

PO Box 10742, Wellington Level 2, Harbour City Tower 29 Brandon Street Wellington, New Zealand contactenergy.co.nz

18 August 2016

Keston Ruxton Manager, Input Methodologies Review Regulation Branch

By email: im.review@comcom.govt.nz

Dear Keston

Input Methodology Review: Cross-submission

Introduction

Thank you for the opportunity to make a cross-submission in the Input Methodology review (**IM Review**) process. We appreciate the Commerce Commission's (**Commission**) engagement to date on the IM Review, and refer you to our submission dated 4 August 2016 (**Contact's IM submission**).

Emerging technologies can bring substantial benefits to consumers

As stated in Contact's IM submission, fundamentally we believe that with appropriate regulation emerging technology, and emerging business models, have the potential to provide substantial savings and value to consumers. Competitive markets, rather than regulation, allows innovation to thrive. We also see traditional network assets playing a key role as an enabling platform for these competitive markets, and ultimately for emerging technologies to be most efficiently developed.

This market design is neither ground breaking or unique to New Zealand. In fact our research and analysis on this has been drawn from experts in these technologies and other markets that have moved beyond New Zealand's current regulatory paradigm. The reforms underway in other markets (e.g. New York and Australia) show examples of best practise market and regulation direction. These developments have spurred innovation, new markets and models that previously never existed.

Contact understands that the Commission's role is not to define and implement market reform, but we do believe it can play a key role in ensuring decisions are taken which ultimately lead to the best outcomes for consumers. Contact's IM submission commented at length on how the Commission could facilitate this direction, in conjunction with other government agencies.

Cross-submission – Key Themes

Overall we are concerned by submitters' comments that support the conclusion that an uneven playing field promotes innovation, information, and access to markets. Transmission and networks have an integral and long term role to play in enabling markets for new technologies, but the conflicts and potential problems that come with co-ownership of monopoly networks and competitive alternate technologies do need to be addressed to enable maximum benefit for consumers. This is not to say that electricity distribution businesses (**EDB**) should not be entitled to participate in these markets, but rather the regulatory arrangements need to ensure the options to provide the best outcomes for consumers are not foreclosed (e.g. by the foreclosure of an effective competitive market).

We respond to submitters' views below.

Proposition Response

New technologies in the RAB/ EDB investment in emerging technology

"The structural changes being put forward by ERANZ could conceivably go much further than just batteries to cover a wide range of potentially competitive technologies. The ENA considers that Introducing these regulatory changes when it is not clear how the market will develop is risky. Too early regulatory intervention could risk killing off a market before it is established, to the long-term dis-benefit of consumers." (ENA) "Enforcing some form of ring fencing/structural separation will likely limit potential gains as EDB investments in emerging technologies will be hindered while it is still unclear how the markets will develop – the risk remains that without EDB investment, these markets may not develop to their full potential." (ENA)	 In our view the greater level of battery trials, and activity in general, among EDBs compared with third parties is a direct result of the guaranteed return which is being received by including these technologies in the EDBs' regulated asset bases (RAB). As a result, decisions by regulators in New Zealand not to amend the regulatory arrangements are threatening the creation of a competitive market for these services. Experience internationally shows that regulators acting to create a level playing field spurs investment from third parties where competitive markets deliver emerging technology solutions (including EDBs, who rather than being "locked out", have the opportunity to provide services through affiliates). Appendix A provides case studies, including: AGL Energy's 1,000 home battery Virtual Power Plant (VPP) in South Australia; Sunverge's 300 home battery VPP in New York; Southern California Edison contracting for 250MW of demand response including storage; ConEdison contracting for 22MW of demand response including storage; ConEdison contracting or 35MW of demand response from Enernoc in NSW; and Greensync's partnership with United Energy for demand response and storage in Victoria. We highlighted market activity among non-EDB service providers in New Zealand on p18 of Contact's IM submission. The battery trials Contact has underway aggregate and automate control of customer batteries, and are enabling an EDB to control the batteries based on network requirements. A key barrier to deploying the battery solution at scale is EDB demand for third party demand response services.
"In order to achieve network benefits through the deployment of batteries it is essential that there is sufficient and committed availability of storage at peak times in order to displace or defer network investment. It is unclear at this point how this would occur in a decentralised, competitive retail market to achieve the necessary coordination amongst competing retailers to procure sufficient installations in localised areas of the network facing constraints. While mechanisms could be	A decentralised, competitive market can achieve the "necessary coordination" through EDBs developing the mechanisms to facilitate installations in localised areas of the network facing constraints. There is an inherent conflict in EDBs determining whether to prioritise battery development activities or creating enabling platforms for third party investment. Two mechanisms which should be prioritised include:

Proposition	Response
developed to achieve this, until such time as they are developed and there are working examples of this at the mass-market level, it would be inappropriate to lock distributors, who have the greatest motivation to utilise network alternatives, out of the market." (ENA) "Co-ordination will ensure they (new technologies) are operated together to manage load across a portion of a network. EDBs are best placed to undertake this co-ordination. Consumers on any network will be spread across a (growing) number of retailers, making it challenging for retailers to deliver a similar level of co-ordination." (Orion)	 The development of cost-reflective distribution pricing with localised, dynamic pricing. The ENA Australia has produced a tariff reform handbook¹ showing this as a "second wave" of tariff reform. In our view, this is a 5+ year timeframe; and Rolling out the Transpower demand response program so all EDBs can provide an immediate mechanism to facilitate coordinated investment. This should be implemented by all EDBs as soon as practicable. We agree with Orion² that coordination of emerging technology asset operations is essential, and that EDBs (or ideally an independent Distribution System Operator)³ are best placed to undertake this coordination. In the absence of localised, dynamic pricing which incentivises coordination, EDBs can direct asset operations through a program like the Transpower demand response program.
"We consider that distributor involvement is likely to promote efficient investment in emerging technologies. Distributors can invest in these technologies to deliver network services and/or to deliver unregulated services. Where they are used to supply both, the cost allocation IM would apply. There is no evidence of a problem to warrant regulatory intervention at this stage." (PwC) "Regulators should only intervene where there is a clear market failure such that markets are not able to produce an efficient outcome. At present, there is no evidence of such a market failure."(PwC)	We disagree. Refer to the ripple control analysis discussed on p12 and in Appendix C of Contact's IM submission. Even if there was an absence of such evidence (which is not the case), we do not believe "evidence of a problem" should be considered the trigger for regulatory intervention. As discussed on p2 and p3 of Contact's IM submission, we believe it is imperative for regulators to act now – proactively creating a level playing field will lead to greater competition and optimal outcomes for consumers. Waiting for a market failure before acting risks creating a self-fulfilling prophecy. Comments from the AEMC in August 2016 supported this position, by stating "allowing regulated entities to enter competitive markets is unlikely to support the development of a competitive energy services market."
"There has been some concern about EDB supply of other non-regulated services from emerging technology assets. These concerns are directed at potential EDB delivery of new innovative non- regulated services impeding the development of a	We disagree that these concerns are hypothetical. Refer to the EDB solar and battery trial example discussed on p13 of Contact's IM submission. These trials constitute a very significant market share of customer battery installations in New

¹ <u>http://www.ena.asn.au/sites/default/files/electricity_network_tariff_reform_handbook_may_2016.pdf</u>. ² For transparency, note that Contact's battery trial is taking place with Orion's facilitation on its network. ³ See p22 of Contact's IM submission, which discussed the New York reforms.

