



Independent Pricing and Regulatory Tribunal  
New South Wales

# Solar Feed-in Tariff Benchmarks

**Public Hearing – Transcript**

**Tuesday 9 March 2021, at 10 am**

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## Tribunal Members

The Tribunal members for this review are:

Ms Deborah Cope, Acting Chair  
Ms Sandra Gamble, Tribunal Member  
Mr Mike Smart, Acting Tribunal Member

### **Members of the Secretariat**

Ms Liz Livingstone, Ms Fiona Towers, Ms Jessica Robinson, Mr Chris Ihm, Ms Jenny Suh.

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# 1 Transcript

## 1.1 Welcome

The CEO: Well good morning again everybody and let's make a start. My name's Liz Livingstone and I'm the CEO of the Independent Pricing and Regulatory Tribunal (IPART). I'm going to be managing the public hearing today. I'm just going to start with a few housekeeping notes. We do ask that you keep your microphone muted, if possible, when you're not speaking, so we can avoid any feedback and background noise. We would like you to keep your camera on if your internet connection is up to it, and you feel comfortable doing so. I think that helps us all to better connect during these discussions we have online. I'll also let you know that we are recording this session on YouTube. It's not broadcast live but we will make the video recording publicly available on our YouTube channel after the hearing. We'll also make a transcript from the recording, which we might make publicly available on our website as well. I'd like to now hand you over to Sandra Gamble. Sandra is one of our Tribunal Members. Over to you Sandra.

MS LIVINGSTONE: We don't have audio for you at this point Sandra.

MS GAMBLE: How's that, sorry about that okay. Good morning everybody thanks so much Liz for your introduction. So as Liz said, I'm Sandra Gamble, a Tribunal Member with the Independent Pricing and Regulatory Tribunal. With me today is Debra Cope who's the acting IPART Chair, and Mike Smart, who is the an acting Tribunal Member and we're ably assisted by Secretariat staff: Fiona Towers, Jessica Robinson, Chris Ihm, Regina Choi and Jenny Suh.

IPART acknowledges the traditional owners of the lands on which we meet today. I'm joining you from Dharug Land. We pay our respects to their Elders, past, present and emerging. We acknowledge the ongoing connection that first nation's people have to this land and recognise they are its original custodians. We also acknowledge any Aboriginal or Torres Strait Islander people who are present here today.

Welcome to this public hearing. It's great to see so many of you here to discuss IPART's solar feeding tariff benchmarks. More than 15% of households in NSW now have solar panels, and most of these households would receive a feed-in tariff from their retailer for the excess electricity they don't use. As well as providing a financial benefit for households, solar panels also reduce the need for electricity to be generated from sources that contribute to climate change.

I can see there are representatives here from various organisations such as IPAC, Solar Citizens, Climate Change Balmain-Rozelle, Central NSW Joint Organisation, energy retailers and various members of the public. We are looking forward to a very productive hearing.

In November last year the Minister for Energy Environment asked IPART to continue setting a solar feed in tariff benchmarks for the next three financial years.

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Solar feed-in tariffs are paid by retailers for the excess electricity generated by households that is exported to the grid. Retailers pay the households generating this electricity a feed-in tariff. Retailers set these tariffs themselves. We calculate a benchmark for feeding tariffs based on the wholesale value of this electricity. Our benchmarks are a guide to help customers decide whether the tariffs offered by retailers are reasonable.

The purpose of today's meeting is to give you the opportunity to provide us with your feedback on our information paper and our issues paper that we released three weeks ago.

You may also express comments, views and proposals in response to our papers by making a written submission to IPART. The closing date for written submissions are the 15th of March. That's next Monday.

We're having two sessions during the hearing today. The first session will be focused on consumer issues. We want to know from stakeholders about the feed-in tariffs being offered by retailers, and whether these plans are working for you. We would like to know whether they are appropriate tools available to enable consumers to make informed decisions about whether to invest in solar panels and batteries, and what plan will provide them with the best value for money given their circumstances. We're also interested in their experiences investing in solar panels and batteries, and exporting electricity to the grid.

For the second half of today's hearing, the session will be focused on specific technical matters around the inputs and methodology we use to forecast the value of solar exports. We are happy to answer questions about our feed-in tariff benchmarks in the first session. But we ask you to reserve any questions about our calculation methodology for the second session.

For the first session we have a number of presentations from stakeholders. Following each presentation we will ask for any questions or comments. Once all the presentations are concluded, we will invite comments and questions more generally from the audience. If any comments occur to you during the presentation, I ask you to type in the chat box at the bottom right hand side of your screen that you would like to speak and we will give you a chance when the presentation is finished. When you type in the chat box, please start with your name and your organisation that you're from, as that will enable us to introduce you properly.

As you know this is a public hearing so everyone including the media is free to report on what is said here. That said, we really want to hear your thoughts and we hope you'll participate in the discussion. So I'll hand back the proceedings to Liz thanks.

## **1.2 Session 1: Consumer issues**

MS LIVINGSTONE: Thanks very much Sandra. And as Sandra said, we've got a series of presentations from different groups represented here today. The first cab off the rank is Solar Citizens so I'd like to invite them now to make their presentation. And again as Sandra said if a comment strikes you during the presentation, or you'd like to ask a question after the presentation, just type your name and the organisation you're from in the chat box, and will come to you straight after that. So I'll hand over to Solar Citizens thank you. Are we good to go, we don't have any audio at this point from Solar Citizens.

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MR YOULL: I thought you were going to look after that. My name's Peter Youll. I'm not a representative of Solar Citizens. I'm a volunteer with them. The reason I'm here not them is that they were all too busy doing something else. I'm going to have to leave this session a bit early for domestic reasons, so if I just disappear...again sorry that wasn't it.

I'm a solar user from well ten plus years. When I first put up our one and a half kilowatt system we were getting 60 cents, which was a bit ridiculous plus six cents from the retailer, which was even more ridiculous. That went down to 20 and then to whatever IPART set or more but currently I get from our retailers, Energy Local they get 14 cents for the first 10 kilowatt hours a day and then 10 cents up there after and I realised, Solace Citizens realises, that's a bit unrealistic given how things have changed.

Solar Citizens, like I said I've been working with them for quite a few years as a volunteer. They're independent, they are here to promote domestic solar and get as much out of it as possible for the people who make the investment in it. We've got about 100,000 supporters. There is no fee to join. So some of them are obviously not always active, but certainly the numbers are there in our database that there's a lot of support for solar in the domestic area.

Can I change these? Yeah there we go. The things that Solar Citz would like and like I say I'm not a paid member of their staff, but I'm going to include some of the things I would like as well. So they're not official, all of them, but the ones you see on the screen now are.

We understand that given the falling wholesale costs that the FiT has to be reduced to some level, but nothing like obviously 60 cents, is not going to happen anymore. The other way, what we'd like to see is other ways for solar owners to maximise the benefit of their investment. Those ways are coming. There's community batteries, and I know Ausgrid is looking into that.

