



Submission on

Input Methodologies Review

Regulatory Treatment of Emerging Technologies

4 February 2016

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1. Introduction

1. Thank you for the opportunity to comment on the Commerce Commission's (**Commission**) pre-workshop paper on the regulatory treatment of emerging technologies in the electricity sector.
2. This submission responds to the pre-workshop paper, as well as to issues raised by the Commission and other participants at the Commission-hosted workshop of 14 December 2015. It has been prepared with expert support from Chapman Tripp.
3. We have in addition reviewed in draft the Electricity Network Association's (**ENA**) submission. We support the points made by ENA in its submission.
4. Submission format:
 - 4.1 Summary of Powerco's views
 - 4.2 Part A: Market context
 - 4.3 Part B: Legal framework
 - 4.4 Part C: Workshop discussion

2. Summary of Powerco's views

5. The following table summarises Powerco's views and provides recommendations for consideration.

Appropriate legal framework	Powerco view	Recommendation
<p>The Commission has asked whether the pre-workshop paper describes the appropriate legal framework for assessing the treatment of emerging technologies.</p>	<p>Powerco agrees the starting point for considering whether an activity (and the capital and operating costs associated with that activity) is within the scope of the regulated service is the definition of the regulated service in section 54C of the Commerce Act 1986.</p> <p>Powerco notes that the current legal framework provides for the point of supply, and therefore the boundary of the regulated service, to be moved by agreement between the EDB and the customer.</p> <p>Powerco agrees that whether an asset is used for the conveyance of electricity by line is an appropriate test for whether that asset should be included in the RAB.</p>	<p>The Commission should use the legal framework described in the pre-workshop paper, noting the potential for the point of supply to be moved by agreement.</p>
Treatment of assets beyond the point of supply	Powerco view	Recommendation
<p>The Commission suggests that under the current legal framework the location of an asset is not determinative of whether its costs fall within Part 4 regulation. The test to be applied is the <i>use</i> of that asset, followed by the application of the cost allocation IM.</p>	<p>Powerco agrees. Assets beyond the point of supply, or otherwise not physically part of the network, should be included in the RAB to the extent that they are used for the conveyance of electricity by line.</p> <p>It would be helpful if the Commission also clarified that where an asset demonstrably falls within the legislative definition of the regulated service that is sufficient reason to include it in the RAB. The only question is the proportion of its costs that are attributable to the regulated service.</p>	<p>The Commission apply the test described in the pre-workshop paper, and also clarify that costs/assets that fall squarely within the legislative definition of the regulated service should be treated as such.</p>
Competition concerns	Powerco view	Recommendation
<p>Some workshop participants expressed concern that allowing EDBs to invest in</p>	<p>Powerco appreciates that some industry participants are concerned, and as discussed at the workshop, considers that</p>	<p>The Commission could hold an information forum for those industry participants who</p>

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emerging technologies could distort competition in new markets.	more information on the incentives and regulation faced by EDBs could address these concerns. The detailed AMP disclosure addresses any information gaps; EDBs face strong incentives to outsource where efficient; where the EDB participates only the proportion of the asset used to provide the regulated service is added to the RAB; and in these emerging markets potential suppliers are going to be heterogeneous with varying scale and cost attributes. This is explained further in the ENA submission.	have not until now had to focus on the detail of Part 4 regulation of EDBs. Powerco would be happy to participate in such a forum.
Proposal to prevent EDBs investing in new technologies	Powerco view	Recommendation
A potential response raised by some workshop participants was to simply bar EDBs from investing in emerging technologies.	As discussed above there is no competition issue requiring such a heavy handed intervention. Further, this would require legislative change and is therefore outside the IM review. In addition, this would remove from the market a group of investors who are more likely to take the risk of investing in emerging technologies, which would be to the detriment of consumers.	The Commission should advise that this response is not in the long term interests of consumers. If it were to hang over the market it could have a chilling effect on the appetite of EDBs to take the risks involved in investing in emerging technologies.
Proposal to require that EDBs ring-fence all demand management technologies, or all new technologies	Powerco view	Recommendation
A potential response raised by some workshop participants was to require by regulation the ring-fencing of any EDB investment in emerging technologies.	As discussed above there is no competition issue requiring such a heavy handed intervention. Further, this would require legislative change and is therefore outside the IM review. In addition, as discussed in the ENA submission this would be costly and difficult to implement.	The Commission should advise that this response is not in the long term interests of consumers. If it were to hand over the market it could have a chilling effect on the appetite of EDBs to take the risks involved in investing in emerging technologies.
Proposal to exclude all investment in new technologies from the RAB	Powerco view	Recommendation
A potential response raised by some workshop participants was to exclude	As discussed above there is no competition issue requiring such a heavy handed intervention. Further, this would	The Commission should advise that this response is not in the long term interests of