Proposition	Response
market for such services. This has resulted in suggestions that EDBs should be prohibited or severely constrained from investing in such assets. These concerns are hypothetical." (Vector)	Zealand. The trials demonstrate a battery product which is only possible due to the EDBs' position as a regulated monopoly, and could not be economically replicated by non-regulated competitors.
"If the Commission undertakes an asset regulation approach, despite holding the view that it is a policy matter beyond its statutory mandate, it will have to consider the impacts on operating expenditure (opex). Requiring EDBs to procure a service from a "market" or "prospective market" would need to be explicitly recognised in EDB opex allowances. This is because EDBs would need to contract for the service over a period of time, which is likely to be much longer than a DPP / CPP. Accordingly, there is a risk of the costs for the emerging technology service being disallowed in the setting of the opex building block when resetting a DPP / CPP." (Vector)	We agree this is a relevant consideration. If the penalty under the opex incremental rolling incentive scheme (IRIS) for overspending is greater than the reward under the capex IRIS for underspending, this should be addressed by the Commission as it will result in incentives which do not result in EDBs being agnostic to capex or opex solutions (ignoring the 67 th percentile WACC incentives for a moment). We believe this area needs reviewing to ensure there are no barriers to EDBs implementing non-network solutions. International regulators are considering changes to how capex and opex are treated. For example, in the UK, Ofgem has implemented the use of combined "totex" rather than separately allocating funds to capex and opex, and extended the price control period from 5 years to 8 years (with a midpoint review). ⁴ The use of "totex" can help address incentives on networks to invest rather than utilise opex / non-network solutions. Implementing the use of "totex" would also require the existing capex and opex IRIS to be restructured into a "totex IRIS".
"Were the Commission to confine EDBs to traditional investments then this will create even greater risk of partial capital recovery and constrain the genuine innovation starting to occur in the sector, both in New Zealand and globally. This would force EDBs to have a larger volume of long-life physical assets with high-undepreciated values than they otherwise would have, or risk compromising the quality of their regulated service by underinvesting over time." (Vector)	Confining EDBs to traditional investments will only force EDBs to "have a larger volume of long-life physical assets" <i>if</i> EDBs are not appropriately incentivised to contract for network services from third parties rather than continue to build traditional infrastructure. As discussed above, there can be no doubt that with appropriate regulation in place the competitive market will provide the network services required for regulated consumers to take advantage of emerging technologies. Regulators should consider the use of mechanisms like "totex", as well as the impact of the 67 th percentile WACC on capex / opex incentives, as discussed on p27 of Contact's IM submission.

⁴ <u>http://utilityweek.co.uk/news/the-topic-totex/1196702#.V6 nlXpK-DM</u>.

Proposition	Response	
"To argue that only assets that actually convey electricity can be classed as part of the regulated service would narrow the scale of the regulated activity to an unworkable extent (e.g. by excluding assets that are clearly used by the regulated business such as office furniture and financial systems from being recovered through regulated prices)." (ENA) "The use of emerging technologies is also likely to provide opportunities for EDBs to deliver network services more cheaply, e.g. by deferring capital expenditure." (Orion)	To argue that because a chair is in the regulated service all other assets which do not convey electricity can be in the RAB undermines the very principles of Part 4. We refer to Alan Lear's opinion, as provided with the ERANZ submission dated 4 August 2016, that this is a "nonsensical" position. Regulated consumers will benefit from even lower charges if there is a competitive energy services market developed through third party contracts, which maximises unregulated income from emerging technologies and, as a result, minimises the cost of network services to consumers (via EDBs contracting through regulated opex).	
 The ENA has recommended: The 15% cap is removed, or at least increased, and should be able to be applied as many times as necessary to a particular asset. The IMs provide for the life of all assets commissioned from the start of the next disclosure year to be no more than 25 years. 	 As discussed on p7 of Contact's IM submission, we do not believe there is any risk of a material number of consumers going "off-grid" in the foreseeable future, and hence any action to increase costs to current consumers is unjustified. We are not supportive of: The Commission's proposal to allow EDBs to reduce asset lives by up to 15%; ENA's recommendations to remove the 15% cap, and allow EDBs to apply the reduction in asset life as many times as necessary, or to cap asset lives at 25 years. 	
Section 52T and 54Q in the context of Purpose		
Vector has commented in its submission on the IM Review on the application of s52T and s54Q to emerging technologies (para. 100-103): <i>"The Commission has already defined its mandate</i>	Contact's position is that the provision of load control is contestable, and as stated previously that competitive markets will deliver the most value to consumers.	
load control relays could be included in the RAB as part of its 2010 IM reasons paper. The Commission noted that Genesis considered the provision of load control as "contestable", however the Commission still considered load control relays part of the regulated service. The Commission provided the following reasoning: "The Commission considers where an EDB owns load control relays, it should be able to include these in the RAB value subject to the cost allocation IM, and that doing so will promote	We are concerned by Vector's position which suggests that anything that contributes to energy efficiency can be included in the RAB. This would lead to extreme outcomes whereby LED lighting, insulation, curtains etc. could also be included in the RAB. We disagree that "Parliament clearly intended for such emerging technology assets where they can also be used for the regulated electricity lines	

