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Retail Advisory Group
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SUBMISSION ON BARRIERS FACING SMALL-SCALE DISTRIBUTED GENERATION

- 1 Orion New Zealand Limited (**Orion**) welcomes the opportunity to comment on the “Investigating barriers facing small-scale distributed generation” discussion paper (the **paper**) released by the Retail Advisory Group (**RAG**) in February 2012.
- 2 We consider that the paper is a good summary of the issues. We do not quite understand the rationale for RAG producing its paper separately to the Authority’s own review of Part 6 of the Code. However, we are confident the paper and the submissions on it will assist the Authority’s review.
- 3 In relation to the Part 6 review, the paper states in para 10 that it “focuses on **other** barriers” [emphasis added], rather presuming that Part 6 contains barriers? Part 6 is almost entirely a transfer of the previous distributed generation (DG) regulations which were themselves based on a comprehensive and relatively recent consultation process. In our view the presumption should be that Part 6 is fit for purpose.
- 4 We have provided responses to the paper’s specific questions as an appendix.

General comments

- 5 As well as barriers, we would have thought the paper should consider *inappropriate incentives* to (DG), for example those that are provided by the low fixed charge regulations because they create variable retail prices that are “too high” with respect to the underlying cost drivers.



- 6 Para 8 of the paper makes the comment: “As the relative cost of PV is expected, by some commentators, to fall further, **removing** any barriers to entry will become increasingly important to ensuring a market conducive to DG investment.” [Emphasis added.] Surely the opposite is true - as the cost of DG falls the relevance of other barriers reduces.
- 7 DG has been *defined* as being connected to the network, so the statement in para 10 that it must be so connected to “enter any market” is not correct. There is generation out there that is only for contingency purposes, when it has a particularly high economic value i.e the load (or some part of the load) can be switched as required from being supplied from the network to be supplied from an islanded generator. That is they can be in the delivered electricity market even though they are not connected to the grid. Orion ran a lot of this following the earthquakes last year, and so did a number of customers on the network. Moreover many and perhaps most DG, even if technically connected to the network, is never intended to and as a matter of fact does not generate enough (more than the site load) to export materially. Nearly all of the financial benefit comes from offsetting load.
- 8 We also note that some DG technologies (in the wider sense) are designed to NOT be connected to a wider network. For example some PV solutions can be set up so that they directly connect to a separate (DC) element in the hot water cylinder. This will have almost the same impact on household energy consumption, but by definition the energy cannot make its way to the wider world.
- 9 Based on our own very preliminary analysis of the small scale DG on our network (about 20 domestic connections, typically PV), export amounts to between 5% and 10% of consumption. A 2kW PV installation (typical on the Orion network) generates 2,000 to 3,000kWh per year, more like 20 to 30% of an average household’s consumption. Moreover the consumption offset gets the full value of the retail price (although see discussion below about retailer DG offerings), whereas for export the price paid and therefore the value is less certain.
- 10 We do not think it is useful or necessary to characterise DG owners as “participat[ing] in the wholesale market”, any more than their consumption should be so characterised. We certainly agree that putting some solar panels on your roof should not make you an industry participant under the Code! We endorse the suggestion that the Code be clarified in the relevant areas even though we suspect common sense in terms of enforcement action will prevent this being a real issue. More generally the paper’s framework of considering various “markets” is in our view not very helpful. See our responses in the appendix.

- 11 While for the purposes of the paper small scale DG is classified as DG that is less than 10kW capacity Table 2 of the paper summarises “small-scale” DG covering a very wide range of technologies and outputs: the latter up to 10MW, which is larger than any DG currently connected to the Orion network. Even if there are legitimate concerns about barriers, we doubt they are the same across the range described. Certainly from a distributor perspective there is a very big difference in our approach to 2kW compared with 10MW. We suggest that consistent with the capacity levels in Part 1 and Part 2 of Schedule 6.1 of Part 6 a useful definition of “small-scale” is generation with a capacity less than 10kW.
- 12 On the other hand, we are seeing cases where individually small-scale PV units are (potentially) being installed on every house in a new subdivision. The output of the PV units at each house is likely to be highly correlated at peak output (it tends to be sunny at your neighbour’s houses when it is sunny at yours), and the load profiles are also likely to be quite similar. A 2,000 house subdivision could thus have generation capacity of 4MW, and if maximum generation coincides with low load (say a hot, sunny, holiday mid-afternoon) peak export could be very significant indeed. Networks need to be designed to meet peak demands, irrespective of the direction of flow, so there may be situations where we need to design things differently in future with increased cost to build the network to accommodate DG. In addition there may well be the need to control the level of generation in these situations via our network system operator.
- 13 We note the paper agrees that DG typically does not avoid the need for investment in lines infrastructure and is likely to increase the costs of operating a network. The paper suggests a possible exception to DG increasing the costs to networks is in relation to DG offsetting irrigation load and thus reducing network costs. We disagree. Irrigation does occur during the day but it also occurs at night, and in fact due to the reduction in evaporation the night period can be the preferred time for irrigation and peaks on areas of the network with significant irrigation can and do occur at night.
- 14 The observation about revenue in para 4.13.7 is not quite correct, or at least it is a general observation rather than one applying just to GXP pricing. Where distributors variabilise fixed costs (and this is to some extent regulated) reduced consumption (via DG) reduces revenue, with no change in cost, irrespective of where the volume is measured. In Orion’s case, and as noted in the paper as required by Part 6 of the Code, we offer credits for DG and allocate that cost to all other consumers. The observation might also reflect a misunderstanding: in Orion’s case at least the quantities used for calculating charges are *reconciled* quantities, which by definition include both off-takes from GXPs, *and* export from connections within the network. In other words the reconciled quantities represent the total energy input to the network.

