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Consultation Submission – Targeted Reform of Distribution Pricing

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Introduction

1. The primary focus of this submission is the recovery of Residual Costs for non-residential consumers. The author is concerned about the approach which continues to be promoted by the Authority and its irrational, vehement and biased opposition to credible alternatives. Over the past 3 years there have been repeated attempts to draw the Authority’s attention to a major issue which exists with the recovery of Residual Costs by way of so-called non-responsive fixed charges based on Connection Capacity. This has however been met with a continual lack of interest amounting to a total refusal to acknowledge, consider and address the issue put forward. The major issue relates to the economic inefficiency caused by stepped changes in fixed charges. Despite this being contrary to the Authority’s own economic efficiency arguments, it has been overlooked primarily due to the Authority’s overly simplistic views and understanding of certain aspects of distribution networks & pricing.

2. While the author agrees with the Authority's reasons for promoting efficient Distribution Pricing, one of the key matters which needs to be considered in any discussion is the degree to which the Authority's economic objectives can realistically be achieved. This includes the minimisation of inefficient incentives and the trade-offs which exist in terms of developing the best overall Distribution Pricing outcomes. The Authority has simply not made any progress on this due to a complete lack of open-mindedness driven by what appears to be an idealistic mentality and bias towards a prescribed economic ideology. This coupled with a general attitude of ignorance towards the wider and more practical issues faced by Distributors has led to credible alternatives being dismissed without appropriate consideration. The unfortunate consequence of this is that the Authority is stifling any form of real discussion and debate on, and therefore also the development of the most appropriate overall Distribution Pricing outcomes, as it pursues the application of its economic ideology in a prescribed manner at whatever cost. From this perspective the Authority has simply failed in its mandate, statutory objective, and duty of care as the self-styled kaitiaki of electricity in New Zealand.
3. The Authority's current Distribution Pricing consultation document is unfortunately superficial and unrealistic in nature. It covers only a small range of the issues which need to be addressed, fails to make any real headway on the issues that matter, and in many respects creates more confusion than that which already exists. For the avoidance of any doubt the author is of the view that the Authority needs to completely review its approach to Distribution Pricing in terms of attitude, resourcing, and capability if the Authority is to truly assist the electricity industry in meeting the challenges of electrification in an efficient manner for the benefit of all consumers.

Economic Efficiency of Residual Cost Recovery

4. As previously identified, submitted¹ and pointed out to the Authority on numerous occasions in recent years, the major issue of concern in relation to the approach being promoted for the recovery of Residual Charges are the very strong inefficient pricing signals being sent to consumers. This is due to the presence of step increases/decreases in fixed charges – with this being an inherent part of any Distribution Pricing regime for non-residential consumers at the boundaries of Connection Capacity based pricing bands. The reader is referred to Section 2 of a previous submission¹ made in October 2021 for a detailed explanation of the economic inefficiency associated with step changes in fixed charges. Even though these inefficient pricing signals are clearly contrary to the Authority's own economic efficiency arguments and desired outcomes², the Authority continues to steadfastly promote its approach to Distribution Pricing as the gold standard solution without any discussion or explanation on this matter whatsoever.
5. One can only speculate as to the reasons why the Authority has remained silent on this major issue in recent years. In the interest of providing some background context for the reader to consider the

¹ [Buller-DP-Practice-Note-submission-2021.pdf \(ea.govt.nz\)](#)

² Consumers not being provided with incentives to make investments in disruptive technology (or otherwise) which results in fixed costs being shifted on to other network users.

following list of possible – yet totally inappropriate or incorrect – reasons are put forward which the Authority is invited to comment on or amend:

- The Authority is unaware that step changes in fixed charges exist.
- The Authority is of the view that step changes in fixed charges do not result in economic inefficiency.
- The Authority is of the view that Connection or Chargeable Capacity³ (or any similar metric used to determine fixed charges) are a fixed quantity that consumers are unable to change. Or consumers should not have the ability to change – to the point where networks are expected to deny Connection/Chargeable Capacity change requests, or at the very least be obstructionist – thus making a fixed charge derived from Connection or Chargeable Capacity truly non-responsive.
- The Authority does not wish to draw attention to the fact, or even go so far as to cover up, that its approach to Distribution Pricing is overly simplistic and by its very nature somewhat fundamentally flawed.