Proposition	Response
demand side management consistent with section 54Q." "With respect to emerging technology assets delivering energy efficiency, we believe section 54Q of the Act provides a positive obligation on the Commission not to include such assets as part of any "structural solution". Section 54Q states: "The Commission must promote incentives, and must avoid disincentives. For suppliers of electricity lines services to invest in energy efficiency and demand side management, and to reduce energy losses, when applying this part to electricity lines services." "Some emerging technologies will have the capability of providing energy efficient solutions, demand side management and assist with energy losses. Therefore, parliament clearly intended for such emerging technology assets where they can also be used for the regulated electricity lines service to be invested in by EDBs where possible."	service to be invested in by EDBs where possible". In Contact's submission on the Commission's emerging technologies pre-workshop paper, ⁵ in Appendix A we provided a legislative history for Part 4 which concluded that <i>"it is clear that Part 4</i> <i>is only intended to cover the monopoly conveyance</i> <i>service provided by lines companies and not any</i> <i>other contestable services lines companies might</i> <i>provide from time to time, including services from</i> <i>emerging technologies with multiple uses.</i> " Contact's IM submission discussed at length whether in relation to emerging technologies (and in particular in relation to the cost allocation IM and proposals for structural solutions to EDB investment in emerging technologies), s52T was resulting in outcomes which are not in the best long term interests of consumers. Rather than being constrained by s52T and s54Q, we urge the Commission to work with the Authority, MBIE and Government Ministers to ensure regulation is fit for purpose to ensure emerging technologies deliver maximum value to consumers.
Level playing field	
"Orion agrees with the Commission that other parties have advantages that EDBs do not have (e.g. retailers have better access to customers). If the Commission was required to deliver a level playing field we assume the Commission would	This position fails to recognise that retailers are leveraging advantages generated through competitive, market facing businesses, whereas EDBs are leveraging regulated monopoly assets paid for by lines consumers. Companies in

competitive markets routinely leverage existing

skills and capabilities in all industries to provide new products and services. This is fundamentally

different to leveraging competitive advantages which have been obtained due to being in a unique position as a regulated provider of monopoly services – especially where the competitive service provided can be an alternative to the regulated

monopoly service.

Yours sincerely

Coute haffe

need to find a way of neutralising any advantage

customers, as well as any other advantages held by

retailers may receive due to their access to

other potential competitors." (Orion)

⁵ <u>http://www.comcom.govt.nz/dmsdocument/14025</u>.

Appendix A: Examples of third party network services demand response projects

FY16 Full-Year Results | 10 August 2016

World's largest virtual solar power plant

AGL committed to ~\$20m project in South Australia

Scope

- > 1,000 connected batteries
- > Equivalent of 5 MW solar peaking plant
- > Utilises Sunverge platform
- Heavy discounts on batteries for homes/small businesses with solar photovoltaic systems
- > 18-month development to begin September 2016

Objectives

- > Demonstrate viability of distributed systems
- > Improve network stability
- > Support renewable generation
- > Reduce energy bills for customers





Clean Virtual Power Plant: Con Edison New York ISO

PROJECT DESCRIPTION

Upon deployment, VPP Pilot of 300 units or 1.8MW of VPP capacity to test resilience, tariff design, market mechanisms and network value and rate design.

PROJECT GOAL

- REV demonstration project is designed to demonstrate how aggregated fleets of solar + storage assets in hundreds of homes can collectively provide network benefits to the grid, resiliency services to customers, monetization value to Consolidated Edison of NY.
- Provide utility customers with new, high-value service offering and protect market share.

CLEAN VIRTUAL POWER PLANT





SCE Announces Winners of Energy Storage Contracts Worth 250MW⁶

Stem, AES, Ice Energy, NRG Energy and Advanced Microgrid Solutions garner more than 250 megawatts in energy storage awards.

by Eric Wesoff, Jeff St. John November 05, 2014

Southern California Edison has just revealed the winners of a massive 250-megawatt energy storage procurement, one that could set new standards for incorporating distributed and customer-owned energy assets into grid operations.

