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Submissions

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SUBMISSION ON ENABLING MASS PARTICIPATION IN THE ELECTRICITY MARKET

Introduction

- 1 Orion New Zealand Limited (**Orion**) welcomes the opportunity to comment on the “Enabling mass participation in the electricity market – How can we promote innovation and participation?” consultation paper (the **paper**) released by the Electricity Authority (Authority) in May 2017.
- 2 In summary:
 - We agree change is coming, although with considerable uncertainty as to what, when and how much. Our current view is that, even on quite extreme scenarios, significant grid defection is unlikely.
 - We consider that the great prize for New Zealand from these changes is the decarbonisation opportunity offered by charging electric vehicles from, largely, renewable resources.
 - The impact of these changes and associated technologies raises many complex issues. We suggest that consideration of these merits a different approach to the traditional ‘propose and respond’ consultation model. For example, workshops, perhaps joint with the Commerce Commission and MBIE, might work better. Another possibility is that the new Authority working groups be given these topics to flesh out.
 - We agree it is useful to review, from the perspective of developing technologies, the regulatory settings as represented in the Code and the wider regulation of the sector. However, it appears to us that the Authority is taking a narrow approach.
 - We believe that, at least initially, progress will be best made by considering international developments and thinking, and using a collaborative model to apply that thinking to the New Zealand context. We might not yet know what the future holds, but a range of possible futures can be modelled and their implications considered. It is reasonably easy to monitor uptake of many of the technologies, so we can keep track of which future is actually playing out, and, if necessary, adjust regulatory settings accordingly.

- We note that many of the areas discussed in the paper are subject to regulation that is not the responsibility of the Authority. A cross-regulator approach would be more useful.
- We are not convinced that participation and innovation needs to be ‘promoted’. Consumers will decide when and how they participate, and what innovations make sense for them. Rather, inefficient barriers, if any, need to be identified and reconsidered. The paper does not do this, although it does encourage the reader to take the view that there are barriers inherent in distribution.
- We believe the paper does not give sufficient consideration to the very significant, indeed “mass”, consumer participation that currently occurs. In doing so the paper both positions the status quo incorrectly and potentially overstates the value available from further participation.
- We are somewhat puzzled by the neutral stance the paper takes to generation from PV when the Authority’s approach to this in the context of distribution pricing is that it is currently over-incentivised, and distributors need to do something about that – specifically, move to pricing that is less consumption-based.¹ One of the keys to effective regulation is consideration of all elements and their inter-relationships. A consistent approach by regulators is critical. If PV is central to mass participation, and mass participation is good, then the current pricing may actually be good, from a New Zealand perspective. We need to know lest we change in the wrong direction.
- We recommend that the Authority focus more on how regulatory arrangements can best support coordination of more diverse and dispersed resources. The existing participation works because it is coordinated. We believe this will continue to be true in the future.

3 The remainder of our submission is in three parts:

- Some context on current regulation, participation and use of third parties,
- Comments on the paper, and
- Responses to some but not all of the specific questions in the paper (as an appendix).

4 The Electricity Networks Association (ENA) has also commented on the paper. We endorse the ENA submission.

Context

5 New technologies, particularly those seeing significant reductions in cost, are changing the way electricity is produced and used. Generically, these technologies are often referred to as distributed energy resources (DERs).

¹ See for example the Authority’s 2 November 2015 consultation paper: “Implications of evolving technologies for pricing of distribution services.”