There's customers' participation and sharing of feed-ins. There's a company called Enosi which is inventing a system that does magic numbers with people's smart meter readings, and allows me as a solar owner to export and designate what my exports to my daughter, who cannot have solar in a house and we agree on a price.

There's another system that Ausgrid is working on with Evergen to control my battery to export and import and pay me a benefit for them being able to do that. And there's other stuff like charging cars and so on at peak generation times.

But in the meantime solar owners must be treated fairly for the other benefits, apart from reducing wholesale costs. The solar owners are also reducing health costs because people don't die and get sick from pollution. There's lower energy costs for everybody, not just solar owners, because of the wholesale prices going down. And the distribution and transmission authorities also save money by not having to do so much now and possibly not having to do a lot in the future as well, because there's going to be so much locally generated energy.

And my opinion, I think that the FiT, whatever it is decided to be, should be different depending where you are, like rural areas it's worth more to the retailers and distributors than in suburban areas, and that should be reflected in the FiT that's paid. I know this might be difficult to work out and who's to pay for the health benefits and so on but the Victorian ESC's managed to do it, so it shouldn't be beyond NSW IPART.

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I personally would like the FiT to become mandatory, so that every retailer has to offer what the IPART sets is a minimum or more, which would make comparison of retail offerings a bit simpler. They go to a lot of effort to make it as complicated as possible. If we could remove that one complication it might make things easier for everybody.

And also you have the suggestion there of varying the FiT depending on the time of day. Well I think that also should be an option, so that people can manage what they do with the idea of reducing their costs if possible. What else did I have here, at least in fact, the system I get with Energy Locals, are paying more for the first x kilowatt hours a day, and reducing the rate after that but that also seems to be a fair idea.

And it's not IPART's responsibility obviously, but they should also consider limits on exports, which is something that distribution people are trying to implement. I don't know how you stop them doing that, but it seems to be unfair to penalise people for not polluting, and there should be some way around that.

Connection and export charges. I know my daughter in the country is being faced with that the retailers up there, and the distributors up there, complaining about there being too much solar. But it's up to them to organise to cope with that, rather than penalising the people who are producing it.

Also there are other upcoming concern is charging for EV's. This is a road user charge, but it's in fact another charge for not polluting. If you have an electric car, no pollution, state governments are considering taxing that benefit, which seems a little bizarre shall we say. I've probably skipped a few things that are on the slides, but I've got other things to say.

MS LIVINGSTONE: Thank you very much Peter, and thank you for standing in for your fellow members at Solar Citizens. We don't have any comments or questions in the chat box yet but I just might open it up to the floor to see if any of our participants including our Tribunal Members might have questions of Peter and some of the issues he raised there.

MS GAMBLE: Liz I might take the floor here. Sandra Gamble here Peter. One of the things that we had a fairly good amount of anecdotal evidence that calculating the benefits of solar panels and batteries is confusing and difficult for customers. You've mentioned a floor on the solar feeding tariff as one of the means to simplify that, can you give us some other ideas about ways in which that could be made more simple.

MR YOULL: I should probably have some time to think about that.

MS GAMBLE: If you have a think about it maybe pop it in a submission, because we're quite keen to understand that.

MR YOULL: Okay, a question on notice.

MS LIVINGSTONE: And Deborah our Acting Chair was interested in people's views on time of use feed-in tariffs and whether they might be likely to be offered in the near future, are there any retailers here who might want to comment on that?

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MS COPE: It does seem to me to be something that's been spoken about for several years now but there doesn't seem to be a lot of it sort of imminent in the market. So I was interested in people's views on how close it is, what the barriers are, and whether it's something that we're likely to see in the near future?

MR GOH: Hi, it's Meng Goh from AGL. We currently offer flat solar feed-in tariffs, but we are considering a time of use solar feed-in tariff. The things that we need to be aware of is the downstream impact, when we do implement a time of use tariff. I guess for a solar because you've got comms and billings and we just need to be prepared. Contact centers, if there are issues, so there's a lot of downstream impact. It's not just a pricing issue. And so that's something that we are investigating, but it's too early for retailers. I mean it could be a point of differentiation as well, so it is something that we are considering, but again the downstream impacts can be quite significant as well.

MS GAMBLE: Okay, meanwhile we have you there, and I know there's some other retailers on the line as well, are any of you also considering installing more two element meters, so that you can separately meter the solar compared to the household usage. That's something that South Australia is moving to, and I heard last week that Arizona is also moving in that direction. Given that would make it easier for you to understand, what the solar generation is on its own, separate to the domestic consumption. Is there any talk about within your organisation, about moving to something like that?

MR GOH: I'll have to take that on notice, but there's clearly sort of technology type issues that we just need to be clear, but I know we do have apps and things that you know that customers know how much solar they're generating and if they're also issues with their solar panels as well, I think that's probably a technology issue.

MS GAMBLE: Okay I can see Randall Brown on the list here too. I know he's a retailer representative, Randall did you want to comment on any of those things we've just talked about?

MR BROWN: Well thanks Sandra. What I would like to comment on is that the ESC has been looking at solar feed-in tariffs and we did some analysis on customers based on, they have an optional time of use and they have mandatory flat, we did some analysis on the net on the optional and we found that there's very little difference over a year's consumption, particularly with solar feed-in prices reducing.

When you get into the difference between peak and off-peak and the different hours that they were suggesting more time of use. It actually made very little difference to a customer's bill, and that's a consideration people need to understand. It has an impact on billing system costs and as Meng said, the feedback from customers, they happen to select the wrong one, they might actually do themselves a disservice and actually achieve less solar feed-in prices than with a flat. And once again it adds complexity to their decision making, we're all about making things simpler for consumers and I think out what the analysis we provide at the ESC showed that there was very little difference between a time of use feed in price and a flat, and it actually added a level of complexity because consumers for very little benefit.

MR YOULL: Can I make a comment on that. That's a matter of customer understanding. This customer makes a point of charging, I have an electric car and I make a point of charging that during off-peak periods if I can't get it from the sunshine. So if people understand what they're doing, they will make a difference. If people don't understand what they're doing, because they don't care, then I have to agree with you, it makes no difference.

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MS GAMBLE: So this is a dynamic of education and engagement that's potentially you know we when you do a survey of customers that's at a single point in time, that the things could change over time, is that what you're saying Peter?

MR YOULL: Yeah it could, and I don't know who's responsible for encouraging customers to actually understand what's going on, but that's certainly something you should be aiming for. So lack of knowledge is sort of, you get what you understand, if you don't understand what's going on, then people will take advantage of it.

MR BROWN: Yeah in all due respects, we have retired engineers and others. I'm basically very interested in solar feed-in and prices and variances and technologies, but you've got to remember, the run-of-the-mill consumer is not that wedded to it. And it's just these other alternatives could actually they could actually select the wrong alternative they see a higher peak price and they might jump in and say oh that's the one I want that's the feed-in tariff I want, because it's got a much higher peak price.