Regardless of what the reason for the Authority's silence may be, the fact remains that the Authority's inability to publicly identify, recognise the importance of, explain and address the stepped fixed charge inefficiency issue in the application of its economic ideology, to an area of the electricity which it claims to be of such high and urgent importance is incomprehensible and inexcusable. Furthermore, it must bring into question the organisations capability and competency to guide the electricity industry through the future challenges associated with the electrification of the economy.

6. For the record the Authority correctly identifies the following characteristics of Distribution Pricing which are summarised from Paragraphs 4.22 & 4.23 of the current consultation paper:
 - Non-residential consumer groups are commonly defined using Connection Capacity bands.
 - Step changes in pricing are common.
 - Steps create inefficient price signals as there is a high marginal cost of capacity at the step.

But as far as the author is aware, except for this cursory mention of the high marginal cost (economic inefficiency) at step changes, the Authority has to date not addressed the economically inefficient nature or implications of stepped fixed charges to any degree whatsoever.

7. Stepped fixed charges are an inherent feature of Distribution Pricing for several reasons related to connecting consumers of a wide range of sizes to a common network. Key factors which necessitate stepped fixed charges include consideration of network cost allocation fairness, equity between users, economic value derived from the network, and ability for users to pay. Furthermore, historically the discrete physical Connection Capacity steps were the only demand based metric available on which to base fixed charges. In general terms it is only reasonable that larger sized consumers – having higher Connection Capacity or Anytime Maximum Demand (AMD), and therefore making greater use of the network generating greater economic value – pay a proportionally higher share of the underlying fixed costs of operating the network. From an

³ The relationship between Connection Capacity, Chargeable Capacity & Demand is discussed in Paragraphs 34-43

economic perspective, stepped fixed charges help to ensure that the smallest network users are required to pay a cost which is below the standalone cost, thus making network connection feasible for the greatest number of consumers. The extreme alternative to stepped fixed charges is a flat fixed charge for all users to recover Residual Costs. Whilst this is very economically efficient in terms of not providing consumers with incentives to modify their use of the network (other than full disconnection), it would not be subsidy free and make it uneconomic for the smallest users to connect to the network.

8. The problem with stepped fixed charges is that they send very strong pricing signals at the step changes, which are clearly inefficient and strongly incentivise the distortion of network use. This is especially true in the case of consumers whose demand and Capacity requirements are close to the fixed charge step changes. This is explained in detail in Buller Electricity's 2021 submission on Distribution Pricing¹. Given that consumers are entitled to Connection or Chargeable Capacity upgrades/downgrades, and in relation to the decision-making process consumers go through about the Connection Capacity they require at the time a connection is established or upgraded, so called non-responsive fixed charges are responsive⁴. The responsiveness of so-called non-responsive fixed charges is a pricing dynamic which is being completely ignored by the Authority in its approach to Distribution Pricing. Furthermore, this behaviour is only expected to intensify as connection activity associated with the energy transition grows, and consumers become more educated and increase their uptake of disruptive technologies which allow them to modify how they engage with the network.
9. In recent years as networks have sought to make their pricing more cost-reflective, fixed charges have generally been increased, so the aggregate revenue recovered from these charges has increased towards the Residual Cost. A key implication of this increased level of fixed charging is that the step changes in fixed charges are also increased, along with the associated economically inefficient pricing signals. This being a further aspect of the Authority's approach to pricing it has been silent on.
10. It is put forward that the Authority's assertion that so-called non-responsive fixed charges based on Connection Capacity are more economically efficient and create less distortion of network use than alternative use-based approaches – such as AMD based fixed charges – is far from as clear cut as the Authority makes it out to be. The author considers the economic efficiency case for Connection Capacity based fixed charges is marginal at best, and as this method of charging brings with it a host of wider undesirable consequences – which the Authority will naturally choose to conveniently ignore or dismisses as being irrelevant – the overall case for stepped fixed charges providing the best Distribution Pricing outcome is greatly diminished. The inconvenient truth for the Authority is that it has greatly overstated the case for its stepped fixed charge approach to Residual Cost recovery. The Authority has dismissed alternatives without proper consideration or analysis, and in the process underpinned its entire Distribution Pricing reform guidance over recent years on erroneous assumptions about the nature of Connection Capacity based fixed charges in terms of their relative inability to distort use of the network.

⁴ But nonetheless arguably still less responsive than annual or monthly use-based demand charges.

