3 July 2025

Electricity Authority
By email to: taskforce@ea.govt.nz

Tēnā koutou,

Consultation on 'Rewarding industrial demand flexibility'

Thank you for the opportunity to provide feedback on the issues and options paper. We agree that industrial demand flexibility can help manage our electricity supply for the long-term benefit of consumers.

Contact Energy, together with our commercial and industrial energy supply and solutions business Simply Energy, has been developing industrial flexibility with customers since 2019, and we are passionate about the role it can play supporting a resilient and affordable power system during the energy market transition. This includes Simply's development of new interruptible load and other flexibility at around 100 industrial sites, Contact's retail hot water load control ('Hot Water Sorter'), through to collaboration with industrial customers (e.g. New Zealand Steel and NZAS) on flexibility contracts that encourage and reward demand response.

Our focus in this submission is on unlocking price sensitive industrial load, which can play a very important role integrating more variable renewable energy into the power system and reducing prices for all consumers.

Our submission is structured as follows:

- Introduction and key considerations for unlocking demand flexibility
- Consideration of 4 'applications' of industrial demand flexibility
    - Spot/FPVV consumers providing emergency reserve
    - Spot/FPVV consumers providing energy-based ancillary services
    - Spot-exposed consumers responding to energy market prices/signals
    - FPVV consumers responding to energy market prices/signals
- Response to consultation paper questions

It is essential that New Zealand that industry is globally competitive. An efficient, low emissions electricity system is required to maintain existing industry and support the electrification and growth of new industry. It is important for the Authority to focus on incentivising and enabling industry to be part of the solutions which drive an efficient electricity system.

Due to the breadth of market elements which require consideration as part of reviewing the potential role of industrial flexibility, we recommend a cross-submission process and further engagement across the industry before the Authority makes any decisions on a flexibility roadmap and actions.

We recommend that the first step the Authority takes is a detailed assessment of both the 'size of the prize' with industrial flexibility, and the options for unlocking the most valuable industrial flexibility. This will require further engagement with industrials and other market participants through workshops and other measures.

Introduction

We commend the Authority's intent to '*take an active approach to unlocking industrial demand flexibility and developing the market*'. We also agree with the Authority's vision that industrial flexibility should receive a proportion of the value they provide to the market and consumers. The Authority has noted that this stance opens up consideration of different payment structures which can support and incentivise participation by industrials. We also agree with the focus on "type 2" flexibility (industrial load response to a 'dispatch' signal from a supplier or the system operator, rather than reacting to forecast/real-time prices).

However, before focusing on proposed options, we strongly encourage the Authority to engage further with industry to understand existing barriers to providing flexibility, and to explore various schemes/mechanisms which can overcome the barriers.

The 'size of the prize' has been significantly underestimated

The Sense Partners report commissioned by the Authority to estimate the flexible industrial load potential materially underestimates the potential for demand response. Sense Partners estimated 113-129MW in winter peaks, considering technical and commercial factors. We are aware of industrial load across just a handful of sites which is providing this level of spot market response today, in the absence of any market programs/incentives. Our view is that while flexible industrial load is responding to spot prices, it is not offered as Dispatchable Demand (DD) due to practical and operational limitations of the participation requirements, not because the flexible load doesn't exist.

The Authority shared a view that *'for some industrials, the vast majority (>90%) of the consumers' load is directly involved in producing output. This leaves a small proportion available for demand flexibility without potential significant cost'*. Our experience is that industrials are often running at 75-90% capacity utilisation over the course of the year and hence have significant scope to support the electricity system without reducing productive output. As a specific example, Contact's 30MW CFD with NZ Steel excludes 4 hours in the morning and evening peaks, 7 days a week between March and September[1]. This is not just short-term capacity management but can support longer duration firming of renewables and the overall NZ summer/winter energy balance.

Based on our experience and external reports, we believe there is potential for 1,000MW of existing commercial and industrial load which can provide flexibility, and up to another 500MW of new flexible load which could be developed due to process heat and transport electrification over the coming years. We provide further detailed commentary on potential flexible load in response to Q2 further below our main submission.