At the end of the day they could be doing themselves a disservice so once again you add that level of complexity into the market. Additionally there's a cost to it, there's a cost to retailers to provide this billing system, to deliver on it. One of these things we need to look at why there might be a couple of people in EV vehicle get a benefit out of it, what about the total cost benefit. And the cost benefit analysis across the whole market needs to be considered. And it's particularly more the case with solar prices reducing, the solar feed-in prices are reducing, there's even less of a benefit for consumers on having time variable one.

MR YOULL: Yeah as an ex engineer, I have to agree with you and sorry but now's the time I've got to go. So thanks for it, thanks for listening.

MS GAMBLE: Thank you very much for participating, it's been very valuable thank you.

MS LIVINGSTONE: Thank you Peter. There was just one more point that was raised in that presentation and then we'll move on to the next. But we will have time to capture all the questions that might not be answered after each presentation once we've heard them all. But Peter talked about different tariffs being offered in different geographic areas, do retailers or others have comments on the feasibility of that kind of variation in the tariff as well?

MR BROWN: I was going to refer to Meng as he's got a further range in his business, but he might like to comment. Once again a huge allowance of complexity that we're going to add to the billing systems into the market and yeah I struggle with this with the first I've heard of that one for customers to get more in the country or more wherever they're located yeah I think once again the differences would be very minute.

MR GOH: I think I'll have to take it on notice. I think traditionally the solar feed-in tariff that we've offered have been done on a state basis, not by distribution areas. I mean if you look at Victoria there's five distribution areas so and three in NSW of course. Look it's too early for me to comment. That's something that I've sort of asked our business to look into because again, it'd be hard to advertise it on a state basis. You've got to do it on a distribution basis if you've got different solar feed-in tariffs in different parts of NSW.

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MR JOGNSON: Hi, it's Ross. I just want to make a comment about the solar feed-in tariffs. I'm a private citizen. I'm concerned that this the feed-n tariffs keep on fluctuating, and it's not consistent. I think if you're going to set a feed-in tariff, it should be consistent and set for say 12 months or 24 months. I think it's quite irregular. I'm not criticising the power companies, but if this is something that can be done as part of this hearing. It just makes bills and as a consumer budgeting a lot more easier.

MS GAMBLE: Yeah that's very interesting, that's really useful. As I said we're quite interested in knowing what makes it easier or more difficult for consumers to make decisions about some about investment. Thank you.

MS LIVINGSTONE: Yeah, thank you Ross. We will move on now to our next presentation from Climate Change Balmain-Rozelle. Again we'll have time for questions after this one, and once we've heard from everybody, there'll be a general q and a session. So if we haven't got to the topic you're most keen on, we will get there eventually. But I'll hand over now to Climate Change Balmain-Rozelle.

MR BOLTON: Hi there, so it's Derek Bolton here, and so you can see on the first slide there, just a brief description of who we are, and we've been commenting on climate change for 15 years now. So next slide please.

So the question posed was is enough information for would-be solar households. Well there are tools for estimating the output, the sunspot I believe is quite a good one, it's supported by several councils. It can work with basic estimates of time of day from the basic build or if you have more information about exactly when you use the power, you can feed in that to get a more accurate result.

But what's missing is connecting that with the actual retail offers, both in terms of power out and power in. So if those offers were in a standardised form on the net, which could be accessed by an app in a fixed way. Then you could develop an app which turns the user data and the sunspot results into actual dollars for that particular retail offer. So my recommendation there is to engage in a discussion with something like sunspot, and to specify the standard layout of information for the retailers to use. Next slide.

Are there barriers to customers installing batteries is the question. Well it's inherently more complex merely in PV. You've got a four-way interaction between the PV, the battery, the grid and the household demand.

The first thing is that there are several different ways of connecting to the grid. You can have as I understand it, the basic one is, if there's a grid outage, then you also lose your battery in PV as a protection to the grid. There's a more expensive one where you have a manual switch over to home power, and the most expensive is uninterrupted power supply where it doesn't automatically switch over. Next slide.

And then there's the optimisation. You need to optimise it you have to anticipate your demand profile. At some point you have the question of, should I use the battery now or use the grid and hold the battery reserve for an upcoming peak-charge period. And optimising that is also good for the grid. Now I believe solutions exist the only one I know aware is Evergen which somebody mentioned earlier.

But the problem is, I really struggle to find any independent information on either these topics about the choices of grid connection and optimising usage. And I think that's a real barrier for potential use of this. That they don't know where to get reliable information and I I'm done.

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MS LIVINGSTONE: Thanks very much Derek. Again I know people have written some comments in the comment box, but I know also some people have had to leave. So I can't necessarily throw to them. Are there any questions or comments of Derek after that presentation?

Doesn't seem so at this stage, which means that we can move straight into the next one and again we'll have opportunity once all the presentations are over for some general questions and answers. But next we have the Central NSW Joint Organisation and I'll hand over to you now. Thank you.

MR PRENDERGAST: Hi my name is Jonathan Prendergast from Komo Energy, a consultant for Central NSW Joint Organisation (JO), formerly called CENTROC, which represent 10 councils in the central west of New South Wales including the likes of Bathurst and Orange and Parkes and so on and a water authority, and they provide sort of a joint effort on procurement leadership, sustainability and so on so, next slide.

So in terms of the current landscape central JO supports policy that enables its members and communities to adopt new technology to lower costs to themselves and the broader region. Central NSW has access to some of the lowest electricity in the world in the form of new technologies like wind and solar. However due to the energy system and market structure it pays some of the highest rates for electricity in the world.

In NSW coal fire generation is closing in the next 15 years. The value of solar and storage should be on the basis of medium and long-term horizon, not just the price today. Transparency and medium-term outlook is key. Sorry about reading all those words I promise to go to diagrams next.

Firstly, in terms of the process, the IPART review generally happens in this part of the financial year, leading up to a final report in June. Everyone's retail tariffs change on the first of July that's because Ausgrid, Endeavour and Essential release their new rates around mid-May. So all the retailers update their tariffs and update their customers and so on and release them in marketing packs and so on.

So if I'm sitting here today and thinking what's my solar tariff going to be on the first of July, I could ask my retailer, but they don't know because IPART haven't released their review and final report yet or Ausgrid, Essential or Endeavour haven't released their updated network prices.

So it means our current outlook for assessing the viability of solar based on electricity costs and feed-in tariffs, we really have very little data for first of July and onwards. And obviously solar is a 10, 20, 30 year investment, so it would be beneficial for investment in solar to have a more medium term outlook. Next slide please.

And in terms of that we're not just in this static field where the energy market stays as it is and solar is just a cherry on top. It is a dynamic market and we will see the capacity of NSW coal-fired generation go from 11 gigawatts today, to two and a half gigawatts by 2030, what is that, by 2034 when Bayswater closed. Assuming they close at the end of their 50-year lifespan.