11. That the Authority steadfastly maintains its current position on the recovery of Residual Costs, without so much as acknowledging that step changes in fixed charges impact the Authority's economic efficiency arguments, clearly brings the credibility of the Authority into question. The general lack of open-mindedness the Authority appears to have on this issue is difficult to comprehend and can perhaps only be explained by an organisational culture and inertia which is heavily biased towards an ingrained economic ideology. This unfortunately appears to be combined with a lack of industry knowledge, an arrogant 'we know best' mentality, and a general lack of critical and free individual thinking. Clearly the Authority's decision making on this issue needs to be examined in closer detail, and the author invites the Authority to fully reconsider its position with urgency and make the resulting information publicly available.
12. In relation to the longer-term evolution of electricity networks, the author is of the view that for the Authority to continue to promote an ideology where it considers that in a free world it is somehow possible to impede the instinct of consumers to reduce their use of the network and base-line charges – where it makes sense for them to do so – by introducing what amounts to arbitrary and artificial step changes in fixed charges which increase the incentives for inefficient behaviour for a subset of consumers defies common sense and logic. This is, however, the very approach to Distribution Pricing which is being promoted by the Authority in relation to the recovery of Residual Cost because it is deemed to fit nicely into the approved economic ideology.
13. Given that consumers can modify their network behaviour to avoid fixed costs the Residual Cost recovery problem becomes one of determining how this behaviour can be minimised. It is put forward that an equally credible or even better solution to the Residual Cost recovery problem, which also promotes wider beneficial Distribution Pricing outcomes, is to evenly spread out the economically inefficient incentives across all consumers using an AMD or similar demand-based charge. Using AMD based charging results in the inherent economic inefficiency associated with Distribution Pricing being made available to all consumers to be used at least cost, but at a uniform level⁵ when compared with the situation where there are stepped fixed charges. The ability for consumers to engage in inefficient behavior at least cost is naturally dependent on their electricity usage patterns, and in general terms consumers having the most short-term peaky consumption patterns will require the least investment to reduce their AMD. While this investment remains an overall inefficient and undesirable outcome, it perhaps should be considered to do this in the most optimal manner, driving the smoothing of the total consumer temporal load profile at least cost, and to a certain degree resulting in the most efficient utilisation of assets and available capacity.
14. It is noted that an AMD based pricing approach contrasts with the Authority's approach – artificially introducing step changes in fixed charges which are assumed to be non-responsive – which concentrates the economic efficiency at excessive levels at the step changes in fixed charges. In addition to the issues with this approach which have been detailed, this goes against the principles of providing consumers with open and equal access to the network so that they are able to share in

⁵ And significantly lower level for consumers operating close to step changes in fixed charges

the benefits of connecting to the network. One of those benefits is naturally having the right to access and make use of the economic inefficiency which exists.

15. In summary it is very clear to the author that the Authority has developed a very idealistic view of Distribution Pricing and is significantly overstating the benefits which can be achieved using an economically efficient approach. Among other things this has resulted in the development of an irrational fear of, and vehement opposition to, demand-based fixed charges. Key factors which have led the Authority to these outcomes are:

- The desire to apply a sound economic ideology to a practical use case (Distribution Pricing) which requires there to be a 'fixed' charge for its implementation.
- Misconceptions as to the 'fixed' nature of Connection Capacity & Chargeable Capacity fixed charges.
- Under appreciation of the nature of consumer behaviour and their ability/inability to take up economically efficient/inefficient investment opportunities even if they have the appropriate knowledge and electricity pricing awareness.
- Inelasticity of demand until a time when consumer and distribution energy storage become more widespread.
- Underestimating how difficult it is for consumers to modify their use of the network, and to always reduce their AMD (to avoid demand based fixed charges).
- Under appreciation of the impacts of pricing signal uncertainty in terms of their longevity prior to the next network upgrade.

16. From a pragmatic Distribution Pricing perspective, the author puts forward that AMD based fixed charges are nowhere near the villain the Authority makes them out to be. Furthermore, AMD based fixed charges have many inherent advantages compared with Connection Capacity based fixed charges, and they present themselves as both a valid and appropriate approach to setting fixed charges. One of the major benefits is giving consumers visibility of their AMD on a regular basis, with this aiding education and awareness in a similar manner to that which the Authority has suggested is the case for the implementation of TOU prior to when this form of price signaling is required.