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<p>from the RAB any EDB investment in emerging technologies.</p>	<p>require legislative change and is therefore outside the IM review. In addition, as explained by the Commission in its pre-workshop paper only the proportion of the asset's cost that relates to the supply of the regulated service will be added to the RAB.</p>	<p>consumers. If it were to hand over the market it could have a chilling effect on the appetite of EDBs to take the risks involved in investing in emerging technologies.</p>
<p>Focus on review of the IMs</p>	<p>Powerco view</p>	<p>Recommendation</p>
<p>In its pre-workshop paper and at the workshop the Commission clarified that it would take the existing legislative framework as a given, and only consider any issues that relate to the review of the IMs.</p>	<p>Powerco agrees with this approach. Raising policy issues and legislative change in the context of the IM review will create real regulatory uncertainty, and is not consistent with the decision to bring forward the review from 2017 to 2016. In addition, it is too early to be rushing to judgment on policy issues. No-one knows which emerging technologies will be adopted, by when, and with what effects on demand patterns and supply costs. The current activity by EDBs, trialling and piloting the effect of different emerging technologies on demand and supply, is part of this learning exercise.</p>	<p>The Commission should focus only on the review of IMs.</p> <p>Also, the Commission should monitor the relevant markets and activities as they evolve, rather than pre-empt the development of emerging markets now.</p>

3. Part A: Market Context

3.1. Emerging technologies in general

6. In Powerco's view, while we expect that new technologies will be introduced to the New Zealand market over the next IM period, the Commission should proceed cautiously when it comes to making adjustments to the current framework:

6.1 The new generation of technologies is not yet here at scale and adequate economic payback and there is no certainty that large-scale technology change will be a significant feature of the market during the next regulatory period. While we are able to observe advances in technology, such as improvements in the efficiency of solar panels and the cost of batteries, and there is little doubt that over the life of current network assets these technologies will result in changes to the ways network companies will operate and manage their assets, it is not possible to predict with confidence the pace or scale of change and what changes to the IMs may be required at some later date;

6.2 Technology uptake is difficult to predict. Many price sensitive consumers will elect not to take up new technologies until the upfront cost is comparatively low and/or the economic benefits are substantial. It is not certain when the cost of emerging technologies will become economically viable for everyday consumers;

6.3 As the representatives of the Smart Grid Forum explained at the IMs forum, the way that emerging technologies will affect future demand patterns is also unclear. There are credible scenarios that support both increased and decreased use of the distribution network. Demand patterns are generally influenced by a number of factors, including rate setting. Rate setting will inevitably be responsive to the behaviours that the new technologies facilitate and incentivise and may require overhaul at the time.

7. The Commission should therefore recognise, when developing its approach to emerging technologies that we are in a transitional period. It follows that:

7.1 The Commission should be wary of adopting a framework that would deter investment in new technologies by EDBs, or would artificially constrain EDBs' choice of business model to roll out new technologies;

7.2 The Commission should allow the introduction of new technologies to be market-led, rather than try to pre-empt the market through regulatory treatment; and

7.3 It is important that the IMs continue to incentivise investment and innovation, including by delivering regulatory certainty around asset valuations and the RAB. The current regulatory settings are fit for purpose in that they encourage EDBs to innovate and seek out more efficient ways of delivering their core services.