On Wednesday morning, SCE announced contract winners for its Local Capacity Requirement (LCR) RFO, a long-term plan to bring about 2,200 megawatts of grid resources on-line by 2022 to help the Los Angeles and Orange County regions make up for the closure of the San Onofre nuclear power plant.

Wednesday's RFO selection list includes eleven companies with a combined 74 contracts to provide a total of 2,220 megawatts of "incremental capacity" for its West Los Angeles Basin and Moorpark areas. Much of that new power will come from natural-gas-fired power plants, as SCE's selection list makes clear.

But there are also lots of "preferred resources," including renewable energy, energy efficiency, demand response -- and an outsized amount of distributed and grid-connected energy storage. SCE was required to get at least 50 megawatts of energy storage under the terms of the LCR. But it ended up signing contracts with parties promising to deliver five times that amount.

The biggest winner there is AES Energy Storage, which will build a 100-megawatt "in-front-of-meter" battery system in SCE's West Los Angeles Basin region, further cementing its lead as the nation's biggest grid-scale energy storage provider.

But there's even more distributed, behind-the-meter energy storage in SCE's mix, including 85 megawatts of behind-the-meter batteries from startup Stem, and another 50 megawatts of batterycentered "hybrid electric building" projects from stealthy startup Advanced Microgrid Solutions. (We will be covering details of both projects later today.) Another 25.6 megawatts of thermal energy storage will come from Ice Energy, a startup that turns rooftop air conditioners into load-shifting assets.

No utility has made such a big investment in customer-owned, distributed energy storage assets of this type before, making this a step into the unknown on the part of SCE. The LCR process will set up power-purchase-agreement-type structures with the contract winners, providing them a guaranteed revenue stream.

Financial terms of the contracts weren't disclosed, however, making it hard to measure the costs of the various energy storage projects against competing resources. In the meantime, California regulators are still working out the complex details about how behind-the-meter energy storage assets will be rate-based and compensated for their grid services in the future.

California's groundbreaking mandate to procure 1.3 gigawatts of grid energy storage by 2022 will need projects like these to prove that behind-the-meter distributed assets can be relied on, just like big central power plants are today. By year's end, the state's big three investor-owned utilities -- SCE, Pacific Gas & Electric, and San Diego Gas & Electric -- are required to submit their plans for signing up about 200 megawatts of cost-effective grid storage for the first round of procurements to meet this mandate.

⁶ http://www.greentechmedia.com/articles/read/breaking-sce-announces-winners-of-energy-storage-contracts.

Stem to Provide Battery Storage for Con Edison in New York⁷

August 8, 2016 By Brian Eckhouse, Bloomberg

Stem Inc., a California-based provider of energy storage systems, is among 10 winners of Consolidated Edison Inc.'s maiden auction for demand-response services, a sign of growing utility demand for battery technology.

The storage company plans to install battery systems with as much as 857 kW of capacity in New York City by 2018. Con Edison expects Stem and the other providers to help reduce power usage on the grid by as much as 22 MW during peak periods, the New York-based utility said in an e-mailed statement Friday.

Stem installs and manages storage systems, typically at commercial sites. When energy demand is high, the users start drawing power from its batteries instead of the local grid, freeing up capacity for other utility customers. The company won a contract in 2014 to provide 85 MW of capacity in Los Angeles for Edison International's Southern California Edison.

"We're going to use our existing model — battery storage plus software controls and the aggregation of the fleet to deliver capacity to Con Ed," Karen Butterfield, Millbrae, California-based Stem's chief commercial officer, said in an interview Friday. "We don't have customers contracted, but we have customers lined up." The company currently operates 74 MWh of storage systems.

Deferred Investment

Con Edison said the demand response program will let it defer spending \$1.2 billion on a new substation.

Other winners of Con Edison's auction included EnerNOC Inc., Innoventive Power LLC, Direct Energy Inc., Power Efficiency Corp., Demand Energy Networks Inc., Energy Spectrum and Tarsier Ltd., a utility spokesperson said.