We are concerned that by significantly underestimating industrial flexibility, the Sense Partners report has had a negative impact on the Authority's view of the benefits of incentivising and unlocking flexible demand. Sense Partners described their report as a *"top-down desk-top analysis based on limited data and undertaken over a brief period of time"*. To support decision making, we suggest the Authority fully engages with industrials and other bodies like EECA (who we understand is currently preparing a report which will assess flexibility potential in New Zealand). This will ensure there is a well-informed understanding of the size and

[1] https://contact.co.nz/getContentAsset/ec6f8c12-e34d-408e-98e9-d45d481b56d9/a677e4b4-b3c2-492c-ae74-9399720288b8/contact-energy-capital-markets-day-2023-presentation.pdf

scope of the flexible load, which can support the day-to-day efficiency of the wholesale market. We understand the Authority is planning to engage with industrials in August 2025 through a workshop as part of this workstream. This will be an opportunity to further consider the 'size of the prize'.

The Task Force 2D workstream is an opportunity to focus on the benefits of price-responsive load

The Emergency Response Scheme (ERS) seems to largely focus on system security, by activating non-price responsive load activated in responsive to a system emergency, to keep the lights on. Whilst we recognise the importance of the Authority focusing on system security, we believe the value to both the market and electricity consumers of unlocking price-responsive load (load which responds to spot prices < $21,000/MWh scarcity values), is many multiples higher than unlocking non-price responsive load (which is only responding above $21,000/MWh). We agree with MDAG's prior comments that the market is better served by developing market based demand response before considering an out of market ERS, and share the Authority's prior concerns on the potential for unintended consequences and market distortions caused by out of market schemes.

Since the introduction of real-time pricing in November 2022, the Authority's strategy for unlocking "type 2" flexibility has focused on Dispatchable Demand and Dispatch Notifications. This has unfortunately not been successful as there are no load-based participants in either market. We (and others) expected the 2D workstream to be an opportunity to reset this strategy, and explore (with industrials) changes to existing programs and/or new programs to unlock energy/ancillary market participation.

We are concerned that the paper proposes to defer key considerations for unlocking market participation from price-responsive flexible load, until a planned 2029 review. This approach appears to be driven by (amongst other reasons) a misguided view on the potential MW available. We urge the Authority to revisit this approach, for the benefit of not just industrials, but all electricity consumers.

Creating visibility and dispatchability of flexible load is essential

Currently, due to an absence of programs which incentivise and enable market participation, industrials with flexible load are left with no practical option but to simply react to prices.

The issues with this approach were well documented by the SO in their July 2024 consultation paper 'evolving market resource co-ordination'. The SO highlighted that increasing unscheduled flexible load "*will lead to much lower efficiency and accuracy in dispatch, reduced ability to operate the system effectively and higher costs for consumers*". The SO also highlighted the potential for an increased need for '*frequency keeping services to balance temporary mismatches between supply and demand*', which would also cost consumers.

We are encouraged by actions in other energy markets to address this growing issue. Australia has recently approved incentivises for large flexible loads to participate in 'Dispatch Mode' (like DD). The need to focus on this area was well articulated recently by the head of the NEM wholesale market settings review, who said '*Very importantly, a growing number of participants are invisible to AEMO (the energy market operator), and that means they're invisible to price formation, and that can result in some really inefficient outcomes. We think that by encouraging those participants to be visible, that will allow for a more efficient pricing outcome and a lower cost over time'.* [2]

[2] https://reneweconomy.com.au/australias-electricity-market-has-always-been-weather-dependent-what-it-needs-is-visibility/

Despite the Authority's well-intentioned focus in the consultation paper on 'explicit' 'type 2' demand flexibility, where consumers adjust their demand in response to an instruction from the system operator, the Authority has not proposed actions to incentivise and facilitate market participation for price responsive load, and hence proposed deferring consideration of this growing issue until 2029.

A longer-term strategic approach is needed

The Task Force 2D consultation paper is the third Authority consultation in as many years exploring possible solutions to manage peak demand challenges. The papers have prioritised near term actions (for example, those which can be delivered for the following winter). Other potential solutions have been identified as having significant value to the market, but discounted because of longer lead times. Whilst we understand the drivers behind this decision making, there is an opportunity cost to this approach. We encourage the Authority not to solely focus its resources on short term measures at the expense of progressing more strategic and valuable long term measures.

