Contact Energy Submission

Market Development Advisory Group: Price Discovery in a Renewables-Based Electricity System – Options Paper

20 March 2023

Introduction

1. We want to congratulate the Market Development Advisory Group (MDAG) on a significant and well considered piece of work. It will rightly play a key role in helping to steer policy and market evolution through the transition.
2. The report shows that a market driven approach to the energy transition will deliver the best outcome for consumers. We agree. While we have some comments, and points of disagreement in this submission, we are strongly supportive of the direction of travel MDAG has taken.
3. While we recognise the need for the market to continue to evolve, the current settings are doing a remarkably good job in delivering the right incentives for the transition. Contact Energy has over $1.1 billion under construction right now, and well-developed plans for over 6TWh of new generation. We are not alone, all up Transpower has grid connection inquiries totalling more than 33TWh.
4. This submission is broken into three parts:
    a. First, we provide some views on the key changes needed to incentivise sufficient flexible generation.
    b. We then highlight the barriers that are holding back demand side flexibility on the energy market and how this could be resolved.
    c. Finally advise some caution against the risks of developing regulations based on forecasts of problems that haven't yet emerged.
5. We have also included two attachments. The first one provides detailed responses to each of the options considered by MDAG, and the second one compares different approaches to commercial and industrial demand side flexibility.
6. We would be happy to discuss our views with MDAG or the Electricity Authority.

Incentivising sufficient generation flexibility

7. With better information and some tweaks to the market, we see no reason why there won't be sufficient firming capacity over the foreseeable future. There are already a number of these products in the market, such as the Contact – Meridian swaption, and Genesis' MSOs. As demand rises to meet the needs of intermittent renewables the market is well set to respond.
8. However, we must ensure that there are sufficient market signals to support both flexible generation and demand response. At the moment, we are concerned that the system operator may be acting too cautiously in calling scarcity pricing. These events are a necessary signal to bring on every available resource, and while they may only occur every few years, they are key to making the business case for flexible assets such as batteries. Without this market signal, it is unlikely that the flexibility that New Zealand needs will come online.

9. Currently, it appears that the system operator is often calling on the legacy ripple control system to reduce the risk of scarcity. The cost of this service is not priced into the market, nor is the benefit of the response provided back to the flexibility provider (residential consumers). This reduces transparency in the system and muddies the incentives of companies looking to provide generation and demand flexibility.

Unleashing competition for demand flexibility

10. Through our subsidiary Simply Energy we have one of the most sophisticated demand side flexibility programs for commercial and industrial (C&I) customers in New Zealand. Simply works with customers at over 60 predominantly industrial sites, across a range of sectors. Most of this flexibility is offered into the reserves markets only because of structural barriers in the energy market, and limited opportunities to support transmission and distribution networks.

11. Our focus is currently on C&I customers, because that is where the greatest opportunities are today. While there are is undoubted potential in the residential market, there are currently greater technology and customer appetite barriers that need time to resolve. Whereas the C&I market is primed for significant growth. DSF thrives in the more volatile markets we are starting to see which provide opportunities to reduce load to take advantage of high spot market prices.

12. Our experience with C&I DSF paints a different picture to that described by MDAG in a two key ways:

    - In our experience, except for a few very large load users, customers want a managed low risk service. The lack of complex tariffs that reflect energy and network costs is a feature not a bug (or a ‘hack’ as described by MDAG). Few customers have the expertise or willingness to manage their own usage to optimise complex tariffs. For Interruptible Load participation, all participating customers pay flex traders to manage participation and take the market risk. For a mechanism to attract customers and be successful in driving the development of wholesale market DSF, it needs to take the same managed low risk service approach.
    - Demand flex is only a small feature of any retail relationship, it can easily be swamped by other factors when determining total retail tariffs such as the retailers hedging book. As a result, there is currently limited competition over wholesale DSF on its own right. The ability to control retail supply costs through competitive procurement is the most significant energy cost lever for customers, and any DSF mechanism (tariff, DR program or otherwise) which enables the customer to access DSF value needs to not compromise the retail supply procurement to be successful.

13. We believe that this has led MDAG to mis-diagnose the problems holding back the DSF market (at least for C&I customers).