Contractual terms and retailer offerings

- 15 We urge the RAG to be very careful in its interpretation of retailers' current approaches to contracting with and pricing for small-scale DG. While small-scale DG might be about to boom, it is still a very niche market, tiny in the great scheme of things (certainly financially) and very much an administrative annoyance. As such observed differences in approach may reflect rapidly formed workarounds based on immateriality rather than well thought out policy positions or fully developed market offerings.
- 16 It might be more useful to consider what we can reasonably expect or want to see when the market is more mature or DG is much more common. The following are some starters in this direction:
- 16.1 Connections with DG will be higher cost to serve than those without. This will be true for metering, but will also be true for other aspects such as data administration, billing and customer service.
- 16.2 DG will change the profile of the energy use at the connection, and therefore the cost. In the case of PV it will make it more expensive (per kWh) as the residual consumption profile will be more winter-peaking. There will be similar effects with both distribution and transmission as, to the extent that DG reduces energy consumption without reducing peak demand, and PV almost certainly does this, assumptions underlying recovery of fixed costs will need to be revisited.
- 16.3 As with many markets we would expect to see a 'buy-sell spread': whatever DG customers are paid should be less than what they pay.

Concluding remarks

- 17 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



Bruce Rogers
Pricing Manager

Appendix: Responses to specific questions

<p>Q1: Is the scope referred of this paper broad enough to address the concerns associated with barriers facing small-scale DG reflected in the Ministerial Review Cabinet paper taking into account the separate review of Part 6?</p>	<p>What is the scope of the paper? We think that the paper should clearly state that the scope is to investigate the case for the development of mandatory terms and conditions for purchase of export from small-scale (less than 10kW) DG.</p>
<p>Q2: Is a focus on small-scale solar PV adequate for the assessment of barriers facing all forms of small-scale DG?</p>	<p>Yes. It is the most likely, and already the most numerous, type of small-scale DG. Moreover some of the other technologies mentioned in the paper stretch the meaning of small-scale (eg up to 10MW). It might be useful to explicitly note that any consequent work or Code changes should define the size of DG that they apply to, and the 10kW suggested in response to question 1 seems like a reasonable upper limit.</p>
<p>Q3: Are the questions set out in the problem definition in paragraph 3.1.1 the right questions for the purpose of addressing the given scope?</p>	<p>We are not sure that referring to this as entering markets adds any value and might just scare people off. "Investing in" is both more accurate and more meaningful as a description of what people are actually doing. We also note that DG is seldom DIY: there will usually be an intermediary or supplier who is well placed to consider and manage potential barriers as part of the package. As such the paper would perhaps more accurately have been titled "Investigating barriers to efficient investment in small-scale DG."</p>
<p>Q4: Do you agree that the three markets defined in section 3.2 are the right approach to considering whether there are barriers to entry for small-scale DG?</p>	<p>As noted above, we are not sure this "market" framework and terminology is necessary. These are more in the nature of potential benefit / barrier areas. Given that small-scale DG gets most of its benefits from offsetting load at a retailer's delivered energy prices we can see no real benefit from separating out the energy and distribution/transmission components?.</p>
<p>Q5: Do you agree with this definition of barriers to entry in the context of analysing the entry of small-scale DG to the market(s)?</p>	<p>As already noted, no. We also note that consideration could be given to potential <i>over incentivisation</i> of DG, for example the low-fixed charge regulations. Of course this is a trade-off between encouraging energy efficiency and recovering fixed costs.</p>