Electricity Authority – Consultation, Engagement & Internal Processes

17. Over the past 3 years Buller Electricity repeatedly raised its concerns about the Authority's approach to the recovery of Residual Costs as detailed in this submission and its vehement opposition to demand-based alternatives. In general terms the Authority has been totally unresponsive and disinterested in engaging in a meaningful and constructive manner on these matters. The list of documents which have been provided, or made available, to the Authority over the course of this period are as follows:

- A copy of the Retailer consultation document developed in October 2020 as part of Buller Electricity's work program in the lead up to the implementation of an Anytime Maximum Demand (AMD) based pricing regime for non-residential consumers – which the then Director of Network Pricing responded to in a standard dismissive fashion.

- Submission to the Authority's October 2021 Consultation 'Supporting Reform to Efficient Distribution Pricing' – [Buller-DP-Practice-Note-submission-2021.pdf \(ea.govt.nz\)](#)
- A follow up letter to the October 2021 submission from Buller Electricity to the Authority dated 3 November 2022 (available on request) as a response to the Authority's September 2022 Open Letter to Distributors.
- Annual Buller Electricity Pricing Methodology & Pricing Policy documents for the past 3 financial years – available from the Company's website – [bullerelectricity.co.nz/pricing/](#)
- Buller Electricity Distribution Pricing discussions with the Authority in mid-2021 & mid-2022 as part the annual pricing catchup and Distribution Pricing Scorecard review process.

18. Despite this engagement with the Authority the key issue of Distribution Pricing inefficiency caused by stepped fixed charges has to date not been acknowledged, let alone adequately addressed, in any material produced by the Authority. That such an obvious and major issue exists in the Authority's approach to Distribution Pricing, which clearly goes against its own economic ideology and continues to be overlooked, is incredibly poor conduct. The Authority's approach to electricity industry consultation, overall engagement style, and the associated internal processes which have led this to outcome can only be concluded to be unprofessional at best and incompetent at worst. It is undoubtedly disrespectful and clearly demonstrates the Authority is stuck in a 'we know best' mentality where consultations and engagement are meaningless, only serving to promote an economic ideology and a predetermined approach to pricing. Given the events that have transpired it is questionable if the Authority is open to views that differ from its own, and whether the following statement it makes in its consultation documents holds any weight:

We are open to others' perspectives and are interested in your views. We value feedback from stakeholders on these matters.

19. Paragraph 5.14 of the current consultation document states:

We continue to see some distributors using an individual customer's AMD (customer AMD) as a charging metric to recover residual costs. Some distributors have argued this charging metric is less distortionary than using a measure of capacity as a basis for fixed charges.

It would be helpful to readers if the Authority outlined the arguments and provided informed comment on the material previously put forward by Buller Electricity and other submitters, and/or provided references to the associated submissions/documents for further relevant and targeted information. This should have been done as part of the response to the October 2021 consultation submissions, but this would clearly not be to the Authority's benefit if it is only interested in promoting its prescribed approach to Distribution Pricing.

20. The author is asking that for the benefit of the electricity industry the Authority undertakes a thorough and unbiased assessment of the impacts of stepped fixed charges on economic efficiency and overall Distribution Pricing outcomes. In addition, given this information, reconsiders if its vehement opposition to demand based fixed charges is justified. The author is not opposed to Connection Capacity based stepped fixed charging regimes, but would rather the electricity industry be made aware of the inherent problems this approach to pricing creates, and the credible

alternatives which exist. Given its position in the electricity industry it is the author's view that it is the Authority's responsibility to be fully aware and take account of all aspects of the economically efficient based approach to pricing it is promoting. Outlining the good and the bad so that the industry is able to make informed decisions is what is involved in being an economist in the real world, but this seems to be a challenge the Authority is not interested in acknowledging let alone accepting.

21. The development of good Distribution Pricing outcomes includes many factors which do not fit naturally into an analysis framework based on determining economic efficiency. While certain aspects of these factors could be mathematically modelled, this would be open to significant modelling and parameter variability, with the results then being open to interpretation. Whether or not this would be a worthwhile exercise is open for debate, but at the end of the day there is no substitute for the knowledge, experience and intuition of distribution pricing practitioners. While the Authority's economic efficiency-based work is adding valuable information into the Distribution Pricing space, the Authority must realise that if this is the only consideration in its work then it is simply not doing its utmost to ensure that the industry is progressing towards the best possible Distribution Pricing outcomes.