So whilst the energy market goes from periods of high prices and high investment to low prices and low investment, creating this kind of boom and bust cycle. It would be beneficial if solar feed-in tariffs had a more moderate and medium term outlook and did modelling around well what happens when Liddell closes. Will prices go up and should feed-in tariffs go up then, or should they sort of pick a middle ground, a middle pathway through those upcoming closures of coal power stations. Next slide.

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So for businesses and households, they can't contract PPA's like solar farms and wind farms can. They can't contract long-term feed-in tariffs. So IPART can have a role in providing that more medium-term certainty for solar investment.

In terms of optimal sizing. Often people will in a business situation, five day a week business, schools, homes will say well the feeding tariff might be zero in a couple of years. So in my spreadsheet, I'll just put the feasibility in my feasibility spreadsheet, I'll put the value of the feed-in at zero, because there's so much uncertainty. And that means that they size the solar system to minimise exports, and probably put in undersized systems, generally speaking.

If there was that more medium certainty and they could put in five, seven, ten cents as a feed-in tariff, they're likely to put in more optimal size solar systems. Meaning they can meet more of their demand on a cloudier day or on a higher demand day.

And finally on this slide. There needs to be work done about how we use our solar. So one thing is getting solar, but the other one is ensuring you're on the optimal retail plan. That changes every year, so using sites like Energy Made Easy or whatever is recommended. And also how to use the solar, so shifting your hot water, dishwasher, EV charging during solar hours. And because it's so complex, it's likely to be more adopted by energy nerds like myself, and that might only be five, ten percent of the market. So maybe a broader education campaign not moving to complexity, but general rules about when to use power and that can be reflected by feed-in tariffs as well.

Next slide, in terms of choosing the optimal feed in tariffs, we can't presume all customers are the same. There's more engaged customers like us on this call, energy nerds that have logged in and other climate and other interested people. So clever variable feed-in tariffs may not be practical for retailers and only useful for five percent of electricity customers. So important to be investing education. And sure, have lower feed-in tariffs say 10 am till 2 pm and higher those other hours, but not too clever like the Victorian feed-in tariff a couple of years which had about 10 different feed-in tariffs. So while it's appealing, it may not affect many customers and retailers may be reluctant to provide it in any case.

I worked on a project setting up a solar garden and speaking to various retailers about providing the on bill credits for customers that invest in a plot. And one of them mentioned a cost of software cost of around \$50,000 just to set up that new tariff. So you can imagine variable feed-in tariffs have those downstream effects that sounds good here, but then you've got to set up software billing practices. And then you get customer complaints who thought they were on this feed-in tariff, not that one and so on. Next slide.

That might be my final one, finally on batteries. I'll go to the picture because your eyes might be drawn there but that's my house. Reposit also have virtual power plant with Ausgrid like Evergen and Shinehub and here is my battery. So you can see on the top slide, imports and exports imported towards the afternoon and exported in the evening. My next graph is my household usage. I try and use as much of my EV charging hot water in the middle of the day. Third graph is the solar generation for that day and the fourth graph is the battery state of charge.

What you can see at the end of the day is the battery fully discharged into the grid and that's why I had exports in the evening. And that was Ausgrid directing on this peak demand day for our battery to be used to support the grid. So solar is subsidised, batteries are not. The full value of batteries are not appreciated commercially, and we are at a point now where renewables alone is not enough.

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We need it to be coupled with investment in storage due to reducing wholesale pricing, which is starting to hold back investment in renewables and other local and system level challenges like voltage problems, system security and so on. So we need more storage. We need it to be incentivised and to be fully valued and you can see with that example of my home battery supporting the grid, the huge potential that batteries have in lowering cost to all and providing more reliable power. Thank you.

MS LIVINGSTONE: Thanks very much Jonathan. And I might hand straight to Sandra Gamble, who has a question for both Derek and yourself. Sandra over to you. We can't hear you Sandra.

MS GAMBLE: The Energy Consumers Australia did a study a year or two ago that showed that consumers were ready, willing and able to engage with electricity markets, as long as it was easy for them to do so. And I guess easy means different things for different people. Jonathan and Derek and me, I'm a retired engineer too.

I think easy for us is different too easy for many other people. Can you tell me a little bit about how that gap is being filled with service providers that are providing apps or whatever to make the link between the retailer's offerings, the opportunities that that provides perhaps. You know the complexities of that even as they stand now and actually having a situation where the consumer experience is something that is suitable for consumers. Is there a gap, is there anything filling it at the moment or is this still an issue? Maybe I can ask Derek you first.

MR BOLTON: I'm sorry, I'm not quite sure what question you're asking me.

MS GAMBLE: I'm saying, is there a gap given, that we're the energy nerds, you and me, and Jonathan, and for us the making it simple is different to say a single parent who's time poor and perhaps resource poor. Their ability to understand and engage is very different. They just don't have the time to even spend they're being educated, or the inclination is there. Is there anything emerging in the market that's actually helping them do that, making it easy, putting it into their terms, you know rather than them having to understand tariffs and time of use and all that sort of thing. Is there something?

MR BOLTON: I'm not aware of what's happening in the market, but I do have a revolutionary suggestion. I don't see why any customer should have to choose a plan in advance. Why isn't the plan chosen at billing time, according to what the customer needs and picks the lowest of the bands, those costs and the same could apply to feed-in.

MS GAMBLE: All ideas are a great idea so let's think about that. Thanks Derek.

MR BOLTON: Thank you. To me the way it works now exploits the customers who are not good at choosing the best plans.

MS GAMBLE: Interesting point, thanks Derek. And what about you Jonathan how do you feel about that engagement gap?

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MR PRENDERGAST: Certainly I've got my consulting hat on for Central Joint Organisation, but I also am a volunteer and co-founder of Sunny Shire Community Energy Group in the Sutherland Shire. So we help a lot of people in this regard. Certainly the phone apps that retailers are doing, where you can log in more regularly and pay more easily, and also see your daily demands, and so on they're very beneficial. And also when people get solar when they choose to get consumption monitoring, which can be an extra five or six hundred dollars.

Solar Edge has probably the best platform. But the others like Fronia, Solar Analytics and Sungrow also have it an end phase and just the ability to see. I turned the kettle on then and it only went up for a little bit, but then when I had the dishwasher it was two spikes just starting to get that granularity is really educational.

And generally the key engagement, I would say for the majority of people with the energy market is they get a bill every three months. They hate it for a day, the next day they pay it and move on with their lives. And it's kind of like being in a job, where you don't know what your salary is and you open your pay check every three months and you're surprised whether it's high or low. So that sort of three monthly billing, which is a hangover from the old state government-owned days, where they just made the energy system work and sent you the bill.

The fact that it happens every three months and it's a complete surprise to some people is kind of the downside of how many people engage with the market. Rather than more informed, engaged and active energy users like ourselves, that can look daily about when we're using energy and how much and there's no surprise that's a bill.