Con Edison agreed to pay prices ranging from \$215 to \$988, per kW per year, for the demand-response services, according to the statement.

"Our neighborhood program is all about finding new strategies and technologies to help our customers manage their energy usage and still have the reliable power they need," Greg Elcock, who manages the program for Con Edison, said in the statement. Applicable technologies include energy efficiency and solar power.

⁷ <u>http://www.renewableenergyworld.com/articles/2016/08/stem-to-provide-battery-storage-for-con-edison-in-new-york.html</u>.

Sydney power deal to cut peak use by 35MW⁸

By Sophie Vorrath on 1 November 2012

NSW transmission network operator TransGrid has announced a new initiative to try to reduce peak electricity demand in metropolitan Sydney over the summer months – a move it says could cut power consumption by the equivalent of switching off around 50,000 air conditioners. TransGrid managing director, Peter McIntyre, revealed late last week that the company had reached an agreement with global demand-side response services company, EnerNOC, to provide 35MW of demand response capacity for the Sydney metropolitan area, and to work with Sydney's major energy users to shift their power usage out of peak times.

McIntyre said that EnerNOC's DemandSMART software – in use at thousands of sites worldwide – would help some of Sydney's largest energy users – such as universities, data centres and manufacturing facilities – understand how they consume energy and to more actively manage their energy usage in real time, allowing them to reduce consumption at peak times. "TransGrid's program will help reduce electricity demand by approximately 35MW in peak summer periods, effectively allowing us to take the equivalent demand of up to 50,000 home air conditioners off the grid, when it is under the most pressure," he said, adding that it would also enhance network reliability for consumers, keep supply and demand in balance and "reduce carbon emissions by an estimated 700 tonnes."

For its part, EnerNOC said it saw "significant opportunity" in the Australia and New Zealand markets. "(Our) program is ideally suited for organisations that use a large amount of energy and are looking for innovative ways to lower costs and improve their bottom lines," said Jeff Renaud, EnerNOC's director of Australia and New Zealand. And considering the recommendations expected to be made in the Senate Committee report (due to be tabled today) – including options for consumers to switch off during peak periods; greater power for the Australian Energy Regulator; a new consumer advocacy body – they could be onto something.

⁸ <u>http://reneweconomy.com.au/2012/mixed-greens-sydney-power-deal-to-cut-peak-use-by-35mw-82515</u>.

Greensync Partners with United Energy for Landmark Asset Deferral Project⁹

16 August 2016

GreenSync has entered into a partnership with Victorian utility United Energy (UE) to deliver a landmark demand response and energy storage project on the Mornington Peninsula. The project will defer the need for capital investment on the lower Mornington Peninsula by managing periods of peak demand.

Customers are increasingly aware of their role in the energy ecosystem and have an expectation that network businesses will make prudent investment decisions. UE has been actively looking for cost competitive alternatives to traditional network augmentation, which it has found in GreenSync's Community Grids Project.

Over the next five years, GreenSync will engage and incentivise households, small businesses and community organisations on the lower Mornington Peninsula (from Rosebud to Portsea) to help them reduce and/or shift their electricity usage voluntarily or through the use of solar PV and energy storage systems. GreenSync will also engage local utilities and other larger Commercial and Industrial operations to control their discretionary loads.

The non-network demand response initiative will allow UE to delay having to build new infrastructure to meet infrequent high demand in the area, typically over the summer holiday period.

United Energy Chief Executive Officer, Tony Narvaez said: "An important driver of our current and future strategy is the ability to leverage advanced technologies. The GreenSync solution will allow us to work collaboratively with our customers to continue to deliver a safe, reliable and cost-effective energy supply. Our partnership with GreenSync is another sign of our evolution from a traditional network distribution into an enabler of an innovative energy future."

GreenSync's Founder and Manager Director Phil Blythe said: "United Energy is a progressive utility that understands how new technologies can benefit Victoria's energy network. We're looking forward to demonstrating how our world leading technology can deliver this project of national significance."

A small scale trial of the Community Grids Project will be run over the 2016/17 summer period and the project itself is expected to commence in late 2018.

⁹ <u>http://www.greensync.com.au/greensync-partners-with-united-energy-for-landmark-asset-deferral-project/.</u>