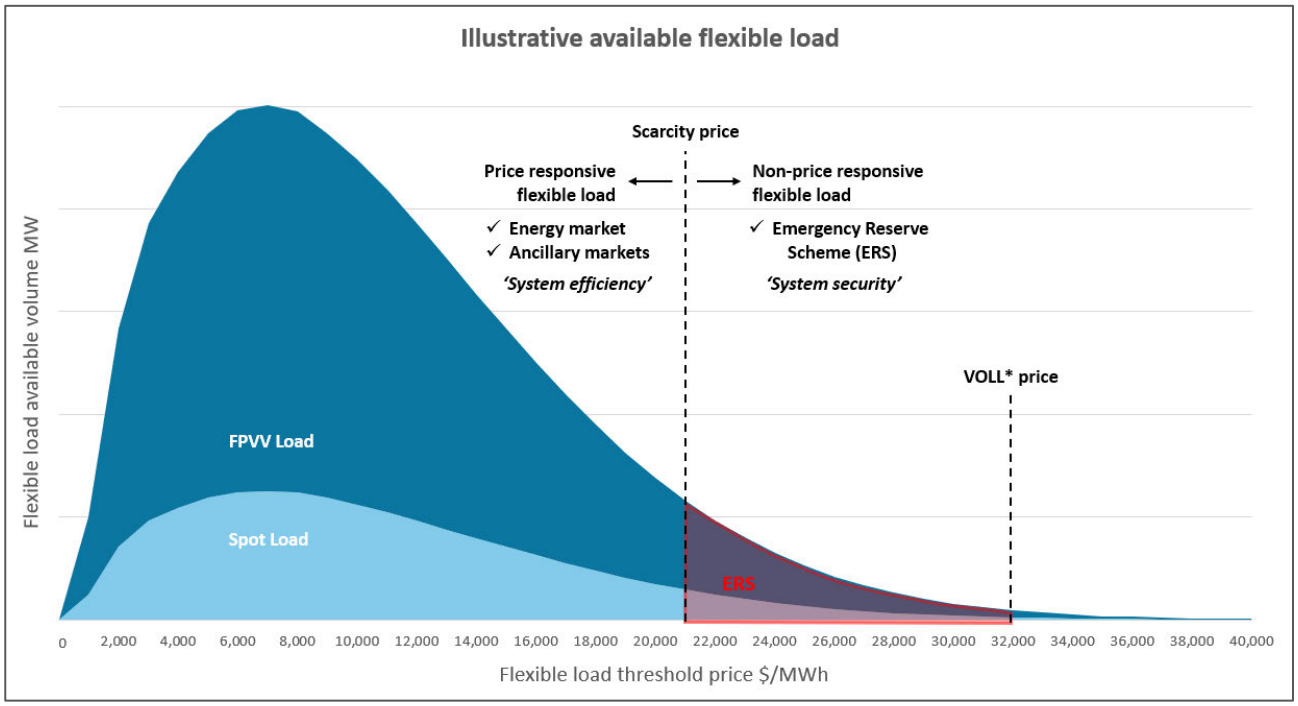
'Applications' of industrial demand flexibility

We believe that 'price responsive' flexible load which responds at less than a $21,000/MWh scarcity price has the greatest value for customers and the electricity market. This is shown on the illustrative diagram below. The consultation paper unfortunately has not proposed actions to support this area.

The diagram also shows the role of an emergency response scheme (ERS) as proposed by the Authority. Based on our experience the vast majority of flexible load is responsive at spot prices < $21,000/MWh, ie below the recently revised scarcity price. This leaves a small target zone between scarcity and VOLL (value of lost load, which we have escalated from the Code value of $20,000/MWh set in 2004).

It is essential that flexible load with a threshold price < $21,000/MWh does not participate in an ERS. This would be a market distortion that the Authority has flagged major concerns with for many years (and is discussed further below).

We understand the Authority are focused on ensuring the product achieves "additionality". It is essential that the Authority does not view load as potentially suitable for the ERS simply because it is "additional" to a base case where the load is not currently responding to spot prices or participating in the market; this would lead to the exact market distortion issue the Authority has highlighted previously, and would mean both missing the opportunity to unlock price responsive load, due to a lack of suitable market mechanisms, and increased spot prices because price-responsive load has been withheld from supply and instead been paid under an ERS. Finally, it would also not make sense for consumers to pay an ERS provider > VOLL, as that would result in higher costs for consumers than the SO instructing physical load shedding (for example through distribution feeders).