Q6: Does any lines company charge a separate connection charge to a consumer that is also a micro-generator?	We are not sure that this fits with the scope and looks more relevant to the Part 6 review. We note that the Part 6 principles allow such a charge, which could be by way of an up-front contribution, ongoing charge, or a mix. Depending on the size of the “micro” generator, and its impact on network investment, Orion would impose such a charge, and has done so although it is not usual.
Q7: The review of Part 6 is being undertaken separately; do you agree that this will address relevant barriers to entry? Are there any residual issues that should be considered in the context of this paper?	We are concerned that the two reviews are separate as there is crossover and potential for conflicting solutions. The output of the RAG work should be input to the Part 6 review.
Q8: Would it be possible to have two parties responsible for an ICP depending on the direction of flow?	It might be technically possible, but we see no reason to explore this further, particularly in the context of small-scale DG. Frankly we think it is a silly proposal. What problem would it solve?
Q9: Would it be possible to install a second ICP at a household to allow separation of imports and exports (or does the metering configuration not allow this)?	It might be technically possible, but we see no reason to explore this further, particularly in the context of small-scale DG. What problem would it solve? In addition this could be detrimental from the customer’s perspective as if the ICP was considered to be at the terminals of the generator and metered at that point then all the output would likely be at a price below the retail price of delivered energy whereas with the present approach only the generation exported to the network will be at this lower price.
Q10: Should the Authority consider whether the requirements for sale to the Clearing Manager create a barrier to entry for DG?	No, particularly in the context of small-scale DG. In our view this suggestion is no more sensible or practical than the suggestion that small consumers be able to buy from the Clearing Manager.
Q11: Should the visibility or lack of visibility, of contract terms be considered to be a barrier to entry?	No. In any case intermediaries (such as DG system suppliers) are well placed to address any problems in this area.
Q12: Should the variability of terms and conditions for small-scale DG be considered a barrier to entry?	No. The model retail contract could perhaps suggest some default approaches, if it does not already do so.

<p>Q13: Should required metering arrangements for DG be considered a barrier to entry?</p>	<p>For small-scale DG as appropriately defined (<10kW), no more than metering of consumption.</p>
<p>Q14: Is it useful to compare the liability under the regulated terms for a consumer's connection with the provisions for connection of DG as per Schedule 6.2?</p>	<p>The indication that an installation may need to be disconnected by the distributor to "protect, or prevent danger or damage to a person or property" is likely to occur after the event of damage or injury to property or people. There is already a form of "automatic shutdown" required with DG in that the ICP or generation equipment must isolate itself in the event that there is no supply available from the network. However the rights of the distributor to disconnect are in addition to this. We are concerned that any attempts to reduce liability on DG owners could increase it for distributors. There will usually be a system provider for small-scale DG systems, and in our view the DG owner's first port of call in relation to potential liability is those providers. Perhaps those terms and conditions should be reviewed?</p>
<p>Q15: What is the likely scope of events to which unlimited liability would apply?</p>	<p>This is probably in the area of low probability/high impact events. As such it is hard for us to comment, and probably best understood by insurance providers.</p>
<p>Q16: Is this the appropriate handling of the tax issue with respect to the question of barriers facing investment in small-scale DG?</p>	<p>We agree with respect to any income tax issues. However, as we understand the GST issue it is that the import and export are each taxable supplies and so cannot be netted off by the retailer in invoicing. Rather the retailer must invoice for consumption and the customer must invoice (or their retailer may prepare a buyer created invoice) for the export. Either way the administrative cost is non-trivial. This will no doubt affect retailer offerings. This might be an area where an electricity-specific ruling from IRD could reduce costs by permitting invoice netting off with no or trivial impact on the tax base?</p>
<p>Q17: Should contract length be considered a barrier to entry as defined?</p>	<p>No. Contract in this sense should be construed to include the pricing and other arrangements that distributors put in place with respect to DG.</p>
<p>Q18: Is the description of the system costs that small-scale DG faces correct?</p>	<p>Part 6 already covers what distributors are required to offer in their pricing for DG. We would not <i>expect</i> retailers to offer more than this as the 'delivery' component of their DG pricing to consumers, but we acknowledge that is their business. We see no necessary reason why offerings to DG should be any more or less cost reflective than offerings to load.</p>

	Please also note the comments on retailer offerings in the body of our submission.
Q19: Do you agree with this explanation of the market for delivered energy?	As far as we are aware, all distributors require (new) connection agreements whether or not DG is a factor. We do not consider that any additional terms required of DG connections are unjustified. Safety is paramount.
Q20: Do you consider there are any additional elements that should be considered?	Para 7.1.1 notes the Authority's statutory objective. This includes promotion of reliable supply. DG does have the potential to reduce reliability, and the Authority should not lose sight of this, or the mechanisms by which the risk can be managed. This might be more appropriately considered in the Part 6 review?
Q21: Should the EA investigate barriers for larger scale DG especially where there is a high potential for net generation back into the distribution network?	Possibly, but not as part of this paper. Part 6 still applies, and the counterparties are likely to be more sophisticated. Moreover the circumstances of each connection are more likely to be unique. We consider that some of the metering and reconciliation requirements for larger DG – at least that which is focussed on managing contingencies – in our view imposes excessive costs.