So community energy groups are playing a role in being that filter from this wild energy world of retailers and different subsidies and Facebook ads and so on into what actually can save money and help people manage their bills. So I'd say that it's those apps coming with solar and retailers and local community groups are probably the best things, sort of helping people understand energy more.

MS GAMBLE: Thanks Jonathan very much. Back to you Liz.

MS LIVINGSTONE: We've got one more presentation, if there are no more questions for Jonathan right now. I'm just checking the chat and it doesn't look like there are, but I'd like to invite now the Public Interest Advocacy Centre to give their presentation. So I'll hand over to you PIAC, and then we'll have questions after this presentation, both specific to PIAC's presentation, but also a general q and a to cover any issues we haven't so far thank you PIAC.

MR EDIRIWEERA: Thank you Liz and thank you for IPART for having us here. So I'm Miyuru Ediriweera from the Energy and Water policy team at the Public Interest Advocacy Centre (PIAC). So we're a consumer advocate for New South Wales households in electricity, gas and water matters.

So in terms of feed-in tariffs, we're very focused on developing and maintaining a framework for feed-in tariffs that is both fair for individuals, and helps deliver an efficient energy system overall. So to do this we're really looking at ensuring that IPART's feed-in tariff benchmarks reflect the true value of exports into the grid. We want to make sure that those benchmarks are actually reflected in the retail tariffs or the retail plans rather that customers are on and we also want to make sure that those plans are clearly understandable, to help people make informed decisions. As we've just been discussing before.

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So these decisions could be about just which retail offer is best for them. Could also be about how to make the most of their existing solar and battery systems with their usage and use patterns, and also to the decision of whether or not to invest in a new solar or battery system and if so how to size it and how to actually set it up to make it work best for that particular household. And the question of investment decisions in particular is a real priority for us especially for batteries, because the interest and the potential from batteries from home batteries is really huge and is growing. So households that install solar or batteries can quite rightly expect a degree of certainty of how that system will work for them, and the value that they've received back.

I mean as someone else mentioned it's probably sort of a 10 maybe 20-year investment that these households are getting into. So it's important to get the signals right now, so that we can avoid the need for significant changes or revisions to those signals and feed-in tariffs and others down the track. Which really erode the certainty in the use case. We feel it's important to provide more of a medium-term stability and certainty through these signals, rather than the year-on-year fluctuations.

One option to do that could be limiting the feed-in tariff changes from one year to another like is currently done with the network tariffs. Another as someone else mentioned earlier, was to take more of a medium-term outlook in the forecasts and the predictions when IPART sets those tariff benchmarks in the first place.

However despite the interest and the potential of battery uptake. There are a number of barriers to households making good, informed efficient decisions of whether or not to install them. So the lack of smart metering and access to actual usage data, continues to be an issue.

Retail offers are still often very complex regardless of whether or not you're looking at solar or batteries. So it's difficult for people to determine the trade-offs of one retailer versus another or even different plans with the same retailer. So for instance the trade-off between the feed-in tariff, that they could earn for exporting to the grid, versus the charges that they have to pay for consuming, which of the balance of those is actually the best for that household is not a simple one or a lot of households to actually determine.

Another barrier is being unable to readily access some of the range of potential value streams from batteries. So for example, providing demand response with your battery may require changing retailers and many retailers may not offer demand response products to households at all. The wholesale demand response rule change can allow this to happen more easily, but it'll be a while off before that's open to households.

In terms of IPARTs sort of feed-in tariffs, we also support IPART looking at the diversity of feed-in tariffs between different DNSP's distributor jurisdictions. But also considering whether climatic regions across New South Wales should also be considered. I mean for instance, the general sort of difference in weather and climate between for instance Port Macquarie and Broken Hill, which are both within Essential's region, could probably have a much bigger difference on the general kind of solar generation and the self-consumption of the household than between say Ausgrid and Endeavour's network.

We also support the use of time-varying feed-in tariffs to signal and reflect the fact that the export, the value of the export to the system and to the retailer would change across the day and it can actually incentivise differences in behaviour, sort of how a battery is set up to export or self-consume, but also things like facing rooftop PV panels west rather than north to better align with evening or afternoon peaks.

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So in conclusion, I'd like to stress the need for strong and continuing regulatory oversight to guide and monitor markets, so that they can continue to work. This is essential for not just for protecting consumer outcomes, but also for encouraging a fair and functioning market that businesses are willing and encouraged to enter and innovate in. Therefore we'd like to reiterate our support for the work that IPART does in setting the feed-in tariff benchmarks and the retail monitoring work in general. Thank you.

MS LIVINGSTONE: Thanks very much Miyuru. And I think some of the things you've said has sparked a question from Deb, which I'll go to her to talk to you now about the role of IPART's benchmarks.

MS COPE: Thank you very much that was really useful. And this question is probably to a number of people who have mentioned the issue around getting longer term certainty and it raises a question in my mind about what role do people want the benchmark to play because historically, it's been about providing information around what you might pay at the moment for solar feed-in tariff. But an alternative view of the benchmark could be to set up the price that tells you in the long term where the market might be going and actually providing investment information about the long term potential tariffs rather than what today's tariff might look like. Do people have a view about which of those is likely to be of most benefit?

MR EDIRIWEERA: I could probably go first. I think sort of the medium-term investment kind of signal, is probably a stronger need. Certainly in the current market, where we are expecting a lot more household batteries to be installed and set up. I think that sort of investment time frame, a signal for that would be most useful for a lot of households, but also to be able to set those signals now so to kind of incentivise the investment that actually helps the rest of the system as well in terms of the network and wholesale outcomes as well.

MR PRENDERGAST: I would agree that the second one is very important if someone is considering hook up solar today and it's likely that feed-in tariffs will go down in the future. It's important that they know that and go in eyes wide open rather than thinking they can get the 20 cent sort of feed-in tariff some of those super ones for the next 10 years, because they could make the wrong decision.

And when I hear from community members and others online about their plans, they who acknowledge feed-in tariffs will go down, they're already making plans, investigation research into things like hot water shifting, switching from say gas to electric hot water or heat pump. They're investigating battery storage, they're investigating electric vehicles, so when feed-in tariffs do go down, they can make those sorts of decisions to invest in those new technologies, to adjust their demand to stay optimal in terms of energy cost reduction.

MS LIVINGSTONE: Thank you. Susan Taylor's with us from Amber Electrics and would like to talk about the models that they have for time of use tariffs. Susan do you want to talk about that?

MS TAYLOR: Yes thanks Liz. There was quite a bit of discussion about this quite a number of minutes ago, but I wasn't able to speak at that time, so thanks for the opportunity. Amber Electric is a retailer which charges its customers the wholesale electricity price, whether they're consuming or exporting. We have a lot of customers in Victoria and of course all Victorians with very few exceptions now have a smart meter, which does monitor a range of different flows of power. And in Victoria that means that the Amber Model is most effective and readily able to manage customer's consumption and exports.