Transmission vs Distribution Networks & Pricing

22. In the first instance it must be acknowledged that Distribution Pricing presents itself as a far more complex problem than that of Transmission Pricing, primarily due to its more distributed/extensive nature and lower level of centralised monitoring & control. Paragraph 4.5 of the current consultation paper states:

There is commonality in the principles and issues for pricing of distribution and transmission services, with the demarcation between distribution and transmission more a matter of ownership than any sharp break in design or functional characteristics. For example, there is cross-over between distribution and transmission voltages, with Transpower owning several sub-110 kV lines and larger distributors owning 110 kV lines.

While there is commonality in that transmission and distribution networks are used to transport electricity, the nature, characteristics and issues associated with distribution networks/pricing are vastly different, primarily for the following reasons:

- Multiple consumer pricing groups exist.
- Hundreds of thousands of consumer connections which bring with them significant real world consumer facing issues.
- The requirement for multiple price schedules across a Distributors network and the difficulties which exist in consumers actually knowing & understanding the pricing they are subject to – let alone responding in a predictable manner.
- The presence of step changes in fixed charges – particularly if fixed charges are Connection Capacity based.

- Consumers being far less electricity educated and aware, and generally being time poor to make network use changes and investment decisions.
- The ability for consumers to be responding to pricing which continually changes depending on the level of constraints which exist in the upstream network.
- Less certainty exists in the network requirements of (individual) consumers in both the short and long term – by both network operators and consumers themselves – and there can be regular change in consumer connection ownership and network use.
- The often small and discrete nature of network investment decisions.
- Residual Costs represent the dominant component of any pricing regime in the long-term resulting in the method of recovery of these costs having more weight.

23. The author is of the view that the first key mistake the Authority has made in its approach to Distribution Pricing is the application of its work on the recently implemented Transmission Pricing Methodology (TPM) in far to a homogeneous manner to the former. This has been done without fully considering, or accounting for, the key structural and implementation differences which exist between distribution and transmission networks/pricing. The most obvious example of this is naturally the economic inefficiency introduced by the existence of stepped fixed charges.

General Comments on Authority's Pricing Reform Work

24. Aside from the key matter of Residual Cost recovery, the Authority's consultation paper contains numerous examples where a basic understanding of Distribution Pricing is lacking and/or biased information is being put forward to promote the Authority's economic ideology and agenda. While the economic efficiency considerations have merit, their overall benefits are being oversold by the Authority.

25. The Authority must acknowledge that good real world outcomes are what is important in the long run, and achieving this will require consideration of a far wider range of criteria and a more balanced approach than is currently the case. While pure economic efficiency arguments have merit and are worthy of consideration, their shortcomings must be recognised and appropriately addressed. The Authority unfortunately appears to lack any real interest in fully understanding the nature of Distribution Pricing and critically examining its own economic ideology in this context. In simple terms good outcomes cannot be achieved by the adherence to an economic ideology or doctrine which exists in isolation and lacks any sense of realism. While pricing is a starting point for developing good outcomes there are many other factors including consumer response and the wellbeing of society which need to be considered.

26. The Authority needs to become more focused on actual Distribution Pricing outcomes rather than the application of its economic ideology. While economic ideology can be a useful tool for understanding Distribution Pricing and guiding its development, it must be recognized that economic models are simplistic in nature and do not account for a host of other factors which Distributors are facing. The Authority's pricing work generally tends to drive pricing to extreme edge cases which are perceived to be where maximum benefit and value can be derived. In many cases these extreme

edge cases are unrealistic and overstate the case. From a Distribution Pricing practitioners' perspective, it is totally appropriate that economic model derived solutions are tempered with practical industry experience, knowledge & judgement. The unfortunate reality for the Authority is that it places no weight on these commonsense factors, primarily because their impact is not able to be easily quantified or explained in pure economic terms. The Authority's lack of practical distribution experience means that it is unable to comprehend them to any degree, effectively dismissing them as being irrelevant under the pretense of its economic ideology.