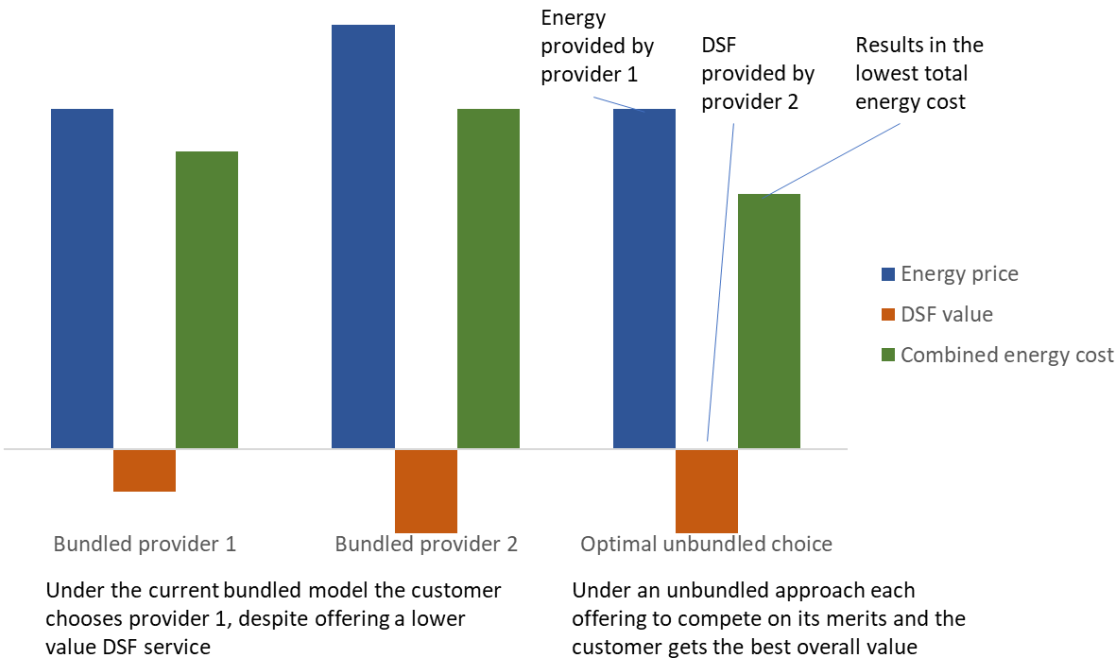
14. The best way to grow C&I DSF is to unbundle the retail and flexibility markets. That would allow energy and flexibility services to compete on their own merits. A customer can choose the cheapest energy offering, and then separately choose the flexibility trader offering the best service to meet their needs. This would maximise competition and innovation amongst retailers for the energy supply, and flexibility traders for the controllable load.

15. As noted in the Australian Energy Market Commission (AEMC) Reliability Frameworks Review, a bundled approach can lead to less DSF being offered into the market:

> *Retailers are incentivised to utilise demand response where it is efficient to do so; however, they may opt not to if they lack the experience or the organisational expertise to utilise wholesale demand response or do not expect to recover the costs of engaging with a consumer to provide wholesale demand response. In addition, retailers have other ways of managing wholesale electricity market price risks, such as financial contracts and vertical integration.*[1]

16. Even where a retailer offers some DSF, this is typically a small part of the overall tariff and can be swamped by other factors leading to a worse outcome for consumers, as shown in figure 1 below.

Figure 1: Competition between DSF services can be inhibited by bundling with retail energy



[1] https://www.aemc.gov.au/sites/default/files/2018-07/Final%20report_0.pdf, p53

17. However, it is currently not viable to operate as an independent flexibility trader in the energy market for three key reasons:

    a) **Market access.** Currently a flexibility trader must establish an agreement with the customer's energy retailer to gain access to the DSF value (given the direct beneficiary of the DSF accrues to the retailer through reduced wholesale energy purchase costs). Reaching these agreements can be challenging. Our experience aligns with that described in Australia where the AEMC found that "there are commercial barriers to developing the required partnerships between retailers and demand response providers".[2] For example, the retailer may not want the hassle of dealing with a flexibility trader, they may see little value in flexibility because the risks are already managed by their hedging strategy, or they may consider the flex trader to be a competitor to their own retailer or energy services business. In cases where retailers have entertained an agreement they have looked to retain a significant portion of the DSF value leaving little to share with the customer or fund the DSF setup and systems.

    b) **Term.** DSF setup costs (hardware, staff, electrical, automation costs etc) are often high, and the monitoring and control hardware required is tied to the flexibility providers platform.[3]. To cover these setup costs Simply's bespoke energy market DSF contracts have been considerably greater than 5 years.[4] In contrast retail contract terms are generally 1-3 years. This difference in contract term makes it difficult to justify the setup costs because when the customer switches energy supply retailer the flexibility equipment will no longer be of use due to challenges in reaching market access with the new retailer, and different requirements between retailers.

    c) **Standardisation.** Different distributors can have completely different DSF requirements, which require the flexibility trader to develop bespoke software for each agreement. It is inevitable that this issue will also exist with retailers – different approaches on how/when DSF will be called, measured and paid for. For a flex trader developing a business model providing DSF to retailers, the costs of bespoke development for each retailer's requirements will often make offering DSF services uneconomic. This is further exacerbated by the retail supply term issue described above which means the cost of configuring the DSF may fall twice in a standard DSF term (as the customer inevitably switches retailers).

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[2] https://www.aemc.gov.au/sites/default/files/documents/final_determination_-_for_publication.pdf, p1

[3] The flexibility equipment is generally tied to a cloud based flexibility platform and would not be useable by another retailer or flexibility provider when the customer switches retailer (unlike smart meters for example)

[4] The DR monitoring and control equipment we install would be tied to Simply's DR platform, and would not be useable by another retailer or flexibility provider when the customer switches retailer

18. The combination of these barriers also means that it is difficult to offer energy market DSF to our own C&I customers, except in the rare cases where we are able to secure a long-term agreement. For example, if we invest in the DSF systems and automation for a normal 1-3 year retail contract, we may lose the retail relationship before the DSF costs are paid down. We will then have to negotiate with the new retailer, who may not want to work with us, or may require a different configuration, making the DSF service uneconomic.