We believe at this point in time, it would be more valuable for the Authority to focus time and resources on the price responsive flexible load to the left of the scarcity threshold, than an ERS. If we are successful unlocking price responsive load on the left hand side of the chart, there will be less of a need for an ERS targeting non-price responsive load on the right hand side of the chart.

We note also that within the price responsive section of the chart, the majority of the load is with customers on FPVV contracts. These customers have shown a clear preference for energy supply contracts which have a retailer managing the wholesale risk for them. It is not realistic to think that these customers will all transition this flexible load to spot or spot linked tariffs, and therefore it is important to consider how to unlock flexible load 'hidden' behind FPVV contracts. It is worth noting that for the vast majority of customers, the FPVV price bands are not a strong enough price signal to incentivise daily load shifting.

Based on our experience, many industrials have price thresholds that are an order of magnitude lower than scarcity prices, for their flexible load in their load shedding procedures. As such, we expect a very significant portion of the value of flexible load to come from supporting 'day-to-day' energy market operations, rather than just low residual situations, where the spot price is likely to be much higher (potentially at, or near scarcity). For this reason, we believe it is equally important that the Authority continuously work on products that unlock energy market participation, such as DD, in addition to considering ancillary services which can support low residual situations.

The following sections discuss these applications in more detail, including the ERS:

- Spot/FPVV consumers providing emergency reserve
- Spot/FPVV consumers providing energy-based ancillary services
- Spot-exposed consumers responding to energy market prices/signals
- FPVV consumers responding to energy market prices/signals

Summary of our recommendations in the 4 areas above (covered in detail in sections below)

Application	Recommendation
Spot/FPVV consumers providing emergency reserve	We do not support Action 1: Development of an ERS Unlocking price-responsive flexible load is a far greater prize for the market and consumers than an ERS. We agree with MDAG that if market based measures are successful an ERS would not be needed, and an ERS should only be considered if market based measures have not been successful.
Spot/FPVV consumers providing energy-based ancillary services	The Authority's planned review of MFK has landed on the solution without due consultation. We would like to see an 'issues and options' approach that follows MDAG's recommendation, exploring technology-neutral (including flexible load) ancillary services to support variable generation and low residual situations.
Spot-exposed consumers responding to energy market prices/signals	This opportunity warrants immediate focus, rather than being delayed until 2029. Creating visibility and dispatchability of flexible load is essential, as is providing industrials with tools to manage volatile spot costs. We would like to see the planned DD consultation progressed as soon as possible, including reviewing technical and commercial barriers to participation.
	We do not support Action 2: Standardised hedging product An additional hedging product is not warranted in the short term. Additionally, without addressing barriers to market participation, Action 2 will unintentionally result in more flexible load simply reacting to prices and being invisible to the system operator. This will increase system management costs.
FPVV consumers responding to energy market prices/signals	We conditionally support Action 6: Exploring changes to enable third party providers to participate in the provision of industrial demand flexibility. Unlocking flexible load with customers on FPVV arrangements has significant value for the market and consumers. Action 6 provides an opportunity to explore this area, including the potential enabling role of both Multiple Trading Relationships (MTRs) and DD.

Spot/FPVV consumers providing emergency reserve

Our primary concern with the Authority's proposed ERS is its limited application and inability to unlock flexible load. This was well articulated by MDAG in their final recommendations paper '*We note this contingent recommendation only addresses a very niche aspect of demand side flexibility, i.e. one that is outside the wholesale market and only triggered very rarely.*' [3] in Australia, the 'RERT' (equivalent ERS) program has generally activated emergency reserves 0-2x per year. If this is the only program that comes out of the Task Force 2D work, it would be a major missed opportunity to unlock industrial flexibility.

The other major concern we have with an ERS is the potential for out-of-market procurement to have the unintended consequence of removing flexible loads from wholesale market participation, in the hope they could be paid via the ERS. The ERS could in fact have the effect of increasing average prices, if load that would normally be price-responsive participates in the scheme. This also makes contracting for the ERS challenging, due to the subjective nature of assessing which loads would and would not have been price responsive in the absence of the ERS.