27. The Authority must recognise that most Distributors will have fixed charges which under recover Residual Costs, or in other words Residual Costs will in part be recovered by variable charges. Under these circumstances off-peak variable charges must be viewed as Residual Cost recovery rather than Economic Costs. Furthermore, this means that variable charges will be higher than would be deemed necessary by Cost-Reflective pricing. From a Distributor's perspective over signaling Economic Costs is favorable to under signaling as this is clearly the least regrettable option for a prudent network operator in the long term for managing the risk of under investing in network infrastructure.
28. As an example of the real world issues the Authority's economically efficient approach to pricing creates consider residential connections in unconstrained areas. The Authority would advocate that an elderly person in a pensioner flat (low income) and the occupants of a large four-bedroom house (high income) using many times the amount of electricity should pay the same fully fixed charge for the delivery of their electricity⁶. While this is an economically efficient outcome it is without doubt a socially unjust one as one household clearly makes far greater use of the network and has a far greater ability to pay the fixed charge. While this is an extreme example it nonetheless highlights a key weakness in the Authority's economic ideology when it comes to its application to residential connections, as even though the connections maybe of similar Capacity their effective size differences can be significant. If it is accepted that demand-based fixed charges are an appropriate pricing approach for non-commercial consumers, then it is suggested that a similar approach could effectively be used to downgrade residential supplies based on demand.
29. The Authority must take into consideration that rightly or wrongly many Distributors who are Trust or Community owned have a sense of social responsibility to provide residential consumers with the ability to lower their electricity bills by lowering consumption. The Authority can dress up its economic ideology in what every way it wants, but uniform charges for residential users are not in the best interests of New Zealand as a society and therefore consumers.

⁶ Provided they are both supplied by a standard single phase 15kVA 63A connection – although it is noted that some distributors offer 32A connections.

Anytime Maximum Demand (AMD) Based Pricing & Implementation Experience

30. Buller Electricity implemented Anytime Maximum Demand (AMD) based fixed charges for non-residential consumers with AMD > 15kW from 1 April 2021. A thorough explanation of the key reasons and circumstances surrounding this decision are provided in Section 8 of Buller Electricity's 2023-24 Pricing Policy⁷ – including a discussion on why AMD has inherent advantages over the use of Connection Capacity as a basis for fixed charging.
31. Buller Electricity's implementation of AMD makes use of an annual or biennial assessment of half-hour AMD obtained from Smart Meter data for the 12 months ending 31 August, with this being used to set the Chargeable Capacity from 1 April the following year. Half-hour data, now available for many consumers using data requests to Retailers, provides a significant level of demand smoothing compared with instantaneous demand. It is noted that some level of demand smoothing is appropriate for AMD determination as this metric is being used to allocate a share of upstream assets for which a significant amount of diversity will exist for all but the largest consumers. The availability of 5-10 minute consumption data in the future would facilitate an analysis of the impact of the duration interval used on AMD assessment.
32. Being a very small network of 5,000 consumers, only 165 consumers are currently subject to AMD based fixed charges (AMD > 15kW), with a further 400 small non-residential consumers with AMD ≤ 15kW also being included in the annual or biennial AMD assessment. While AMD assessment adds an additional step in the annual price setting process this is not overly onerous for Buller Electricity to undertake, but this is unlikely to be the case for larger networks due to the number of consumers involved. One way to manage this in an initial implementation of AMD pricing is to simply use a much higher demand/capacity threshold, and then gradually reducing this threshold so that AMD pricing is applied to more consumers in following years as confidence in the pricing systems and process are developed and demonstrated. A logical starting point for any Distributor implementing AMD pricing is to simply start with the large consumers it already has half-hour data for as part of the monthly billing process – this being something which Buller Electricity put in place from the 2013-14 financial year. In the interests of making AMD based pricing more readily available to Distributors, as well as giving networks & consumers much better visibility of consumer demand, the author asks the Authority to consider making half-hour AMD data available as a standard data format, preferably on a monthly basis as part of EIEP1 billing data or otherwise.
33. Buller Electricity implementation of AMD based pricing has been deemed a success with no major issues having been encountered. There has been no evidence of consumers actively trying to reduce their AMD given their incentives to do so, but with only 165 consumers under AMD pricing and a short 2-year history, this can only be considered as being a learning by doing trial. Even if AMD reduction was observed it would be very difficult for any Distributor to determine how this was achieved by the consumer, the degree to which AMD pricing incentives influenced this, if there was a genuine change of use or load reduction at the site, if modification or installation of equipment for demand reduction took place, let alone any cost to the consumer to achieve the AMD reduction.