19. We compare the full range of demand flexibility arrangements we are aware of in attachment 2 to demonstrate how well each one addresses the barriers above and facilitates a competitive DSF market. We find two options that have the best chance for success:

    a. **a negawatt scheme**, like that implemented in Australia; or

    b. **standardised contract terms** between retailers and flexibility traders that provide sufficient commercial incentives for DSF and standardised access to reduce the costs of reconfiguring systems following retail churn.

20. MDAG considered, but ultimately dismissed recommending a negawatt scheme. Their primary concern appears to be the challenge of accurately setting baselines. We consider this to be a misplaced concern. As shown in attachment 2 baselines are a necessary part of almost all DSF services. At the moment baselines are negotiated on a case by case basis between the customer, the flexibility trader and the retailer. Where the flexibility service is offered by a third party the retailer tends to hold all the power in the negotiation, so the baselines are heavily skewed in their favour. A negawatt scheme is likely to make the baselines more accurate, not less.

21. The experience with Australia's Wholesale Demand Response (WDR) mechanism also provides some comfort that baselines can be set at an appropriate level. In the review of its first six months of operation they found that "the baseline eligibility and compliance methodologies, together with the accuracy and bias metrics result in loads that have accurate and unbiased baselines participating in WDR and that the demand response provided under the WDRM is real and additional".[5]

22. Instead of a negawatt scheme MDAG has proposed implementing standardised shape related hedge products to reward DSF. Ultimately we find that this option is highly complex, and may not be aligned with what customers are asking for. It requires customers to take on more electricity market risk at a time where most customers have a strong preference to not take on market risk exposure. attachment 2 provides an assessment on if and how customers, flex traders and retailers could use such a product. We are happy to engage further with MDAG

[5] https://aemo.com.au/-/media/files/initiatives/wdr/2022-wdr-annual-report.pdf?la=en, p14

on the implications. At this stage we do not see a hedge product providing much support to the development of wholesale DSF, and we do not recommend that this option is prioritised.

23. Attachment 2 also includes an assessment of retailer DSF tariff arrangements as proposed by MDAG. We find this approach will limit DSF development for a number of reasons, including customer risk appetite, retail supply contract terms, and placing all the onus on retailers to drive DSF development. We disagree with MDAG's assessment that the industry should focus solely on this mechanism and not explore or pursue other mechanisms like a negawatt scheme. There is already clear evidence that the retailer DSF tariffs option has failed.

24. In the next stage of the project we recommend that MDAG reconsider negawatt schemes, and considers standardised DSF contract terms. These options have significant potential upsides, and the risks identified by MDAG can be managed. These schemes are not a 'hack on a hack' but a way to deliver the type of service that customers actually want.

Regulations should not attempt to anticipate an unknown future, but be nimble enough to adjust

25. In the final report there should be a greater recognition of the uncertainty of the future. While the terms of reference of the report require the assumption that electricity supply will be 100% renewable by 2030, most recent analysis has shown that this would not be the best outcome for consumers, or the environment.[6] Similarly, technology may emerge that provides a direct substitute for flexible thermal supply, such as Genesis' biomass trials, or some of the options investigated through MBIE's NZ Battery Project.

26. If thermal assets, or some substitute, stay in the market for much longer than assumed then some of the more radical changes recommended by MDAG may not be necessary, and may even be harmful to the market. For example, standardised shape products could stifle market innovation and incentivise the wrong type of capacity. Similarly virtual asset swaps may cause more disruption than they solve if market power does not become a problem.

27. We therefore recommend that interventions only occur when there is robust evidence of a problem in the market, and that the benefits of intervention exceed the costs. In most cases we consider that there is already sufficient monitoring by the Authority to detect these problems as they emerge.

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[6] https://www.bcg.com/publications/2022/climate-change-in-new-zealand

28. In response to past submissions highlighting the need for robust evidence before intervention, MDAG has rightly pointed to the risk of waiting for a regime to be implemented. For example, if a major market power problem emerged, significant damage could be done in the two years it may take to establish a regime to respond.

29. In those cases where the risk is sufficiently high, we would support a regime being developed ahead of need, but not implemented until sufficient evidence is gathered that the regime is necessary. This type of 'backstop regulation' has been commonly used in the telecommunications sector, such as the mobile co-location standard terms determination.[7] It allows for an intervention to be implemented quickly, but not create a burden or economic risk before it is necessary.

[7] https://comcom.govt.nz/regulated-industries/telecommunications/regulated-services/mobile-services/mobile-co-location

Attachment 1: Response to options considered

Proposed measures to strengthen operational coordination

Option considered	Contact Energy Response
A1: Improve short-term forecasts of wind, solar, and demand	Support. Better forecasts of intermittent generation will be critical for demand response and other types of firming.
A2: Strengthen governance for next phase of FSR Project	Support
A3: Update shortage price values	Support. Accurate scarcity prices will be critical to making the business case for flexible capacity like batteries and some demand response.
A4: New reserve product to cover sudden reduction from intermittent sources	Support. Simply Energy's demand response capacity would be well placed to meet the needs of this market, and it would provide a way for demand response to access market value. Some load that could meet the needs of this market has a much slower response time than our current reserves market. Products with a 5 minute, or longer start time may be necessary.
A5: Offer price reductions after gate closure	This is not an issue we face as an aggregated portfolio. While we understand the theoretical concern raised by MDAG, in practice there is very little of this type of load in the market. We'd also be concerned that this facility could be used for gaming the market, so would require careful implementation design.
A6: Investigate + develop ahead market	We support this option being further investigated. However, our current view is that bilateral contracts can already manage this risk and we don't see a strong case for why this would be different in the future. We also note that production-based demand response often requires a 1-4 hour advance notice to safely and economically wind down. It is therefore not suitable for being given a dispatch instruction at the start of a trading period.
A7: Remove UTS over-ride of trading conduct provisions	Support. We agree with the issue identified by MDAG.