[3] https://www.ea.govt.nz/documents/4335/Appendix_A2_-_Final_recommendations_report.pdf

For this reason, the Authority itself has been a strong critic of ERS type mechanisms, most recently in its July 2024 decision paper on solutions for peak capacity issues, when it decided not to progress this option: *'contracts for out-of-market resource, including contracts for emergency demand response, may be well-intentioned but are unlikely to be effective at providing additional resilience in the short term to manage peak capacity issues, and they would be a significant departure from the current market and carry a number of risks. These risks include chilling investment signals and undermining confidence in the market. They also include the risk of additional and significant costs of these contracts being passed down to consumers.'*

We note also that while MDAG provided a contingent recommendation for an ERS type scheme, it was on the basis that at least 2 years data demonstrated that flexible load was not being developed. MDAG also noted *'if a vibrant DSF market emerges, and is signalled to the System Operator via bids, formal procurement of 'last resort' demand response is unlikely to be net beneficial.'* Our key concern is that the Authority is only just commencing the journey to incentivise a 'vibrant DSF market', has not proposed actions in this paper to incentivise price responsive load participating in the market, and has jumped straight to a proposed ERS.

We urge the Authority to reconsider its roadmap, including the planned ERS consultation in July 2025, and increase its focus on the far bigger prize of unlocking the role flexible load can play in energy and ancillary markets.

Spot/FPVV consumers providing energy-based ancillary services

One of MDAGs tranche 1 recommendations was a new reserve product.[4] *The current set of ancillary service products reflects the historical physical requirements of the electricity system, and these products need to be updated as the system evolves. Recent experience highlights how supply from intermittent sources can reduce suddenly and unexpectedly. As intermittent supply makes up a growing proportion of generation, there is an increasing need for a new reserve product to maintain reliability during such reductions in supply.*

MDAG also provided important guidance for the design of a new reserve product, specifying that '*The new service should harness the full range of potential resource providers including batteries and demand-side flexibility, be co-optimised with the wider spot market and conform to causer-pays principles.'*

A new reserve product in line with the MDAG report was considered as Option F in the Authority's winter 2023 consultation. The paper noted that reserves of this type are often referred to in other markets as 'standby reserve', and the amount procured could be varied to reflect system conditions (for example, could just be used to cover low residual situations). The Authority noted to *'incentivise efficient decisions, arrangements should be neutral between demand and supply-side solutions, and co-optimised with the energy spot market wherever feasible'*.

Typically these types of markets may lock in reserves ahead of time, for example 1-4 hours, and pay the reserves to be on standby, regardless of whether activated in real-time or not (similar to IL, except with an energy residuals trigger as opposed to a frequency trigger). Such a market may be more suited to the operational characteristics of some industrial loads, which may not be suited to following 5-minute dispatch intervals. Compared to an ERS, an ancillary service could target a larger universe of price responsive flexible loads, avoid market distortions and optimise overall market costs through integration with the spot market.

[4] https://www.ea.govt.nz/documents/4335/Appendix_A2_-_Final_recommendations_report.pdf

It would also have the advantage of enabling flexible load to be scheduled as part of market operations, rather than waiting for an emergency and then using load which does not normally respond to the wholesale market.

In the winter 2023 decision paper, the Authority dismissed the standby reserve option, as the system operator confirmed it could not be in place for winter 2023. The Authority also considered a proposal by the 'CEO forum' for a similar standby reserve ancillary service, however the Authority also dismissed this service on the basis it would not be integrated with the spot market. Instead, the Authority prioritised the integrated standby reserve option for investigation post winter 2023.

In the 2024 peak capacity consultation paper, the Authority provided significant detail on how an integrated standby reserve ancillary service could be implemented, and noted it would '*allow for a more efficient, potentially lower cost and transparent allocation of resources while supporting efficient price signals in the wholesale market.'* However, the Authority also referred to an AEMC draft decision to not proceed with a standby/operating reserve ancillary service, noting that the AEMC considered that the increased need for reserves is likely a transitional issue related to the early stages of the energy market transition. The Authority stated that low residuals would also likely only be a short-term issue in New Zealand, and therefore it may not be worth developing a new integrated reserve product that the system operator advised may take 3-4 years to implement.