- 6 The development of DERs is causing existing players (consumers, generators, distributors, transmission owners, retailers, metering providers, regulators) to reconsider their approaches and business models, while new players are eyeing and developing opportunities.
- 7 There is a growing body of literature on the implications of DERs, and how these may best be accommodated. One example we find particularly helpful is a recent publication by Energy Networks Australia.²
- 8 That review noted that electricity markets have characteristics that generally mean a single party has responsibility for balancing supply and demand in real time. This is already true with the system operator at grid level, but with more DERs at local network level it becomes increasingly important to discuss who should perform this function at that level. We consider that, to the extent it already happens, this function is performed by distributors. This could change in future, but in terms of moving the discussion forward, thinking about what this function may be, and what the options are to provide it in New Zealand would seem to be a good first step.
- 9 Another recent document of the relevance is the IEA report³ which identified two emerging distributor business models: the value added services model and the platform for services model. Whether or not the IEA's approach is agreed, and whether or not one of these business models is superior to the other, the point is that this is the level we believe the discussion needs to be at.
- 10 The New Zealand electricity market is subject to a variety of regulatory arrangements administered by a number of regulators. The paper touches on some of these, but we do not believe it captures the full range. Perhaps most importantly there is not a clear delineation of the role of the Commerce Act 1986 and the Commerce Commission in the regulation of distribution and transmission. Nor does the paper note the specific limitations in the Electricity Industry Act 2010 (section 32 (2)), on the extent to which the Code can regulate matters that are regulated by the Commerce Act (Parts 3 and 4) and the Electricity Act 1992.
- 11 Figure 1 on page 9 of the paper is useful. We note that the four quadrants are not really as independent as depicted. For example "the traditional way" in the lower right quadrant includes participation by a very significant proportion of customers in demand management, primarily by way of energy storage, which appears in the upper left quadrant. We discuss this further below.
- 12 The New Zealand electricity market is already very competitive, as the Authority consistently notes, and as measured by the number of retailers and HHIs. Moreover, and contrary to the Authority's positioning of this, retail entry appears to be both cheap (at least in terms of becoming a participant and getting a contract with a distributor) and straightforward. Reassuringly, retailer offerings are also becoming more diverse, meaning customers get to choose based on more than just prices. Retailer business models are also evolving.

² CSIRO and Energy Networks Australia 2017, Electricity Network Transformation Roadmap. Synthesis Report: Future Market Platforms and Network Optimisation.

³ International Energy Agency, Energy Policies of IEA Countries – New Zealand 2017 Review, pp141, 142.

- 13 As well as retailers, we are seeing more and more activity by third parties in the technology space: PV is going on roofs, batteries are being trialled, there is at least one peer to peer operator while other are trialling it, and EV uptake is accelerating. This can be seen as good or bad, too fast or too slow, but it is happening. The paper assumes that distributors, in particular, are fearful of this activity and have an inherent desire to protect their ‘patch’; we do not believe this is true.
- 14 On the contrary, more regulated parts of the supply chain are also evolving. Distributors in particular are trialling new technologies and thinking about and adopting new business models. Quite rightly some of this activity is causing regulators, and in particular the Commerce Commission, to consider what if any changes are needed to ensure regulatory objectives will continue to be met. But there should be no presumption that innovation is inherently less valuable because it originates from a distributor, or that distributors will prevent integration of innovation by others where it is in the long term interests of consumers.
- 15 Meanwhile, distributors continue, willingly as far as we can tell, to accommodate more and more retailers and various new technologies. For Orion at least, the core purpose remains unchanged - to serve our community by providing a reliable supply and a platform for competition to meet customers’ needs.
- 16 Perhaps more interesting though is to reflect on what new technologies and business models might mean for the natural monopoly characteristics traditionally associated with electricity distribution. To a considerable extent regulation of natural monopolies is to address the rents that might arise were the unregulated natural monopoly businesses to price up to the cost of the next cheapest alternative, which, if it is a standalone connection to the grid, could be very expensive indeed. However, one possible outcome of new technologies is that the cost of “off grid” alternatives becomes much more comparable or perhaps even lower than traditional connections. If, or when that technology does materialise, and at that low price point, much of the rationale for current regulation disappears.
- 17 Even with current technologies we see examples of competition at the margins. We observe a large number of secondary networks, and this to some extent reflects the fact that a natural monopoly is not like a Royal Charter or some sort of franchise.⁴ Parties are free to build their own networks. We note that most low voltage network, for example a residential subdivision, is actually built by the developer. While this is usually then bought by the local distributor, that party has no particular right, or indeed an obligation, to do that. It could be sold to another party, or vested in the subdivision property owners. Such alternative ownership arrangements may become more common as greater consideration is given to ‘microgrids’. We also note that development of new network involves, in some cases, competition between traditional network providers, as is currently happening in the Queenstown area.
- 18 The paper also notes the role that third parties can play in service provision. In this regard, we note that there is already considerable contracting out of services, and third party service provision, across the sector. For example many distributors own arm’s length

⁴ It is not, as the paper puts it (page iii), a “privileged position”.

contracting businesses that compete with independent contractors, while others contract out nearly all work to independent contractors. Many distributors also limit the services they offer at least partly so as not to compete with other providers. For example Orion does not, except as a last resort, provide temporary disconnection and reconnection services. Again this does not mean that further consideration is unwarranted, but it does mean that the starting point is pervasive contracting out. On the other hand, like any business in workably competitive markets, distributors will develop a view of what is core business that cannot be contracted out.