Option considered	Contact Energy Response
A8: Negative offers/prices (not supported by MDAG)	Agree that this is not a priority
A9: Centralised commitment based on complex offers (not supported by MDAG)	Agree that this should not be supported.
A10: Warming contracts (not supported by MDAG)	Agree that this should not be supported. If there are the right peak price signals, then the market will react accordingly.

Proposed measures to improve risk management and investment

Option considered	Contact Energy Response
B1: Greater transparency of hedge info (esp non-base load) covering offers, bids + agreed prices	We are unsure how this option could improve security of supply? However, we do see this option creating significant administrative costs. It is likely that industry and regulatory effort could be better used on other options.
B2: Market-making for longer dated futures (for price discovery)	The market is already delivering on longer dated contracts, such as the Contact/Meridian swaption. As the demand for these contracts increases, we expect the market to meet this need. For our part, we consider all reasonable offers made to us, and where we are able to provide a bid, we will always offer a fair and reasonable price.
B3: Publish aggregated information on pipeline of new developments, energy and capacity adequacy	We are unsure of the need for this. The EA have already undertaken similar work on an ad-hoc basis when necessary. We don't consider anything more formal is required.
B4: Enhance stress testing regime	It may be appropriate to begin by improving disclosure requirements on independent retailers to demonstrate that they are sufficiently hedged. We expect that this will provide a clearer view of system security than the monitoring regime proposed in B1.
B5: Develop standardised 'shape' product(s)	We understand the need for buyers and sellers to make arrangements that support intermittent generation, and allow revenues for firming generation or demand response. However, we are not convinced that a regulated standardised product will best meet this need. Currently the market is delivering on shaped

Option considered	Contact Energy Response
	and peak products, and we expect this to expand if/when demand for these types of products grows. Developing this sort of product would also prove to be very difficult. Each buyer will have a different aggregated portfolio, and different firming requirements. Furthermore, each seller will have a different profile of assets that they can offer. We do not consider it feasible or desirable to reconcile all these differences into a defined set of products. Bespoke OTC firming and peaking contracts will better suit the needs of sellers and buyers, and provide the right incentives for the right type of capacity to be built into the market (rather than artificial incentives to meet a regulatorily set shaped product(s))
B6: Develop flexibility access code (non-price elements)	We consider that there needs to be better evidence of the need for this sort of code before it is developed. As noted in the body of this submission, it is not yet clear that there are significant market power, or access issues, so this may be a case of a solution being developed ahead of a problem (which may never eventuate).
B7: Extend trading conduct rules to hedge market	We do not consider that this is necessary given the market making requirements. This means that there is little to no risk of market power, so further oversight is not as high a value.
B8: Market making in caps or other shaped products (partially supported by MDAG)	As per B5 above, we do not consider regulatory defined shape products would best meet the needs of the market.
B9: Capacity mechanisms (not supported by MDAG)	We agree that capacity mechanisms should not be supported. We considered capacity mechanisms as part of our work on a potential Thermal co, where we concluded that it can skew incentives away from the least cost generation; often results in higher wholesale energy prices; and does not benefit from operation synergies of existing assets.[8]
B10: Strategic reserve (not supported by MDAG)	We agree that this should not be supported.

[8] https://contact.co.nz/aboutus/media-centre/2021/11/15/thermal-co-enabling-aotearoas-transition-to-renewable

Proposed measures to increase DSF

Option considered	Contact Energy Response
OPTIONS TO ADDRESS STRATEGIC ISSUE 1 *Tariffs mute a signal for flexibility: Yet to see widespread emergence of DSF-rewarding tariffs that enable DSF owners to make risk-value and engagement trade-offs*	
C1: Monitor provision + uptake of DSF-rewarding tariffs	We disagree with MDAG's assessment that retailers are in the best position to optimise the use of DSF across network and wholesale benefits. Retailers may focus on managing their wholesale position over other uses, which may limit value stacking / overall optimisation of the DSF. If retailers have "the best information to determine where DSF use is optimal" then it is essential this information is made available in order to enable independent flex traders to grow a competitive DSF market. We suggest that any monitoring regime should also include retailer engagement with flex providers who are controlling ICPs / DR within their retail portfolio.
C2: Sunset profiling if smart meters in place	We support this option.
C3: Require retailers to offer DSF tariffs (partially supported by MDAG)	We do not support this option. As technology, and consumer appetite for flexibility evolves the market will deliver on these products. We are already seeing a number of these sort of products hit the market, including Contact Energy's Dream Charge plan.
C4: Develop standardised shape related hedge products to reward DSF	We consider that this is an overly complex solution. Most customers are unlikely to want to directly obtain a fixed income stream by selling hedge products to cap buyers. We consider various ways this mechanism could be used by customers, retailers and flexibility traders in attachment 2.
C5: Provide significant funding for pilots/trials to kick-start dynamic tariff use	We support trials to help kick-start demand flexibility. However, we do not consider it appropriate to direct 100% of this funding to retailer led DSF tariffs. Much like the ARENA trial in Australia referenced by MDAG, any trial should include a broad range of flexibility market participants, including technology providers, flex traders, distributors, industry, as well as retailers. The trials should also cover a range of different