We believe the Authority's view that low residuals will only be a short-term issue needs further investigation. This view was predicated on (amongst other things), an increase in firming generation capacity, storage capacity and demand response, as well as the retirement of slow start thermal generation. Slow start thermal generation is now planned to stay in the market for much longer than anticipated, peak demand is growing as a result of electrification and other factors, and little progress has been made on demand response actively participating in and supporting the market. There are also many differences between Australia and New Zealand which impact our ability to manage low residual situations, including Australia having a dedicated Capacity Investment Scheme (CIS), various state government-based capacity programs/mechanisms, and far more dispatchable plant in general.

In the July 2024 peak capacity decision paper, the Authority noted *'We will not implement an integrated standby ancillary service as defined in our consultation paper... Further investigation following the release of the consultation paper has indicated it could be possible to re-purpose the existing Multiple Frequency Keeping (MFK) tool as an integrated five-minute variability management tool'*. In the Authority's assessment of the tool, the first advantage listed was *'It will be faster and cheaper to implement than the initial standby ancillary service proposal, as it will repurpose existing market system functionality rather than build brand new functionality'*. The Authority mentioned '*We will start work with the system operator in July 2024 to redefine the existing MFK product.* The Authority also noted the potential to dispatch additional MFK to support with low residuals, as part of repurposing its primary role from frequency management, and that this would provide price signals and incentives for additional capacity to be committed to the market, which will in turn increase energy and reserve prices as additional capacity is dispatched as MFK. This MFK approach was taken without any consultation, given the initial peak capacity consultation paper was focused on a standby reserve ancillary service. It appears the Authority made the decision based on speed of implementation.

We have engaged with the Authority and understand the planned MFK changes to be an enhancement to the existing MFK product, which will enable BESS to participate effectively, but will not facilitate flexible load participation. Stage 2 changes will consider splitting MFK into up and down services like the NEM's regulation FCAS, this is also unlikely to facilitate flexible load participation as we are not aware of any flexible load which provides regulation FCAS. We understand the Authority is planning a consultation on MFK changes, and we

urge a broad consultation that can deliver on MDAG's direction that the '*new service should harness the full range of potential resource providers including batteries and demand-side flexibility.*' An 'issues and options' paper seeking feedback on a range of potential co-optimised ancillary services, which enable all possible providers to support variable generation and low residual situations, and which is not unduly influenced by short-term objectives, would provide industrials the opportunity to be part of the solution.

Spot-exposed consumers responding to energy market prices/signals

Spot-exposed industrial load should be the 'low-hanging fruit' for energy market participation. Unfortunately, to date New Zealand has had just one load-based participant in the energy market, which was Norske Skog who participated in DD until their closure. The Authority's changes as part of the RTP implementation, including shifting DD dispatch from NRS on a 30m cycle, to RTD on a 5m cycle, unfortunately increased the technical barriers to participation. More work is needed to unlock energy market participation.

The international market scan paper provided a useful summary of the challenges in unlocking market participation: *Demand response programmes lack participation because prospective providers can just as easily implement their own off market arrangements without giving up control of their operations, and prefer to do so unless there is an additional carrot. They always have the option of monitoring market prices and adjusting their consumption if it makes sense to do so. They can do this without giving control of their operations to the system operator, and without facing penalties or sanctions. Just being a part of central dispatch does not give sufficient additional benefit compared to what they can do outside the market processes. This is why successful DR programmes (both commercial and centralised) have to offer additional compensation.*

Earlier in our submission we highlighted that creating visibility and dispatchability of flexible load is essential for an efficient wholesale market. In absence of program(s) which facilitate participation, flexible load will simply react to forecast/actual prices, causing issues with forecasting and scheduling, and increase the costs of system management for consumers. Based on our experience, this is exactly where industrials are focused currently, further developing their tools and systems to react to prices, and on the current pathway we expect the volume of unscheduled, price reactive flexible load to grow significantly in the coming years. This approach is also challenging for industrials, as a lack of trust in forecast prices can lead to even more reactive unscheduled response to real-time prices, or no response at all and a missed opportunity to reduce costs for the industrial and the market. For these reasons we are surprised that the Authority's 2D consultation paper doesn't include actions to progress unlocking market participation.