3.2. Powerco's focus

8. The Commission's pre-workshop paper takes a battery system as its example case and notes that a battery system, for context of the current review, could include for instance a consumer located Powerwall and / or network located storage system, electric vehicle system or other system. Powerco's immediate commercial interest is electric vehicle charging stations (**EV chargers**).

9. Powerco anticipates that electric vehicle ownership in New Zealand will increase as a wider range of models become available and consumers increasingly look for alternatives to traditional petrol or diesel-driven vehicles.
10. Electric vehicles require charging stations and associated network infrastructure. An EV charger is the supply equipment that manages the supply of electricity to the electric vehicle and will include – depending on type and purpose – a battery management system, protection circuits, safety interlocks, control features and metering/billing capability.
11. Typically, consumers will want the ability to charge their vehicle at home (for example overnight), but will also want the comfort of knowing that EV chargers are available in public spaces to permit charging while away from home and to address ‘range anxiety’ (the perception that electric vehicles are not suitable for long distances because of their battery limitations).
12. Powerco is accordingly investigating business models for installing, or supporting the installation of, EV chargers in the home as well as in public places such as the roadside, service station forecourts and parking lots.
13. EV chargers will have implications for EDBs, as they represent a substantial new source of load, but with an as yet unknown time of use profile. EVs also have the potential to perform some of the functions expected of static batteries. Accordingly, Powerco’s interest in EV chargers is dual: on the one hand, EV chargers are necessary infrastructure for the conveyance of electricity to electric vehicles, and are therefore an activity squarely within Powerco’s core business; on the other hand, being at the forefront of the roll-out of EV chargers will enable Powerco to better understand and manage the wider implications for its distribution network.

4. Part B: Legal Framework

4.1. What can be considered within the scope of the regulated service?

14. We agree with the Commission that the starting point for considering whether an activity (and the capital and operating costs associated with that activity) is within the scope of the regulated service is the definition of the regulated service in section 54C of the Commerce Act 1986. As the Commission notes, that section provides that the regulated service – “electricity lines services” – means the conveyance of electricity by line in New Zealand (with specified exceptions).
15. Section 54C(4) provides further that the term “lines” as used in the section is defined by reference to section 2 of the Electricity Act 1992. The Electricity Act 1992 in turn draws a distinction between “works” that are used for the conveyance of electricity and “electrical installations”, which comprise those fittings beyond the point of supply, that are used to convey electricity to a point of consumption.
16. It follows that the regulated service is defined both functionally – the “conveyance of electricity” – and in terms of the physical boundaries of the EDB’s network, which is delineated by the point of supply.
17. Section 2(3) of the Electricity Act provides that the location of the point of supply is, by default, the point at which fittings cross the property boundary. However, importantly, that subsection also permits an EDB and the property owner to agree a different location on the property that will constitute the point of supply. Accordingly, the boundary of the EDB’s network is not fixed: EDBs can by agreement with property owners assume responsibility for fittings that are located on the property.
18. We also agree with the Commission that the question of whether an asset is “used” for the purposes of providing the regulated service is not limited solely to an inquiry as to whether the asset is physically used or incurred in the conveyance of electricity (or is physically part of the network or connected to it).¹ As the Commission points out, a variety of assets not physically part of the network are clearly a necessary part of delivering the regulated service, and hence should properly be recovered through regulated charges.²
19. We therefore agree with the Commission that:
 - 19.1 whether an asset is used for the conveyance of electricity by line, or the costs are attributable to the conveyance of electricity by line, is an appropriate test for whether that asset should be included in the RAB; and
 - 19.2 accordingly, assets beyond the point of supply, or otherwise not physically part of the network, should be included in the RAB to the extent that they are used for the conveyance of electricity by line, or their costs are attributable to the conveyance of electricity by line.
20. Where we depart from the Commission is that we do not agree that the definition of lines is relevant only insofar as it demonstrates an intention to define the regulated service in a way that is understood to include transmission and distribution network services. In our view, if an asset demonstrably falls within the legislative definition of the regulated service, that is sufficient reason to include it in the RAB without having to make a further inquiry.