Option considered	Contact Energy Response
	mechanisms which have the potential to accelerate the development of DSF. The approach proposed by MDAG risks putting all our eggs in the 'retailer DSF tariff' basket, rather than take a broader approach and letting the market determine what is successful.
C6: Use Customer Compensation Scheme to reward DSF (not supported by MDAG)	We agree that this option should not be supported. This option would likely be very complex to establish for retail customers, and has a very high chance of creating unintended outcomes.
C7: Negawatt scheme for wholesale market (not supported by MDAG)	We consider that this type of scheme is worth considering further for C&I contracts. As it stands the only way for a flexibility provider to access value from the energy market is to ether be the retailer, or entering into an agreement with the retailer to share the savings of the saved MW. This has limited the pool of competition for DSF. The concerns from MDAG about the uncertainty of baselines in a negawatt scheme is misleading. Under any DSF arrangement a baseline has to be established to determine payment to the flexibility provider. A negawatt scheme would not require more baselines, it would simply codify a best practice way to determine baselines. We provide more explanation on the barriers and potential solutions in the body of this submission, and in our recent submission on the wholesale market review.[9] We also provide a more thorough assessment of a Negawatt scheme alongside other potential DSF mechanisms in attachment 2, which highlights why we believe a Negawatt scheme is worthy of serious evaluation / consideration.
OPTIONS TO ADDRESS STRATEGIC ISSUE 2 *Market is not able to achieve the highest aggregate value for DSF, therefore compromising benefits*	
C8: FSR - improve DSF visibility and remove Code barriers	Support

[9] https://www.ea.govt.nz/assets/dms-assets/31/Contact-Energy-Wholesale-Market-Review-Submission-14-Dec-22-1383345.pdf

Option considered	Contact Energy Response
C9: FSR - accelerate new ancillary services for DSF uptake (not supported by MDAG)	Support developing ancillary services when there is a genuine market need. Experience from the Transpower DR program has shown that market participants can invest only to find the market removed because there was not an underlying need. Rather than focusing on new ancillary services, there should be a focus on making existing ancillary services technology agnostic to support investment and participation. Over the past 5 years Contact has written multiple letters to the EA and Transpower, and participated in regulatory consultations[10], highlighting issues with the reserves market. This includes IL and generation having different FIR requirements despite being paid in the same market. We understand this issue has been exacerbated further by the System Operator recently developing a specific approach for aggregated batteries. A technology-neutral approach like FCAS in the NEM is required. We have also raised issues with distributors having a 'privileged position' through being able to meter reserve load at GXP level to meet high frequency logging requirements, whereas other participants must meet the requirements at each individual participating site.
C10: Procurement process for high-scarcity DSF (partially supported by MDAG)	We agree that this should be further investigated. This would need to be designed carefully to preserve the incentives on the energy market and be co-optimised with other markets.
C11: Ensure distribution pricing reflects network needs	We support this option. Distribution pricing is increasingly cost reflective for residential and SME customers, but less so for C&I customers. We currently have the confusing situation where there are different pricing signals for differing time periods being provided depending on what type of customer you are (predominantly defined by connection capacity and meter type). We'd also like to see a focus on ensuring that other network charges are cost-reflective, such as connection costs. We provide more detail on

[10] https://www.ea.govt.nz/assets/dms-assets/30/Simply-Energy-FSR-submission-2022.pdf

Option considered	Contact Energy Response
	this in our recent submission on distribution regulation settings.[11] While cost-reflective pricing will improve market signals, they cannot account for more dynamic network needs. There will still need to be real-time demand response programmes, like Transpower had and networks are starting to explore through RFPs. We are encouraged by the engagement by major Distributors with the Flex Forum and are hopeful that we will begin to see some progress over the next few years by Distributors in developing network specific DSF programmes in the near term.
C12: Investigate extending LMP into distribution networks (partially supported by MDAG)	We do not support this option. While in theory locational pricing may be more efficient, the complexity of any regime would likely far out-weigh the benefits. We also note that nodal pricing does not in itself create incentives to improve transmission or distribution asset management / real-time constraint management. High nodal prices caused by energy or transmission constraints is designed to send a signal to develop generation (or DSF) downstream of the constraint. Additionally, the higher energy prices would not end up in the hands of the Distributors to enable them to upgrade the constraints as required. We believe Distributors are best placed to send the correct pricing signals to their consumers to alleviate constraints.
OPTIONS TO ADDRESS STRATEGIC ISSUE 3 *Consumers and intermediaries have low awareness of current or future DSF value*	
C13: Provide info to help large users with upcoming DSF investment decisions	If markets are developed and accessible, flexibility providers will fill the role of getting information to customers. We do not consider there to be a gap that government needs to fill. In most cases customers also have a very low interest in understanding the detail, and are looking for a simple low cost managed service.
C14: Provide info to help domestic customers with DSF decisions	