⁷ <https://bullerelectricity.co.nz/wp-content/uploads/BEL-Pricing-Policy-2023-24.pdf>

Furthermore, it is again noted that the inefficient avoidance of fixed charges is also possible in a Connection Capacity based pricing regime so long as the consumer can access a lower Connection Capacity pricing band.

Chargeable Capacity & Capacity Rights

34. This section provides a discussion on aspects of Distribution Pricing practices related to Connection Capacity, the setting of Chargeable Capacity for consumer connections, and the management of Capacity Rights.

35. The standard method of defining Price Categories for non-residential connections is by using Connection Capacity:

A consumer's Connection Capacity (or Capacity) can be defined as the upper limit on the amount of power that the consumer is able to draw from the distribution network. Capacity is measured in kW or kVA and may be physical (i.e., the physical capacity of the connection to the premises) or contractual (where a consumer contracts for a certain capacity to be available).

It is typical for several Connection Capacity steps (also referred to as Capacity bands) to be aggregated together into a single Price Category⁸ with the same fixed \$/kVA/Day (or \$/kW/Day) price being applied to all consumers in a Price Category. The fixed charge for a connection is then determined using the Chargeable Capacity Pricing Attribute (or otherwise) recorded against each connection on the Electricity Registry.

36. Whether the Chargeable Capacity represents the available physical Connection Capacity (generally determined by the service fuse or dedicated connection asset/transformer size), the contractual Capacity, or the Capacity the consumer requires (aligned with their demand) is somewhat up to the practices/discretion of the Distributor and/or commercial arrangements between the Distributor & consumer. The discrete steps of Chargeable Capacity currently used in pricing schedules are very much a consequence of historic circumstances and practices where physical Connection Capacity was the only available demand-based metric on which to determine fixed charges.

37. In the interests of ensuring that consumers are being appropriately charged for the service they make use of the Chargeable Capacity should be set at the consumers Anytime Maximum Demand (AMD) rounded up to the next highest Connection/Chargeable Capacity step⁹. It is very common for Capacity requirements to be grossly overestimated and requested at the time of new connection establishment and connection upgrades, as this is the least regrettable position for consultants/developers since ensuring that sufficient Capacity exists for commissioning is of the highest importance.

⁸ Limiting the number of Price Categories required.

⁹ Especially in the case of mass market consumers where significant diversity exists.

38. If a consumer's existing demand is significantly lower than their Connection Capacity the consumer should be informed of this and their Capacity needs established, with the consumer being given the option to reduce their Connection Capacity and Capacity Right in return for a lower Chargeable Capacity and ongoing fixed charges¹⁰. It is expected that most consumers would take up an option of this type as the best estimate of their future electricity demand/requirements would be their existing demand/requirements. In situations where consumers have specifically oversized their connections for future demand growth the case exists for Chargeable Capacity to be set at higher levels than the existing demand, but this is again somewhat up to the discretion of the Distributor, and charging should be reduced to lower levels reflective of actual demand if the formerly expected increase in demand does not eventuate.
39. In general, smaller non-commercial consumers will have limited knowledge or understanding of their Connection Capacity and existing demand, with consumer education and awareness of this being a key step for the management of electricity networks in the future. For non-commercial consumers where the supply of electricity is provided under the proviso of existing consumption patterns and diversity, the entire notion of Capacity Rights is somewhat of a dubious concept as it is common knowledge that networks are generally not built to meet all of consumers existing Capacity Rights. This is simply a case of effective Asset Management to ensure networks are not significantly overbuilt resulting in poor asset utilisation and over investment. How to best manage consumer Capacity Rights presents itself as a very difficult problem relying heavily on the Distributors' experience, judgement as well as their knowledge of expected consumer demand. Distributors' practices will naturally be tested as electrification accelerates, with demand requirements increasing and existing diversity patterns changing. In the interests of managing distribution networks Distributors should consider reducing the headroom which exists between demand and existing consumer Capacity Rights (Connection/Chargeable Capacity) so the inherent liability that exists for Distributors is minimised, and existing available Capacity can be allocated to new demand with more confidence.
40. The primary purpose of Chargeable Capacity is to allocate the cost of upstream assets which are provided for the benefit of all consumers on a shared basis within the context of the existing diversity of consumer demand. As a result, if this is to be replaced with a demand equivalent it is appropriate that it is subject to significant time averaging e.g., half-hour AMD. The charging for dedicated Connection Assets is a different matter altogether for which Connection Charges are more appropriate. It is noted that for a limited number of special consumer cases, engineering & technical requirements will mean that a consumer's Connection Assets may need to be significantly overrated compared with certain measures of demand e.g., half-hour AMD.
41. Given that interval (half-hour) consumption data is now readily available from Smart Meters determining actual demand, or narrowing the Chargeable Capacity bands, for pricing