Comments on the paper

- 19 The paper begins by describing changes in the electricity industry. These changes range from the general – the technological disruption occurring across many industries and markets – to the specific – the increased deployment of PV.
- 20 In our view the paper does not devote enough attention to what is already in place. Take para 2.2 as an example. There is already extensive use of energy storage and demand response, both at household level and by commercial customers. We estimate that 85% of consumers participate in demand response, be it by our coordinated management of their storage, or their individual choices about demand response and use of generation.⁵ All of this “help[s] to maintain the reliability of the transmission grid or the distribution network”, but perhaps more importantly it underpins current network investment. New technologies may add new opportunities, and / or they may change the relative costs of various opportunities, but we are not entering uncharted territory.
- 21 For a paper speculating about the future, and seeking our views, there is a strong thread of presumption. For example, the word “will” is used in the section on benefits (paras 2.11 and 2.12). At this stage it is we believe more appropriate to use words like “might”, and we can conceive of scenarios where there might not be benefits. We note that the Authority has a whole workstream – distribution pricing - based on a concern that some new technologies might be over-incentivised by current pricing structures. If the Authority has changed its view, it would be good for this to be made clear.
- 22 Para 2.25 is a good example of this, where an even quite close reading could be forgiven for concluding that “Prices that are more efficient...help consumers...make decisions [to] ...efficiently...invest in solar panels”. This is the opposite of the view the Authority put forward in its November 2015 paper.
- 23 Another example is para 2.28 where the multiple trading relationships project is positioned “what changes are needed to allow a consumer to buy electricity from one retailer and sell

⁵ On the Orion network this takes a variety of forms:

At residential and small business level: peak control of hot water heating, night-only heating of hot water, night-only with a boost, discretionary by-pass of night only (still subject to peak control), discretionary timing of some activities. We note that the amount of energy storage involved is roughly the same as that available from a Tesla Powerwall.

For larger businesses: discretionary management of heating and cooling, management of processes, use of generators.

In a wider sense consumers also make important decisions about what sort of house they build, how they heat and light it, and what technology they might use to generate energy and manage its usage.

any surplus” to another. The project should not proceed on the basis that changes are “needed”. It could reasonably consider whether changes are warranted, based on evidence, and in particular what barriers there are to market-based solutions such as intermediaries performing an equivalent function.

- 24 Para 2.29 implies that there is currently no interaction between distributors and consumers for “network support services”. This is incorrect. For example, we offer export and generation credits for consumers, and, more specifically, we maintain a list of DSM opportunities in our Asset Management Plan.
- 25 Para 2.30 appears to be something of an orphan, but for the record we note that no evidence has been presented, in this paper or in previous papers, that the contracts between retailers and distributors present any sort of barrier to competitive activity. We urge the Authority to focus on evidence-based regulation. Contracts with retailers are concluded quickly and at very, very low cost.
- 26 More positively though, we agree that certain technologies may indeed provide some benefits, but this assessment is based on the following:
- Similar technologies (such as energy storage in the form of hot water) already do.
 - Much of the benefit arises because the response is coordinated.

Competition generally

- 27 Section 3 of the paper discusses competition by way of introducing the rest of the paper. Most of our comments are covered off below with respect to the various sections, but we note here that the regulation of distributors and Transpower under Part 4 of the Commerce Act is specifically designed to achieve outcomes that would be seen in workably competitive markets in the context of services that have natural monopoly characteristics. It is reasonable to ask if these objectives are being achieved, and probably all parties would agree it is a work in progress, but the objective is very clear. In our view the paper is very light on acknowledging the wider regulatory context, and as such mischaracterises the status quo.
- 28 We note that section 3, unlike much of the rest of the paper, uses “may” and “might” frequently. However, it mixes in a few “cans” which rather prejudices the matter.