[11] When released submissions will be available here: https://www.ea.govt.nz/development/work-programme/evolving-tech-business/updating-regulatory-settings-for-distribution-networks/consultations/#c19303

Proposed measures to strengthen competition

Option considered	Contact Energy Response
D1: Develop dashboard of competition indicators for flexibility segment of wholesale market	.
D2: (=B1) - Greater transparency of hedge info (esp non-base load) covering offers, bids + agreed prices	See answer to B1 above
D3: (=B6) - Develop flexibility access code (non-price elements)	See answer to B6 above
D4: (=B7) - Extend trading conduct rules to hedge market	See answer to B7 above
D5: (=B8) - Market-making for shaped contract products (partially supported by MDAG)	See answer to B8 above
D6: Physical disaggregation of flexible generation base (not supported by MDAG)	Agree that this should not be supported
D7: Virtual disaggregation of flexible generation base (partially supported by MDAG)	We consider that this option should not be considered until it is clear that there is a significant problem to address.
D8: Price caps applied in the electricity spot market (not supported by MDAG)	We agree that this option should not be supported. It would severely damage the business case for flexible assets such as batteries, which heavily rely on a few very high price periods to cover their costs.

Proposed measures to increase public confidence

Option considered	Contact Energy Response
E1: Structured information programme for wider stakeholders	.
E2: Regular briefings for Ministers and officials on current and expected conditions	.
E3: Increase inter-change with international experts	.
E4: Enhance monitoring with more autonomy	.
E5: Periodic warrant of fitness review for independent regulatory agencies	.

Attachment 2: Comparison of Demand Response Options

DR Mechanism	Retailer spot tariff – customer control of load	Flex trader cap program (access DR value via customers on spot)	Retailer controlled load tariff – retailer control of load	Retailer DR scheme	Multiple Trading Relationships (MTR)	Flex trader DR program (access DR value via retailer)	Negawatt scheme	–Multilateral DR agreement
Overview	Retailer develops specific DR tariffs for their supply customers. Up to customer to manage wholesale exposure.	Retailer develops specific DR tariffs for their supply customers. Customer may outsource management of wholesale exposure to flex trader.	Retailer develops specific DR tariffs for their supply customers. Up to retailer to manage wholesale exposure.	Retailer offers incentive payments to their own supply customers complimentary to tariff arrangements	Ability to have a different retailer for 'parts' of the overall ICP load	Flex trader offers DR incentive payments to customers	Standardises the contract arrangements between retailers and flex traders to access DR market value. Builds on DNx and integrated with spot market.	Effectively solving the issues with the 'Flex trader DR program' mechanism through a multilateral agreement rather than a market mechanism Some features may need to be set by regulator to avoid anti-competitive behaviour.
How it could work	a) FPVV with no cover during set peak hours b) FPVV with no cover when retailer nominates knockout periods c) Spot prices (retailer just agent)		Lower FPVV prices if customer grants control of devices to retailer (similar to a distributor controlled load tariff)	a) Behavioural program – pay $X/KW load drop when notified (up to customer to manage) b) Control/automate – customer paid to let retailer control load under agreed settings	a) EV charger supplier contracts for retail supply of EV charging load only b) C&I retailer contracts for retail supply of refrigeration only at meat processing plant	Flex trader offers customers $/MWh rate for DR with agreed parameters, eg which equipment, max DR period length, time between events etc	Flex trader contracts DR load with customer. Offers into spot market through DNx. Centralised market mechanism to calculate DR volume. Flex trader paid for DR as part of centralised settlement.	All retailers agree terms of access for flex traders to provide DR. Standardise eg how DR is triggered, how DR volume calculated and settled etc
Retailer market / DR value access	Retailer exposed through wholesale purchase costs but risk largely passed through to customer.		Exposed through wholesale purchase costs	Exposed through wholesale purchase costs	Exposed through wholesale purchase costs	Exposed through wholesale purchase costs, passes % of savings due to DR on to flex trader through bilateral contract	Exposed through wholesale purchase costs, passes % of savings due to DR on to flex trader through market mechanism	Exposed through wholesale purchase costs, passes % savings due to DR on to flex trader through multilateral arrangement
Flex trader market / DR value (direct) access	None.	None.	None.	None.	None.	Requires bilateral contract with retailer to access DR value created through retailer passing on savings	Access to DR value directly through wholesale market mechanism.	Access to DR value through multilateral arrangement with retailers
Flex trader role	Could be a service / tech provider / agent on behalf of customer	Could also be a principal aggregating DR load and selling caps	Could be a service / tech provider / agent on behalf of retailer	Could be a service / tech provider / agent on behalf of retailers or the customer	Must become a retailer to participate directly. Could be a service provider.	Aggregator in their own right. Revenue from retailer contracts.	Aggregator in their own right. Revenue from spot market directly.	Aggregator in their own right. Revenue via multilateral contract.
DR term	If customer is prepared to continually be exposed to spot prices at peak times regardless of retailer then DR use can be enduring.		Limited to retail supply terms. Usually not long enough to justify investing in control / automation	Limited to retail supply terms. Usually not long enough to justify investing in control / automation	Limited to retail supply terms. MTR may in some cases result in a longer term structured retailer DSF tariff / DR program for the dedicated controllable load, which would help invest in DR.	Flex trader can have enduring DR relationship with the customer but ability to access value through retailer limited to retailer term	Enables flex traders (and retailers acting as flex traders) to develop DR relationships independent of retail supply term arrangements	Enables flex traders (and retailers acting as flex traders) to develop DR relationships independent on retail supply term arrangements
Standardisation	Not an issue as customer can continue using DR to manage spot exposure regardless of retail supply relationship	Not an issue as customer (or flex trader on their behalf) can continue using DR to manage spot, cap exposure regardless of retail supply relationship	Not relevant as retailer only scheme	Not relevant as retailer only scheme	Not relevant as retailer only scheme	When customer switches, new retailer may have no interest in DR or have different requirements, requiring flex trader to develop more bespoke software	Issue solved as if flex trader has DR customer and they move to another retailer the DR terms are all standardised through the centralised integrated spot market mechanism	Issue solved as if flex trader has DR customer and they move to another retailer the DR terms are all standardised through the multilateral agreement
Use of baselines	Not required as customer accessing DR value directly through spot exposure	Depends how flex trader structures DR arrangements with customer. May be	Not required as DR value passed on to customer through retail tariffs	Required.	Required if retailer rolls out DR program (customer call option), not if retailer	Required.	Required.	Required.