¹ See the Commission’s pre-workshop paper at paragraph 66.

² Ibid at footnote 26.

21. Put another way, we think the test for inclusion of an asset in the RAB has two limbs:
 - 21.1 if an asset is physically used in the conveyance of electricity by line (i.e. it conveys electricity and is part of the distribution network as defined in the Electricity Act 1992), then it is part of the regulated service as defined in section 54C of the Commerce Act, and should be treated as such;
 - 21.2 alternatively, if an asset is not physically part of the distribution network but is nonetheless used to deliver the regulated service (in the Commission's sense that it supports the regulated service or its costs are attributable to it), and then it would be appropriate to include that asset in the RAB subject to the cost allocation IM.
22. This two-limbed approach is the natural consequence of the relationship between the IMs and the legislative definition of the regulated service in the Commerce Act and Electricity Act.
23. We do not consider that any material changes to the IMs are required to give effect to, or clarify, this position.

4.2. Application in the context of electric vehicle charging stations

24. EV chargers satisfy both the first and second limbs for inclusion in the RAB. The core function of EV chargers is to permit the conveyance of electricity to electric vehicles, whether that be in the home, on the roadside, or in public venues such as service station forecourts and parking lots. EV chargers are, accordingly, an evolution of Powerco's core service proposition.
25. Depending on the location of EV chargers in relation to the point of supply, EV chargers may be physically connected to, and located on, Powerco's network. EV chargers are therefore assets that physically convey electricity and constitute "works" as that term is used in the Electricity Act 1992. EV chargers therefore fall within the four corners of the regulated service as defined by the Commerce Act and Electricity Act.
26. Alternatively, where EV chargers are located beyond the point of supply, they are nonetheless "used" for the conveyance of electricity by line, in that they facilitate the conveyance of electricity to the customer to serve a distinct source of load.

5. Part C: Workshop Discussion

5.1. Response to issues raised at the workshop

27. At the Commission's emerging technology workshop, concerns were expressed by some participants that EDB involvement in emerging technologies, and the Commission's proposed treatment of emerging technologies, risked conferring on EDBs a competitive advantage.
28. Some participants suggested that the Commission should, consequently, constrain the ability of EDBs to invest in emerging technologies in a number of ways:
 - 28.1 preventing EDBs from owning or investing in new technologies;
 - 28.2 requiring EDBs to ring-fence new technology assets from their regulated business;
or
 - 28.3 preventing EDBs from recovering the costs associated with new technologies in the RAB;
29. ENA has addressed these concerns in detail and we agree with the points made in ENA's submission. We set out here our views in summary.

5.2. Do EDBs enjoy a competitive advantage?

30. Powerco appreciates that some industry participants are concerned that allowing EDBs to invest in emerging technologies could distort competition in new markets.
31. As discussed at the workshop, Powerco considers that more information on the incentives and regulation faced by EDBs could address these concerns. For example, and in overview only:
 - 31.1 The detailed AMP disclosure addresses any information gaps. Third party providers have the information needed to assess where the distribution network may be facing constraints or capex requirements that could be addressed by investing in emerging technologies;
 - 31.2 EDBs face strong incentives to outsource where efficient. If a third party can supply the emerging technology more efficiently than the EDB, then the operation of the five year WAPC framework and the IRIS mechanism means the EDB has incentives to take advantage of those efficiencies, to the long-term benefit of consumers;
 - 31.3 where the EDB participates only the proportion of the asset used to provide the regulated service is added to the RAB.
32. It is also important to recall that in these emerging markets potential suppliers will be heterogeneous with varying scale and cost attributes. EDBs may compete with global technology giants, low cost start-ups, and New Zealand retailers that have the relationship with consumers. Each business model will have its advantages and disadvantages.
33. This is explained further in the ENA submission.
34. To take this discussion forward, the Commission could hold an information forum for those industry participants who have not until now had to focus on the detail of Part 4 regulation of EDBs. Powerco would be happy to participate in such a forum.