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We found the ESC set minimum feed-in tariff really problematic. It's way above the wholesale price and is really sabotaging the Amber business model quite considerably and we intend to make a submission to IPART. But essentially some of the components of what we are going to say is that in setting a minimum feed-in tariff, which is mandatory I think, there are a number of elements to be taken into consideration.

One is that it doesn't, in the ESC took into account the carbon cost but didn't appreciate the fact that the owners of solar installations receive the benefit of small generation renewable energy certificates. So there's almost a double counting for that.

Secondly what every retailer is doing in Victoria is essentially creating a subsidy that all Victorian energy consumers are paying to pay for the minimum feed-in tariff that they're required to pay for these customers. And I think I can only say that we all agree everyone should try and do what we can to incentivise solar installations for consumers, but there's a vast majority of customers in every state of Australia that will never be able to afford, even the most generous subsidies that are offered by governments to put solar panels on their roofs, and they're the ones who are going to be paying for the solar feed in tariff it's if it's set above the cost to retailers.

And apart from all the engineering considerations which I know nothing about and I'll freely admit that, there are a lot of economic considerations which I don't think have been taken into consideration as much as they should. And that is sending the right signals for the cost of exporting solar. The benefits to the distribution companies and the transmission companies which now don't have to invest in a lot more infrastructure. I think all those components need to be taken into account in setting the minimum feed-in tariff. Thanks Liz.

MS LIVINGSTONE: Thanks Susan and just to clarify our role is to set a benchmark tariff. It's not a mandatory minimum tariff. Retailers will be free to set their tariffs as they see fit.

MS TAYLOR: But so in Victoria it is mandatory just to provide that context.

MS GAMBLE: And at least can I just say too I guess and this is relevant to the second session so what we're interested in is how we set the benchmark. So what we're finding is that there's contemporaneous issues with short-term versus longer-term, location, different times of the day, so this is this is probably where our conversation about time of use and other things is really interesting is.

You know, do we set a benchmark for nine o'clock and every Tuesday or do we set a benchmark for all Tuesdays or do we set a benchmark for all week. You know that's the sort of conversation that we're going to have in the second session. And the question is really what is the most useful for anybody, in making the decisions they need to either invest, or to choose the right retail tariffs, that that we can provide. Just wanted to confirm that we don't have the power to set this minimum charge, even if we wanted to. It's not what we've been asked to do, so I put your mind to rest a bit on that one.

MR PRENDERGAST: And can I add to Susan's comments and I'm a happy Amber customer and moderate our EV charging and demand depending on the variable market price. Again it's probably more appealing to the five, ten percent of us than everyone, but who knows what will happen in the future and how well Amber will go at turning this complex energy market into something all customers can understand.

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But there's an overarching kind of trend where if I was representing centroc say three years ago, I would have been advocating high feed-in tariffs that's a priority, but a lot has changed in that three years. There has been an influx of solar and now Australians I think have to move from being champion solar generators at home and in the regions, to champion solar users. We have to get good at using all that solar power to reduce costs on the grid, local voltage issues, system security because in the future supplying overnight power will be a greater expense than daytime power. So feed-in tariffs and demand tariffs will need to adjust over time to encourage that daytime usage and turn us into champion solar users, not just generators of solar.

MS LIVINGSTONE: Thanks very much Jonathan. Now I do have a bit of a cue of questions and people with their hands up and I'm conscious of that and we will get to you. Mike Smart, you've got a question that I'd like to invite you to ask.

MR SMART: Yeah thanks Liz. So just following on from something that Miruyu from PIAC noted the role of the benchmark tariff is a possible medium-term investment signal. Now given also that batteries or you know investment in batteries is an important strategic part of this whole situation, would it be more helpful if the benchmark tariff was time of day dependent, if we're trying to set a signal for battery investments?

MR EDIRIWEERA: Was that a question for me Mike?

MR SMART: well for everybody, but if you've got an answer I'd like to hear it.

MR EDIRIWEERA: So the question was would the time-varying benchmark also help with sending an investment signal in addition to being a medium term outlook, or separate to being a medium-term outlook?

MR SMART: Well I guess just focusing on this investment question and you know the need to incentivise intelligent battery investments

MR PRENDERGAST: I think that the cost of home battery storage is around 30 cents per kilowatt hour, if cycled say daily at a 50% to 80% utilisation. So if daytime solar feeding tariffs were 5 cents and evening solar feeding tariffs with 10 cents, that's unlikely to move the needle on battery investment. It would have to be 35-40 cents to really make an impact. So customers are still more likely to get a payback from battery storage, based on reducing their demand, their 30 cents in the evening or even 50 cents in the evening, than they are to feed into the grid using their battery. And obviously with virtual power plants like my repository I get paid a dollar per kilowatt hour so 100 cents per kilowatt hour at those key moments so it's probably more likely to be that combo of VPP, you know extreme events and also reducing demand, than say a moderate increase in feed-in tariff in the evenings.

MS LIVINGSTONE: Thank you for that Jonathan. Derek you've had your hand up for a while, I'll throw to you now thank you.

MR BOLTON: Okay thanks. I'm aware that there are third parties who will sort of install solar or batteries or whatever and sit between you and the retailer effectively. I don't know much about them, but I wonder if they have a role in reducing the complexity for the householder.

MS GAMBLE: Yeah that's a good question. We'll have a look at that Derek.

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MS LIVINGSTONE: And Lawrence, you've also got your hand up. Would you like to speak now?

MR IRIAM: Thank you. Yeah look I've got a few observations. I think it would be great if IPART could put out you know, time of day varying forecasts of wholesale prices, so customers can make investments on the back of it. I do wonder whether IPART would sort of back itself quite heavily on that like that's you know a challenge anyone investing in generation sort of faces those risks and challenges.

But I think it's it is quite important for customers to be aware of the direction of where FIT's are heading. My main point around this is that I think you know obviously spot prices are coming down it's a falling market. You've got more renewables coming in. I think Jonathan put up the chart there of coal coming up but realistically you've got so much solar coming in at the same time, in the middle of the day, you know feed-in tariffs just based on solar will be will be coming down quite a lot.

So I think there needs to be a broader campaign to raise customer awareness about that and the reasons for that, you know those close to the ESC's recent determination. If you look through the submissions there, and even our own customers coming through, the call centre there's a lot of negative reaction around that and customer awareness, you know, we're all sort of part of the energy elite, if you like, so we know what's going on.

But you know customers are out there being encouraged by governments to chuck on solar and you know it's got green credentials and it's been promoted as a way to reduce bills. But you know when feed-in tariffs keep coming down, it's just a slow moving train wreck from our perspective, and you know it's not the problem of IPART, it's not the problem of the ESC you know all of us have a role to inform customers there. So there needs to be some sort of coordination I think to address that issue.