DR Mechanism	Retailer spot tariff – customer control of load	Flex trader cap program (access DR value via customers on spot)	Retailer controlled load tariff – retailer control of load	Retailer DR scheme	Multiple Trading Relationships (MTR)	Flex trader DR program (access DR value via retailer)	Negawatt scheme	–Multilateral DR agreement
		required to verify DR performance.			rolls out DR tariffs (retailer call option).			
Use of DNx	Customer may use DNx to offer controllable load into market, could match offer price with cap strike price (below)	Flex trader may use to offer controllable load into market, could match offer price with cap strike price (below).	Retailer may use to offer controllable load into market	Retailer or Flexibility trader (as agent) may use to offer controllable load into market	Retailer may use to offer controllable load into market	Flex trader may use to offer controllable load into market	Flex traders and retailers **must** use to offer controllable load into market	Could be mandated through multilateral arrangements.
Use of standardised shape related hedge product as envisaged by MDAG	Customer could sell cap direct to turn variable "spot savings" into a fixed income stream. Leaves customer with uncapped exposure to variable payments.	Flex trader could sell cap but largely taking a trading position hoping cap premiums will be higher than variable payments (uncapped exposure)	Retailer could sell cap to turn variable "spot savings" into a fixed income stream to help fund DR setup. However, retailer generally using DR to hedge wholesale costs, so would only sell cap if a long-gen gentailer.	Retailer could sell cap to turn variable "spot savings" into a fixed income stream to help fund DR setup. However retailer generally using DR to hedge wholesale costs, so we expect may only sell cap if "long" on their purchase position	Retailer could sell cap to turn variable "spot savings" into a fixed income stream to help fund DR setup. However retailer generally using DR to hedge wholesale costs, so may only sell cap if "long" on their purchase position	Flex trader could sell cap product, hedged through covering variable cap payments through variable DR income from retailer agreements. Would be difficult to standardise retailer DR arrangements to align with cap.	Flex trader could sell cap product to convert variable Negawatt scheme revenue into fixed revenue. This would be similar to IL providers selling reserve swaps to fix a portion of their revenue.	Flex trader could sell cap product to convert variable DR revenue from retailers into fixed revenue. This would be similar to IL providers selling reserve swaps to fix a portion of their revenue.
Current landscape	Retailer structured spot type tariffs happening for long term very large deals for controllable load in electrification projects. Not happening more broadly. The recent period of sustained high wholesale prices has had the effect of changing many procurement processes to focus on FPVV contracts for many C&I customers who have traditionally been open to spot price exposure.	Nothing we are aware of.	Recent service development and offerings by MEPs are helping to drive this offering to the residential market, such that the meter provides the tech required to control the asset and the retailer engages with the MEP as agent to manage DSF. We understand this is separate to the network controlled ripple where the distributor has already acquired the load control rights.	We are aware of deals currently being negotiated and can discuss these confidentially with MDAG.	Ara Ake running pilot program focussed on solving DG behind the meter. Not aware of any plans for use of MTR for DSF.	Negligible that we are aware of, including Simply / Contact. ~60% of Simply flexibility customer base can provide DR, however this has only been used for Transpower DR program to date, and investment has not been made to use for wholesale DR due to lack of retailer arrangements to access DR value and potential for DR customers to switch retailers.	Not implemented in NZ. MDAG not supportive. Contact/Simply advocated for it in the wholesale market competition submission in Dec 2022.	Not implemented. Flex Forum are currently working on development of a standardised contract that could be used for Distribution DSF programmes.
Regulatory/market changes needed	None	Requires shape related hedge products.	None	None	MTR changes to allow retail trading for parts of ICP.	None	Requires wholesale DR mechanism to be implemented, like the NEM.	Requires all retailers to participate for it to work. Likely requires participation and governance arrangements to be mandated through Electricity Code, like the Default Distributor Agreement (DDA).
Compatible with other mechanisms	Yes	Yes	Yes	Yes	Yes, although really just an enabler for retailer DSF tariffs / DR programs	Yes, although these three are substitutes. The Negawatt scheme and multilateral agreement look to standardise the issues with the flex trader DR program approach.		
Negative externalities	None that we are aware of	None that we are aware of	Without Mandatory DNx for retailers, the short term nature of traditional retail supply contracts may drive hard-to-predict DR	Short term nature of traditional retail supply contracts may drive hard-to-predict DR behaviour (as customers switch) which	Higher premiums will likely be charged on clients' "residual" supply due to the (likely) unpredictable nature of	Competition law will act as a barrier to any bilateral contract negotiation between a flex trader who	May add an additional piece of complexity for new Retailers and Retail supply offerings assuming scheme is mandatory for	Design of scheme and key terms will require mandatory iterations and transition between agreement versions - DR is