Competition and the network service

- 29 Section 4 of the paper discusses how competition “can” help provide the network service. We are not sure if competition is the right word, but we agree that consumer participation in load management provides considerable benefits, largely for the reasons set out in para 4.8 b).
- 30 However the paper mischaracterises a number of the details of current load management:
- Consumers can in fact choose when their hot water cylinders are turned on and off, both in a real time sense, and by choosing from a variety of pricing plans (for example ‘inclusive’ as opposed to ‘day/night’). The only limitation, which is central to the

service working, is that there are certain, limited, times when the hot water heater cannot be turned on.

- A “long-wave” radio signal is not a substitute for load management, it is a different way of sending a signal to a piece of equipment. There is no reason to suppose that it is “more capable”. We also note that for a signal to be useful it needs to be received as well as sent.
- Load management does not of itself stop or limit the use of smart thermostats.
- Load management is particularly valuable because it is coordinated. It would not work if all load switched off at the same time and then all switched on again at the same time, which would likely lead to higher loads than if no load management occurred at all. (This is the likely undesirable outcome from a number of purely price-based approaches to coordination.)
- While an individual ripple signal might be a “blunt instrument” (footnote 22), by allocating and managing a number of channels judiciously, it allows a very finely tuned aggregate outcome. Moreover the location of the signalling equipment can be at various levels of the network.
- Having said that, a ripple signal is a ‘public good’ both in the sense that no party can be excluded from using it, and no party’s use of it reduces its availability to others. To the extent that any party can derive value from demand response, the signal is there to support it.
- Distributors do not currently “own and control the assets that support network reliability”, or at least not the most important ones - consumers do. Metering owners are another key player (usually) owning the ripple receivers. However, and again, for load management to achieve its purpose we believe a single party must retain responsibility for coordination. We note that we do not believe we are able to contract out of our reliability obligations under Part 4 of the Commerce Act.
- Distributors already enter into contracts for network support services. However when we do that we consider aspects such as how reliable the response is, how it fits in with existing response and also the administrative costs of it. This is important because we need to be confident that the service is a reliable substitute for other solutions, and also because any amounts we pay to such service providers are recovered from consumers.
- Making generic statements as to the benefits of competition (for example para 4.15) is interesting, but no actual examples of “third party” service provision are given, and nor are there any examples of third party services that are not being taken up. (We presume third party here means a party other than the consumer, the retailer or the meter owner, all of which play key roles in current service provision.)

31 None of this is to suggest that there will not be innovation and development in this space, and indeed there already is, only that there is nothing to suggest from history or current practice that there is a problem. We appreciate the need for the regulator to scan the

horizon to see what may need to be addressed, but this needs to be done through broader discussion and consideration, and without presuming the outcome.

Open access

- 32 Section 5 of the paper discusses open access to networks.
- 33 Much of the discussion in the paper is uncontroversial and we believe open access is already in place. In our own case we treat all retailers the same, and our only prior requirements are that they have an agreement with us, are a market participant and meet the prudential requirements. We believe the current open access arrangements are appropriate and underpin the competitive retail market. However, we note that this is not an approach that would necessarily be seen in workably competitive markets, where a supplier might choose not to supply all comers, and if it does it may not do so on equal terms.
- 34 We are unsure what is meant by the sentence in para 5.3 b) that: “The terms of access would not be offered on a take-it-or-leave-it basis or adversely influence customers’ business operations”. It would be useful if the Authority clarified this. What we can say is that there is an inherent conflict between equal treatment and not to a considerable extent taking a “take-it-or-leave-it approach”. Indeed the Authority’s DDA proposal, or at least the last version of it, would effectively set in regulatory stone the terms under which the distributor provides services to retailers.
- 35 Para 5.4 raises the question of standards. While we acknowledge concerns about potentially favouring related parties, standards are critical to network design and operation. An electricity network is an inherently interrelated system, where all connected parties influence all others, and where there is a strong element of common quality.
- 36 There is very little in this part of the paper linking the existing arrangements (paras 5.5 to 5.7) back to the potential issues listed prior. All of the many regulatory instruments in place are aimed one way or another at the concerns listed. They may not be perfect, but we are not starting from a blank slate.
- 37 Of particular concern is the description of the purpose Part 4 of the Commerce Act in para 5.7 of the paper: “...to prevent distributors, as monopolies, from charging too much, operating in a way that leads to lower quality supply.” This fails to capture the breadth and ambition of Part 4, as set out in the purpose statement:

52A Purpose of Part

- (1) The purpose of this Part is to promote the long-term benefit of consumers in markets referred to in [section 52](#) by promoting outcomes that are consistent with outcomes produced in competitive markets such that suppliers of regulated goods or services—
- (a) have incentives to innovate and to invest, including in replacement, upgraded, and new assets; and
 - (b) have incentives to improve efficiency and provide services at a quality that reflects consumer demands; and
 - (c) share with consumers the benefits of efficiency gains in the supply of the regulated goods or services, including through lower prices; and
 - (d) are limited in their ability to extract excessive profits.

- 38 We strongly agree with the point (in 5.8 (b)) that “how parties use the network can affect the network reliability and performance, particularly if the distributor is not anticipating a sudden increase or decrease in consumption.” This is an example of why we see

coordination as being central to the successful deployment of new technologies. The discussion in the paper notes this, but does not appear to give it any weight.

- 39 More generally, research, development and demonstration are normal activities of innovative businesses. It is part of ensuring the sustainability of the business, meeting customers' changing expectations and incremental efficiency gains. Being a regulated business does not mean that these things are, or should be, off limits. Like many businesses, distributors will leverage their core skill sets to grow the business, innovate and serve the customer. Just as management of energy storage in the form of hot water is central today, batteries, be they owned by the customer or the distributor, are an example of a natural extension of today's approach. Within the regulated controls provided for under the Commerce Act, distributors should be able to operate their businesses for the long term benefit of consumers.

Peer-to-peer

- 40 Section 6 of the paper discusses peer-to-peer trading.
- 41 It is not clear from the paper whether any barriers are seen as inhibiting the development of peer-to-peer trading. As far as we can tell there are no barriers to financial approaches.
- 42 In principle a gross pool might be seen as limiting physical peer-to-peer trading. Without wanting to prejudge that, we can say that New Zealand moved to a gross pool for a number of good reasons, and it might be worth revisiting those. We note that any physical net pool needs to be able to deal with situations where the physical trade is not possible due to network constraints, or the almost inevitable situation where contracted physical supply and demand do not match. Even if this can be made manageable at grid level, we imagine there could be a few more orders of magnitude of complexity dealing with it at ICP level where, for example, a physical trade between a customer and their neighbour may not be possible.
- 43 Were we to change to some form of net pool, much of the discussion may come down to how much of the cost of changing market systems should be socialised as opposed to being met by the parties that benefit from it. Where the cost is not socialised it is likely that the role of intermediaries would be more strongly incentivised.
- 44 From a network perspective we note that there is no reason to suppose that peer-to-peer trading uses less of the network service.

Participants

- 45 Section 7 of the paper discusses recognition of participant status.
- 46 We agree that entities or individuals 'accidentally' becoming participants (in the sense of participants under the Code) is undesirable, and in considering this we believe the Code should err on the side of not trying to add participants who have not actively chosen that status. As a practical matter it is not sensible to think that an approach that purports to make every PV owner or every EV owner (EV batteries could conceivably make every EV a generator) a participant will be durable, and indeed such an approach risks bringing the industry into disrepute. Having said that, we believe there is a role for regulation to support standards that connecting parties must meet.

- 47 Regarding the specific example of energy services companies, we are unsure that giving them participant status (presumably only if they want it) gives them access to consumer data, as this data is not in “market systems”.

Diverse sources of supply

- 48 Section 8 of the paper discusses how more diverse sources of supply could improve competition.
- 49 We agree with the conclusion that it would not promote the long term interests of consumers to compel participants to enter into long term contracts.
- 50 Having said that, and in the light of the recent changes the Authority made to Part 6 of the Code – to the distributed generation pricing principles - investor confidence and financial investments should not without good reason or consultation be undermined by changes that undo existing historical arrangements.

Concluding remarks

- 51 Thank you for the opportunity to make this submission. Orion does not consider that any part of this submission is confidential. If you have any questions please contact Bruce Rogers (Pricing Manager), DDI 03 363 9870, email bruce.rogers@oriongroup.co.nz.