The comments around complexity are interesting you know we've been out there with a trial product which is now closed to new customers, but essentially it involves customers with solar panels signing up to us for a seven year deal and we come in and we install a battery on their premises, and we manage use for them, and in return we sort of fix the price that the customer pays in terms of a simple you know anytime tariff. But in order to do that calculation, you sort of need that information on what long run or medium term sort of spot prices are if you like to for the customer to be fully aware of that and again that's kind of the sort of gap in the market at the moment in terms of what customers know, so they're the sort of main comments I've got at the moment.

MS LIVINGSTONE: Thanks very much Lawrence. Conscious of the time and that we need to move on to our second part of the hearing technical session, but are there any questions we haven't covered that people do want to get in before we move on to that next session.

MS GAMBLE: Can I just jump in really quickly and also point out that the solar feed-in tariff that we've been asked to benchmark, doesn't take into account things like carbon costs like I think the ESC and Victoria did. That's done in another way in New South Wales so there's a number of programs such as the small scale renewable energy scheme that subsidises the installation of solar panels in the first place, and there's also the renewable energy target, the climate change fund and the energy savings scheme. So they're programs that are funded through the through levies that are placed on retailers and that they're passed through in the in the consumption tariff. So they're already taking into account so ours is solely to work out the value of the wholesale energy that's exported from solar customers, it's just for a clarification.

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### 1.3 Session 2: Technical Session

MS LIVINGSTONE: Thanks Sandra. It looks like we're right to move on to our next session now. That was really valuable discussion so thank you for all your contributions and thank you especially our presenters: Peter, Derek, Jonathan, Miruyu. That was terrific to get us started. We'll now move on to focusing on some of the more technical matters about how we calculate the value of solar exports. You've probably had the chance to read our paper, but just to make sure everyone's on the same page, we'll give a short presentation on some of the key issues we're seeking feedback on before we open up for discussion again. I'm going to hand over to Chris Ihm, one of our Secretariat staff to take us through that presentation. Thanks Chris. You're on mute Chris.

MR IHM: Thanks Liz. As Liz was saying we have a few slides here to highlight some of the key methodology issues we are seeking feedback on and some aspects of these have been already discussed in the first session so I'll try and keep it brief. Before I get into the issues I'll provide a brief overview of how we have been calculating our benchmarks.

So the way we have been approaching this I think what would retailers pay if they to purchase the equivalent solar electricity from the national electricity market. So what retailers would otherwise pay, is what we think is a reasonable price for solar exports and is what customers could expect to receive from their retailer.

The main component of our benchmarks is the wholesale cost of electricity and that currently represents about 95 percent of our final values. The remaining five percent are adjustments that we make to reflect whether solar exports occur when spot prices are higher or lower than average. The avoided NEM fees and charges, because the solar exports are not purchased from the NEM and the avoided transmission and distribution losses because solar exports occur closer to whether electricity is used by other customers. Less is lost as it is transported, so this cost that retailers avoid is provided to solar customers.

The first key item we are seeking feedback on is how should we value the wholesale cost of electricity. So the way we have been approaching it in our previous reviews is to forecast what the average wholesale spot price might be over the coming financial year. Now the idea behind this approach is that the value of solar exports to retailers should be the market value of electricity when the solar export occurs. So we use information on electricity futures contracts from the ASX to estimate what wholesale spot prices will be on average over the coming 12 months. We take a fairly short average of these contracts a 40-day average for the most up-to-date information in the market and then we also make a downward adjustment of five percent to reflect that these contracts trade at a premium relative to what the spot price is expected to be.

An alternative approach could be to consider the cost that retailers pay to avoid wholesale spot price risk. So here the value of solar exports to retailers will be the hedging contract costs that they avoid by forecasting that a certain portion of the electricity purchases will be from solar exports.

Under this alternative approach we could take a longer average of futures contracts say a 12 month average rather than a 40 day average to reflect that retailers may purchase their electricity in advance and over a period of time and hence these contract costs are what they're avoiding by purchasing solar exports instead. And that would provide a more stable benchmark that is something that the retailers and consumers have discussed in the first session.

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Or alternatively given that we have been asked to set a benchmark range we could use these two approaches to set each end of the range and this would reflect that retailers may have different approaches to setting prices, either based on the market price of electricity or on the cost that they actually incurred.

The next substantive item is our approach to calculating the solar multiplier. And we like feedback on our thoughts to simplify this part of the calculation. So the solar multiplier reflects whether solar electricity is exported during times when wholesale spot prices are relatively higher or lower than average. Mathematically it's taking a weighted average of spot prices using solar exports as the weights, and then dividing this by a simple average of all the spot prices.

So a solar multiplier less than one means that more solar exports occur when spot prices are lower than average wholesale spot price vice versa. Our previous approach was to take the solar export information that we request from the distributors and also the spot prices from AEMO and run a simulation to create 5,000 synthetic years and from that we would create a distribution of solar multipliers and then select the median value as our best estimate. Now to run these simulations and then check over it it's quite a complex and costly process.

An alternative approach we're considering is to just calculate a single solar multiplier across the solar export in spot price data. Under this alternative approach we will be calculating an average solar multiplier or a mean value, rather than the median value of all the simulations. And what we've found is the results are almost identical for the all-day tariff.

So for this current financial year, if we had used a simpler approach we would have calculated a value of 0.96 compared to 0.97 and the all-day benchmark range would have been 5.9 cents to 7.2 cents, instead of 67.3 cents. Now we are in the process of doing the same comparison for the time dependent benchmarks as well, and our preliminary analysis is that there's slightly more variation between a mean value versus a median value, when you're looking at smaller time blocks compared to an all-day rate. But we're planning to release an information paper by cob tomorrow, so we'll be able to provide you with more details and specific numbers.

Also when it comes to solar multiplier we are also seeking views on how many years of historical data it will be appropriate for us to use. So far we have been using the most recent three years' worth. And this time around we are also proposing to use export data from all three distributors rather than from Ausgrid only. Since the last review, we've been collecting this information from the other two networks as well, so we're also interested to see how the results will turn out and how the multipliers for each network compare to one another.

The last substantive item is about setting time dependent benchmarks which was discussed early in the first session. With the exception of one retailer that is offering a real-time tariff, Amber Electric who we heard from earlier, we haven't come across any other retailers offering time-dependent feed-in tariffs. And this table here shows the time periods where kind of benchmark tariffs and their rates. They're set up based on when most of the price variation occurs, and that's mainly in the afternoon and the evening, so we've set hourly time blocks there.

Now we could set these terms based on time of use consumption bands, we had to think about that but the issue is those bands do differ between each network and whether that would create confusion for consumers, so we are seeking comment on what retailers and customers would find most helpful. Back over to you now Liz.

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MS LIVINGSTONE: Thanks very much Chris. So we have moved into slightly more technical discussion now about how we actually do these calculations and I'd like to open it up to anybody who might have questions of us, on clarifying some of what Chris has just talked through, or suggestions or feedback on some of those proposals he talked to simplify things, a bit in terms of doing the actual calculations, does anyone want to kick us off with a question or comment on that? Derek, you're waving.