5.3. Preventing EDBs from owning or investing in new technologies

35. Some market participants have suggested that EDBs should simply be prevented from being involved in activities that utilise emerging technologies. They argue that excluding EDBs from the market is likely to benefit the competitive landscape. However, given the EDBs are, of all market participants, perhaps the best positioned and incentivised to explore and implement emerging technologies, it is difficult to see how excluding EDBs from the market would increase competition, or benefit consumers.
36. As discussed above there is no competition issue requiring such a heavy handed intervention. Moreover, excluding EDBs from the market would require legislative change, as it is not within the scope of the Commission's responsibilities under Part 4. It is a matter for government and policy makers rather than for the Commission. Accordingly, the IMs review is not the appropriate forum in which to debate such a proposal.

5.4. Ring-fencing

37. Ring-fencing similarly is not within the scope of the Commission's Part 4 responsibilities and therefore would require legislative change. It is not the purpose of Part 4 regulation to impose structural regulation on EDBs via price-quality regulation. In light of that, there is no merit in discussing the proposal in the context of the IMs review.
38. Further, as explained in the ENA submission any structural separation / ring-fencing regulation would be costly and difficult to implement. More generally, as discussed above there is no competition issue requiring such a heavy handed intervention.

5.5. Preventing EDBs from including new technology assets in the RAB

39. There are two immediate problems with any proposal to prevent EDBs from including new technology assets in the RAB:
 - 39.1 first, the legislative framework of Part 4 does not permit the exclusion from the regulatory framework of assets used to deliver the regulated service. Section 54E declares that electricity lines services are regulated, and section 54G mandates that certain electricity lines services are subject to default or customised price-quality regulation. Section 52T provides that the applicable input methodologies must include methodologies for, amongst other matters, evaluating or determining the valuation of assets. Accordingly, the legislative framework expressly contemplates that assets that are used to deliver the regulated service are included in the DPP or CPP. As a consequence, it is not open to the Commission to simply exclude from the RAB assets that are properly part of the regulated service;
 - 39.2 second, as the Commission has noted, the IMs are technology neutral and deliberately so. It would not be benefit consumers in the long term to require that electricity lines services continue to be delivered by means of the same technology in perpetuity. On the one hand, it would deter EDBs from exploring more efficient ways of delivering the regulated service. On the other hand, it would suggest that regulation does not extend to the delivery of electricity lines services by means of new technologies, which does not appear to have been the legislative intention.

5.6. General comment

40. The workshop discussion was useful in drawing out some themes. The first is that the IM Review can consider only changes to the IMs, and not the legislative framework.
41. The second is that the significance of emerging technologies for IM regulation of lines businesses over the next IM period is uncertain. No-one knows which emerging technologies will be adopted, by when, and with what effects on demand patterns and

supply costs. The current activity by EDBs, trialling and piloting the effect of different emerging technologies on demand and supply, is part of this learning exercise.

42. The third is that some participants are concerned about how competition might evolve in these emerging markets. Those same participants were upfront that they did not understand in detail the existing regulation of EDBs and how that might operate on incentives and competition. Powerco has suggested that the Commission could hold an information forum for those industry participants who have not until now had to focus on the detail of Part 4 regulation of EDBs, and we would be happy to participate in such a forum.
43. The fourth theme was the advocacy by some participants for very heavy handed, and alarming, regulation of EDBs. For the reasons explained in this submission and the ENA submission these regulatory interventions would not in the long term interests of consumers. We ask that the Commission clarify that such regulation is not warranted in the foreseeable future. If these regulatory proposals were to hang over the market it could have a chilling effect on the appetite of EDBs to take the risks involved in investing in emerging technologies.