Yours sincerely



Rob Jamieson
Chief Executive

Appendix: Responses to specific questions

Submitter: Orion New Zealand

Number	Question	Response
Q1.	What is your view of the potential competition, reliability and efficiency benefits of more participation?	Participation by consumers has delivered significant benefits over many years and we see no reason why further benefits cannot be realised. We see particular potential value, from a network perspective, in the use of battery storage as a way to add to the already significant demand response resource. Coordination will be key to unlocking network benefits.
Q2.	What is your view of the opportunities to promote competition and more participation in the electricity industry?	The industry appears to be highly competitive in most areas, with very significant participation. Where competition is limited, there is significant regulation in place already.
Q3.	What other issues might inhibit efficient mass participation? Please provide your reasons.	We remain of the view that a key issue is the low fixed charge regulations as they encourage inefficient participation in PV, and more generally create a significant barrier to pricing preventing new technologies from facing efficient signals. (The Authority's guidelines on variable charges under the regulations have helped us clarify our thinking on this, but despite that our concerns have not changed.)
Q4.	What is your view of the opportunities for network businesses to obtain external help to provide aspects of the network service using competition or market mechanisms?	In our experience network businesses currently make extensive use of "external help" via consumer participation in demand response and third party service provision. There is no reason to believe that distributors would not take that approach in future if it is the best option.
Q5.	What do you think are the main challenges to be dealt with to increase the use of competition in supplying network services? What are your reasons?	There is no evidence that the current level is sub optimal.
Q6.	What is your view on whether open access is required and what would be the elements for an effective open access framework?	Open access already exists.
Q7.	How effective are the existing arrangements for open access? What are the problems?	Based on our experience access is open and low cost.
Q8.	What type of distributor behaviours and outcomes should the Authority focus on to understand whether changes are required to support open access?	We consider that this is a somewhat leading question, but, in short, evidence. Regarding behaviour, and on the negative side, examples of evidence would be:

		<ul style="list-style-type: none"> • substantiated claims of anti-competitive behaviour under the Commerce Act, • substantiated claims of breaches of the good faith provisions in the Code, and • prospective retailers being unable to gain access to networks would be indications that there might be a problem. <p>More positively, there is evidence of there not being a problem by way of examples of distributors innovating, be it by way of deploying technologies or changing business models.</p> <p>In terms of outcomes, it is hard to go past the improvements in measures of competition as published by the Authority.</p>
Q9.	What changes to existing arrangements might be required to enable peer-to-peer electricity exchange?	As far as we can tell there are no barriers to financial peer to peer trading. There may be barriers to physical peer to peer trading, including the possibility that some physical trades may be impossible. However we cannot see any barriers to parties using intermediaries to facilitate some aspects of physical or financial trading.
Q10.	What are the costs and the benefits of enabling peer-to-peer electricity exchange?	<p>We consider that peer to peer trading offers an excellent opportunity for parties to develop financial or physical alternatives to grid supplied energy. However, we do not consider that peer to peer trading, in the normal course of events, provides an alternative to the delivery service, and in fact the delivery service is required to support the physical aspects of any trade.</p> <p>It may be more relevant to ask which parties should bear the costs and benefits, rather than what those costs and benefits are.</p>
Q11.	What is your view of the possibility for, and impact of, any current or future blurring of participant type? What are your reasons?	We consider it quite likely that some elements of the coming disruption will be from players who are not and probably never will be participants in the formal sense.
Q12.	What types of participation are or might be prevented because the party is not recognised as a participant? What are the potential impacts?	We cannot think of any types that might be prevented. We can think of forms of participation that might be prevented or limited if formal participant status is required of them.
Q13.	What challenges might new forms of generation, such as virtual power plants, or small and dispersed generators, face in entering the market?	No doubt there are many challenges, but the question here should be: are there any inefficient regulatory barriers? We note there is specific regulation of distributed generation under Part 6 of the Code.

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Q14.	What changes might be required to the rule book to facilitate the emergence of virtual power plants or demand response?	Demand response is already central to the design and operation of the Orion network. We do not believe any changes are required to the “rule book”. We note that demand/supply balance and reliability are central to system operation, and in this context virtual power may not always be a good substitute for the real thing.
Q15.	Would the functioning of the market for hedges and PPAs and the availability of finance be improved if there were greater transparency of long-term prices and greater standardisation of terms and conditions for long-term contracts?	No comment.