The international market scan reviewed a number of potential mechanisms to facilitate market participation, and the Authority provided a clear preference for 'cost avoidance' mechanisms as opposed to paid demand response mechanisms. We can see the reasoning for this approach with spot exposed load, as any form of paid flexibility program will inevitably involve some form of 'double counting' the value of flexibility actions (avoid spot costs and earn revenue).

Given the Authority's focus on cost avoidance mechanisms, it is surprising that DD is hardly mentioned in the 2D paper, especially given the Authority's updated position on incentives, which included: '*When 'efficient' demand flexibility is activated, there can be a net benefit to all consumers, even where the demand flexibility provider receives a payment in addition to the value of avoided energy consumption.' One* of the key actions which came out of the Authority's 2024 peak capacity consultation was '*We will undertake work to enhance DD participation in the wholesale market by investigating how to reduce technical barriers to entry.*' The

Authority's updated position on incentives means there is now an opportunity to also investigate the commercial barriers to DD participation, which are discussed further below. The Authority previously stated a plan to consult on DD changes and to 'complete policy work by mid-2025'. Unfortunately this work has not been progressed.

We urge the Authority to reconsider the 2D draft roadmap, revisit its priorities and focus in the short to medium term on unlocking market participation. This includes progressing the previously planned DD consultation. More detailed engagement with industrials (including through workshops) to understand if changes can be made to the DD mechanism to make participation operationally and commercially viable would be extremely valuable. Simply Energy is also supporting this engagement through being selected in the Power Innovation Pathway program to explore DD participation with industrials and the Authority.

Energy market participation – Dispatchable Demand

The Authority's 2024 peak capacity paper included two potential updates to DD – a return time constraint (allowing a participant to signal minimum return time post being dispatched down before being available to be dispatched back up), and ramp rates (enabling ramp up/down times to be considered when assessing if an DD participant is following dispatch). Both of the changes were proposed to address technical/operational barriers to participation, rather than commercial barriers to participation. We understand the Authority has asked the SO to investigate implementation options, but any changes are subject to the 2D review.

In our view the potential changes above will unfortunately not be enough to drive participation. Additional technical/operational barriers to entry need to be more thoroughly investigated with industrials, including but not limited to, advance notice period (prior to both being dispatched on and dispatched off) and dispatch interval length (including considering minimum run time when dispatched on). We note dispatchable load shares many of the same characteristics as dispatchable generation.

Commercial drivers also need to be considered, including the role of potential constrained on and off payments to incentivise participation. Constrained payments could be made, for example, based on ramp up and down rates, and minimum dispatch interval lengths. We have discussed such mechanisms with the Authority in the past, and in light of the Authority's new position on incentivising efficient demand response, we believe it is important that the Authority fully investigates this area.

Direct incentives need further exploration, like the AEMC $50m fund to drive participation in 'Dispatch Mode' (a similar program to DD). This can support the establishment of the tools and systems needed to enable industrial sites to participate in the market. The AEMC funding was approved on the basis that the value to consumers of having more flexible load visible and dispatchable in the market was significantly higher than the cost of supporting participation in the market, which is in accord with the Authority's position on incentivising efficient demand response.

One of the key challenges faced by industrials looking to participate in DD is that New Zealand has only a real-time market with 5 minute dispatch. We encourage the Authority to review other 'cost-avoidance' schemes internationally, and assess which mechanisms and markets have been successful incentivising flexible load to participate and be scheduled in energy markets. This could include updating the international market scan report commissioned by the Authority, as it did not include any cost-avoidance programs.

Standardised hedge product

The Authority has proposed the development of an additional hedge product to support the development of industrial flexibility. We believe there are a few key considerations that need to be taken into account.

We query just how much additional flexibility an additional hedging product will deliver. The Authority noted in the consultation paper that *'risk avoidance mechanisms (such as contract for difference) can still operate in a way still create an inventive for consumers to reduce demand. However, by removing the exposure to spot prices, they do reduce the strength of the price signal to the consumer.'* We disagree with this notion. Physical energy costs are entirely separate from CFD cashflows. Both a hedged and unhedged industrial have the same $/MWh incentive to reduce physical spot costs in response to high prices. The only difference is that while both industrials are avoiding a physical exposure, the hedged industrial is also generating revenue through the CFD cashflows (where the spot price > CFD strike price). The benefit of a 'flexibility' CFD to the industrial is to convert a variable flexibility income stream (CFD cashflows subject to market volatility) into a fixed flexibility income stream (based on price difference between buying base and selling flexibility CFD). Whether this creates additional incentive, and unlocks additional physical load flexibility remains to be seen. If it does, as mentioned above, without other measures it will result in more 'invisible' and unpredictable load for the SO to manage.