DR Mechanism	Retailer spot tariff – customer control of load	Flex trader cap program (access DR value via customers on spot)	Retailer controlled load tariff – retailer control of load	Retailer DR scheme	Multiple Trading Relationships (MTR)	Flex trader DR program (access DR value via retailer)	Negawatt scheme	–Multilateral DR agreement
			behaviour (as customers switch) which would feed into more volatility and accuracy of forecasting for DSO/TSO DR may become solely focussed on the wholesale market and retailers' risk exposure, reducing overall value of that DR to the market. Lack of competition for DR as only accessible through retailer likely to result in sub-optimal outcome for customers.	would feed into more volatility and accuracy of forecasting for DSO/TSO DR may become solely focussed on the wholesale market and retailers' risk exposure, reducing overall value of that DR to the market. Lack of competition for DR as only accessible through retailer likely to result in sub-optimal outcome for customers.	any load not directly targeted by flexibility providers. In a worst case scenario clients may not be able to find a Retailer willing to take on certain aspects of their load within the ICP.	is also a retailer and their peers. Short term nature of traditional retail supply contracts may drive hard-to-predict DR behaviour which would feed into more volatility and accuracy of forecasting for DSO/TSO Retailers with monopoly access to the DR value have all the power in setting / negotiating DR arrangements with the flex trader, hence DR value more likely to be captured by retailer than the flex trader and the customer who are actually providing the DR and the tech.	all (C&I) retailers to participate. Difficult to implement economically for smaller loads and therefore likely only applicable to large C&I loads	relatively new to NZ and it is expected that we have a lot of learning to accomplish which will result in the agreement evolving over time.
Accelerator of DR participation?	Very limited by customer appetite for the proposed product. a) Market has demonstrated that nearly all customers do not prefer having spot exposure (and hence not a suitable way of accessing DR value) b) Selling a cap product adds additional uncapped downside risk for customers and hence will not be attractive	Very limited by customer and flex trader appetite for the proposed product. a) Limited interest in spot exposure for electricity supply from customers b) Flex trader / cap seller business model requires taking on uncapped exposure to high / sustained spot prices (which is unlikely to be passed through to customers – flex provider keeps cap premiums to support funding DR setup costs)	Limited due to: a) Relying on this mechanism to drive DR development restricts the market to retailers rather than opening up the DR market b) Retailers face the term issue with DR investment requiring longer terms than the retail supply term lengths which customers value / demand.	Limited due to: a) Relying on this mechanism to drive DR development restricts the market to retailers rather than opening up the DR market b) Retailers face the term issue with DR investment requiring longer terms than the retail supply term lengths which customers value / demand.	Limited for the reasons discussed in the retailer controlled load tariff and retailer DR program columns. Requires a flexibility trader to become a retailer. Overhead and complexity of establishing MTR may make it unattractive for customers, especially as they may pay a higher risk premium for the uncontrollable load.	Limited due to: a) likely barriers to contracting with retailers to access DR value b) likely challenges achieving standardisation of DR arrangements across different retailers	Yes if Negawatt scheme implemented – separates the retail supply from the DR value, opens up the market to enable flex traders to compete	Yes (for the same reasons as discussed under Negawatt scheme), but only if a multilateral agreement can be achieved. Given the different incentives on customers, flex traders and retailers, achieving agreement may be difficult (and hence require intervention by regulators to set a mandatory scheme).
Example	Large scale electrification energy supply deals Contact/Simply have been involved in (without the additional cap mechanism)	None, hedge product doesn't exist yet. MDAG has not provided examples from other jurisdictions.	Influx's new service offering for Hot Water is an enabler for a potential retailer controlled load tariff: https://www.influxdata.nz/solutions/influx-demand-management-for-hot-water	https://www.energyaustralia.com.au/industrial-and-commercial/energy-management/demand-response/energyaustralia-responsepro	None, doesn't exist yet. MDAG has not provided examples from other jurisdictions.	Simply Demand Flex program (except as mentioned DR only used for Transpower DR so far)	Enel X in Aus Wholesale DRM market (note Wholesale DRM is C&I only)	Unsure if similar approaches have been developed in other jurisdictions.