¹⁰ It is noted that the adjustment of Chargeable Capacity in this manner is an inherent part of an AMD based pricing system.

purposes would appear to be a natural next step in the evolution of Distribution Pricing. It is noted that in the limit as Chargeable Capacity bands are reduced to zero Capacity based pricing become equivalent to demand (half-hour AMD or similar metric) based pricing, and in this regard, it is suggested that Connection Capacity has historically been used as a proxy for demand.

42. It can naturally be argued that the service the consumer is being provided with is access to their physical Connection Capacity (Capacity Right) rather than the Capacity they use (demand), with this supporting the notion that Connection Capacity is a fixed quantity and an appropriate metric on which an economically efficient pricing can be based. The counter argument to this is the service the consumer is interested in is access to their required level of electricity when they need it, with this becoming increasing importance in a service-based industry where the use of technology for demand management will become commonplace. After all consumers are very well versed with the concept of user pays as a basis for pricing and charging, and in terms of electricity demand (not Capacity) represents their use of the network.
43. From the strength of the Authority's opposition to Anytime Maximum Demand (AMD) in favour of Connection Capacity one can perhaps only draw the conclusion that these quantities are somehow diametrically opposed. Examination of the evidence however suggests otherwise that for the vast majority of consumers if their pricing is appropriate their (half-hour) AMD and Connection Capacity will in the vast majority of cases be closely aligned.

Response to Specific Consultation Questions

Q2. Do you have any comments on the options outlined?

44. The 'Continuation Option' is favoured. The author is strongly opposed to the 'Control Option' or 'Call-In Option' until a point in time if/when the Authority has addressed the Residual Charge recovery issue detailed in this submission and demonstrated it has developed a thorough and balanced understanding of the wide range of issues electricity Distributors are facing.

Q9. Do you agree with the assessment of the current situation and context for off-peak pricing signals? What if any other significant factors should the Authority be considering?

45. The Authority needs to explain how the economic inefficiency associated with step changes in fixed charges fits in to its economic ideology in terms of providing consumers with incentives (or not) to modify use of the network. The Authority is yet to provide any evidence as to the extent/ comparison of the distortionary nature of Connection Capacity and Demand based fixed charges.
46. Paragraph 5.19 of the current consultation document states (bold added for emphasis):

*The Authority's view is that distributors should not use customer AMD as a charging metric to recover residual costs. **We consider that use of customer AMD, particularly when the chargeable quantity is a single annual peak updated each year, provides a strong incentive for customers to reduce their peak load, and potentially invest in technology that lops their peaks.** Where there is no congestion or the customer's peak does not coincide with network peak (so reduction does not impact on network costs), such behaviour is inefficient and shifts costs to other consumers.*

The Authority must recognise that similar and sometimes even much stronger incentives exist for consumers using Connection Capacity pricing provided they become eligible for a lower Connection Capacity pricing band. The nature of consumer loads is that peak values of demand (or values close to peak demand) are most commonly repeated many times throughout a year, and as a result it is misleading to suggest that the chargeable quantity is a single annual peak. Furthermore, it is this single peak (or group of peaks) which essentially sets the Connection Capacity requirements of the consumers connection.

Q12. Are there other options you think the Authority should consider for improving off-peak pricing?

47. The 'Continuation Option' is favoured. The author is strongly opposed to the 'Control Option' or 'Call-In Option' until a point in time if/when the Authority has addressed the Residual Charge recovery issue detailed in this submission and demonstrated it has developed a thorough and balanced understanding of the wide range of issues electricity Distributors are facing.

48. Footnote 55 of the Authority's consultation paper states:

Note that using an individual customer's AMD as a charging metric deters usage at any time, including off-peak periods.

It is noted that this statement is also true for a fixed charged based on Connection Capacity. The unfortunate reality is that someone has to pay for the Residual Costs of the network and this needs to be allocated based on the 'size' of consumers. The difficulty with applying the Authority's economic ideology is that 'size' is very much based on consumers overall use of the network.

Concerned Citizen

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