MR BOLTON: Yeah, I have a concern over the period of data used in this last three years business. That's quite long with regard to rooftop solar because things change rather fast. But it's too short when you consider weather variations from year to year and I strongly suspect that what you really need to do is two separate correlations, one is to take more like a 10 year period and establish the correlation between weather and prices. And you could even distinguish between ENSO stages so you have a La Niña area or El Niño area, and something in between, and then over a much shorter period establish the relationship between weather and solar and prices. And then you could use the combination of these two to get a much more accurate picture of what's going to happen in the year ahead particularly because the Bureau of Meteorology will be able to give you a forecast of the type of weather to be expected.

MS LIVINGSTONE: Thanks Derek that's a good observation. Any other thoughts or reflections on how we approach calculating the benchmark tariffs?

MR PRENDERGAST: I guess just restating my earlier comments that it's good to have that median term view what would wholesale prices be doing, if we didn't have all this rooftop sold at the moment, particularly over the past three years during that sort of high gas price low supply squeeze that saw prices go very high and what's likely to happen with Liddell closing and others do we have enough capacity to replace that and that rooftop solar plays a role in meeting that capacity particularly on hot afternoons.

MS LIVINGSTONE: Thanks Jonathan.

MR EDIRIWEERA: Just a question on the kind of, the simplified approach to the solar multiplier. It will be really interesting to see the impact it has on the time variant feed-in tariff, but also I think that the general question or the reaction that I have is that an approach that is more transparent and replicable is definitely better, but it shouldn't get in the way of having more accurate, more robust results. So really the question that I'd be asking, is what sort of variations or things with the simpler method be more sensitive, to than say the Monte Carlo method, bearing in mind that no kind of modelling thing is perfect, and they'll always have sensitivities to different kind of fluctuations and just how that new approach actually responds to it or which one which kind of things it might pick up.

MS LIVINGSTONE: Does the team have comments on that?

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MS ROBINSON: Hi, so we are releasing a paper on this tomorrow, but one of the big impacts is that the average price across the year is one of the biggest impacts is those extreme pricing events that get captured in that average price. And what we've seen is some of those, when we do the simulations, there's less of those that get picked up through the five thousand synthetic years. And because we're taking a median case, it's possible that less of those prices get factored into that medium case and so in our preliminary work, we've seen slightly lower solar multiplier emerge from the Monte Carlo simulations, compared to just doing an average across the day. And so it comes out at about a cent either side of what we've seen, so if we have a benchmark tariff of nine cents, it might under our alternative method be 10 cents instead. So that's the kind of impact we're looking at but that's just in the time varying tariffs, and we're not seeing that in the tariffs across the day.

MS LIVINGSTONE: Thanks Jess. Any other thoughts or comments on the calculation approach? No it's not surprising the more technical the topics get, the less questions is reasonably difficult, but are there other things that we haven't covered yet today that you do want to ask about or have a point on?

MS GAMBLE: Sorry Jonathan you go first.

MR PRENDERGAST: Thank you but to concur with the commenter before Jenny from Central JO refer to it as the pub test, where it's good to have a very complex model but if prices do go down you're at the pub or at a Sunday barbecue, it's better if the solar user has an understanding of why and they can explain that to a friend. So having something that it can have complexity behind it, having something that's simply presented and explainable would be beneficial.

MS LIVINGSTONE: Okay great point.

MS GAMBLE: I was just going to ask the retailers, the Secretariat, this is my first solar benchmarking process, but I've been here several times before, and one of the issues that's come up in the past is that we should take account of the retailers trading strategies as well because it's not just the spot price that influences the value to retailers. It may be also their contracting position, we expected somebody to raise that but since it hasn't been raised, I thought I would raise it and see if anybody wanted to talk about that.

MR PRENDERGAST: It's interesting because hardly anyone actually pays the wholesale price do they, or sells at the wholesale price, it's all secondary markets, PPA's, caps and all those things. So the wholesale price isn't really a price for cost like when you're buying goods at the shop, it's actually a tool it's actually a tool to dispatch the right generation at the right time, and also to send long-term investment signals to the market as well.

MS GAMBLE: There is a bit of a feedback loop that was in there though based on the contracts that supplement people are feeding in, so they're not they do have two sort of links to them, and so you know, I guess from our point of view, it would be difficult to take into account, you know any particular trading strategy, given that they're all a little bit different, but I'm interested for the retailers whether they want to ask about that.

MR IRIAM: Yeah Sandra, just from my perspective not an official EA, but you know regulators all over the place sort of cut through this issue by just sort of assuming a sort of standard trading strategy, you know whether it's sort of a 24-month book build or something like that, you know there are consultants out there who develop you up something pretty quick. I'd say if you're mind to go down that path.

MS GAMBLE: Thank you

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MS LIVINGSTONE: Derek, you've got a question there.

MR BOLTON: Yeah just a rather radical suggestion again. I wonder whether if what IPART recommended for the time of day tariffs was simply an algorithm, that that computed it from what retailer charges for power drawn from the grid of different times a day.

MS GAMBLE: So you're suggesting a more dynamic model?

MR BOLTON: Well simply the suggestion would be that the retailer calculates according to this IPART provided algorithm from what they're charging a particular time of day to compute a feed-in tariff for that time of day. So you sort of you know discount the poles and wires costs and so on whatever the appropriate thing to do

MS GAMBLE: Okay so we could we could adopt like theoretically, I'm not sure practically, and I haven't conferred with staff on this that you know the benchmark itself could be something that had some dynamism to it. Sadly we don't have the power to determine how retailers price their feed-in tariffs they get to do that themselves.

MR BOLTON: No it wouldn't be dictating to them, just I mean after you're amazing advising numbers anyway, I was just thinking advising fire an algorithm.

MS GAMBLE: Yeah I love your left field ideas, so great thank you.

MS GAMBLE: Okay Liz I think you've got the floor now.

MS LIVINGSTONE: I'm looking to see if we do have any more questions. I can't see any but this is your last chance to pipe up if you do have something you want to raise. Doesn't look like it so Sandra, I will actually hand back to you to close our session today.

## **1.4 Closing remarks**

MS GAMBLE: Thank you. So I wanted to thank you all for your very valuable contributions. Thank you it's been really good. I've actually really enjoyed it, I hope you have too. It's nice to feel as though people are having to say that they need to say, and we found what you said to be very interesting.

So now what will happen is that we will note all of the things that have come through this forum, we will collect all of the written submissions that we received by the 15th of March and then we will consider those and write it up in our Draft Report. So that will happen over the next couple of months and we look forward to then issuing you that Draft Report and seeking further comment from you on the Draft Report.

So if you'd like to talk to anybody about the review you're welcome to contact one of our team members and their contact details are on our website or on the inside front cover of our Issues Paper. So I hope you've got some value out of today as well and I thank you again and we'll see you next time. Thanks everyone.