column above include the effect on solar earnings if everyone paid this $15 a year. These figures are just a guide to help people understand how they *could* be affected, remembering:

- not every network will have to recover that $100 maximum from every solar customer
- customers can change the outcome by changing their export and consumption
- networks have not yet developed any proposals on what to charge.

FACT 6. We're confident in our calculations

Some people have asked us how we got our numbers. We analysed data from reputable sources that is publicly available on things like existing tariffs, weather data from the bureau of meteorology to estimate how much solar owners are generating and data from the Australian Energy Market Operator on customer loads, using a representative customer. We cross-checked this against real customer data provided to us by power companies.

To test the upper limit of what people could pay, we applied a maximum network 'recovery fee' of $100 per typical customer with a 5kW system who consumes a total 5MWh of energy per year, and exports at least 5000kWh per year. This works out to a charge of 2c per kW hour. i.e. 2 cents per kWh x 5000kWh = $100.

You might get different numbers if you change how much solar people export and how much total energy they consume. Our assumptions on solar export and total energy consumption tally with commonly used industry data. You might also get different numbers on solar earnings if you assume networks will charge every customer $100 per year. But that assumption wouldn't be right, because any charges would be applied on a per kilowatt hour basis and based on how much you export and how much of your own energy you use.

FACT 7: Feed-in tariff changes affect benefits but there's still good value in solar

The numbers could change if feed-in tariffs change (feed-in tariffs are decided by retailers). We have since done extra analysis on the impact of feed-in tariffs dropping (using Victoria as a case study) and found even with lower feed-in-tariffs, solar remains a good investment – more than $600 a year on average in energy savings.

In its April Review of solar feed-in tariff benchmarks report, the Independent Pricing and Regulatory Tribunal of NSW (IPART) also found that while feed-in tariffs were trending down, there were significant and ongoing opportunities for solar panel savings from reducing bills through self-consumption. Feed-in tariffs are going down because they are tied to the wholesale electricity price, which is going down largely due to more, cheaper renewable electricity coming online.

FACT 8: We're proposing incentives for power networks to invest in and run better solar export services, not allowing them to make more money

The rules heavily regulate what network businesses can earn. Once their revenue is approved by the Australian Energy Regulator, they cannot earn more than the cap, nor would they be financially threatened if they earn less. Under these proposed changes, they will just be given incentives to use the same budget in a way that gets solar into the system more efficiently. Recognising export services in the energy rules as proposed means there will be more scrutiny on making sure networks manage export services for their customers.

FACT 9: Large generators pay to use the system too

Large generators have to pay to use the grid too – they just pay differently. The big generators that use the transmission lines have to pay significant up-front costs to cover the technical needs of the system so that their equipment does not cause voltage disturbances. The Energy Security Board is also considering medium to long-term plans around electricity pricing to make sure generators locate in parts of the grid that work best for consumers. Generators like supermarkets and hospitals, who use the poles and wires on the distribution network (rather than large transmission lines) to transport energy from solar or batteries, will face the same rules as household solar owners.

FACT 10: Consumer groups are already at the table

Through the Distributed Energy Integration Program led by ARENA, we have been working collaboratively with consumer groups, market authorities and industry on how to address this challenge and maximise the benefits solar will bring. Other consumer groups are also at the helm of change. St Vincent de Paul Society of Victoria, the Total Environment Centre and the Australian Council of Social Service have joined with SA Power Networks to request the energy rule changes we are considering. They have done this because they see the potential to integrate more solar in a better way that benefits everyone.