Most importantly, this is not a flexibility product incentivising and driving market participation. Without simultaneously addressing the issues raised earlier in this submission, additional hedge products will likely have the unintended consequence of driving more unpredictable, reactive flexible load when the market is most under pressure. This is due to 'flexibility' hedge products likely reducing industrial hedging at peak times (for example, through buying a base CFD and selling a super peak CFD), which then places more incentive on the industrial to react to prices in real-time. Without market participation, this is invisible to the system operator.

We are also conscious of the comments made in the Carlson Consulting report as part of an independent expert submission on the Authority's level playing field measures, which stated *'We would also strongly caution that given the small size of the New Zealand market that growing the product set too quickly... runs the risk of cannibalising existing liquidity'*.

We do not believe an additional standardised hedge product is warranted at this time. While there may be potential value in the long term, we do not support progressing a new product as a short term measure. The super peak product was only recently put in place, which provides a clear price signal for peak periods. An additional product can be considered in the medium term, when there is more evidence of volatility outside of traditional peak periods and enough demand for an additional product to ensure liquidity.

We do not currently support this measure being fast-tracked by the Authority, but believe it should remain as a workstream in the roadmap to revisit in the future.

FPVV consumers responding to energy market prices/signals

As shown in the diagram earlier in the submission, we believe commercial and industrial customers on FPVV supply contracts represent a large potential source of flexible load which can support the energy and ancillary services markets. The success of New Zealand's IL program, including Simply Energy's >80 participating sites of which the vast majority are on FPVV contracts, highlights that service providers and industrials can deliver

very meaningful MW if market settings incentivise participation and facilitate competition. Whilst FPVV customers have contributed significantly to the reserve market, developing this flexible load to support wholesale markets remains almost untouched and completely undeveloped.

The Authority's positioning in the 2D paper sets the foundations for unlocking this potential flexibility: *Where the provision of the demand flexibility is efficient, providers should therefore be able to receive some of the value to the overall market of the services they provide. However, this should be less than the total value to ensure benefits are realised by consumers broadly. We recognise that this vision is a change in the Authority's position on demand flexibility from industrials to date. The focus on long-term benefits for consumers enables consideration of different payment structures for demand flexibility – a short-term incentive may be considered where this is considered necessary to encourage participation, to deliver long-term benefit.*

The international market scan highlighted a number of examples of market programs which incentivise participation. It is important to note that these are generally market based 'paid' programs as opposed to 'cost avoidance' programs. Many jurisdictions around the world have implemented paid programs, including the UK (which as mentioned earlier has in many respects led the world in unlocking flexibility) very recently in November 2024 with the P415 mechanism. However, we appreciate that MDAG opposed paid programs, and the Authority has stated a clear preference for 'cost-avoidance' programs rather than paid programs. On that basis, we have not considered paid programs further in our submission.

In our view, the alternative to a paid program is the role of retailer 'flexibility tariffs'. This relies on the customer adopting a form of tariff which provides greater incentive than a traditional FPVV arrangement, which as mentioned earlier does not generally provide a strong enough price signal to incentivise industrial flexibility. There are a few key considerations relevant to this approach, including the role of Multiple Trading Relationships (MTRs) and DD, which we discuss below.

We support roadmap Action 6 as specified in the consultation paper, which is on *'enabling third-party providers (including multi-trader relationships, or through another mechanism) to participate in the provision of flexibility services.'* This appears to be an opportunity for the Authority to focus on unlocking price sensitive load with consumers who have traditionally had a preference for FPVV contracts.

Multiple Trading Relationships

Multiple Trading Relationships (MTRs) is a mechanism which would enable any flexible load at a site to be separated from non-flexible load for contracting and energy settlement purposes. The retailer for the flexible load can then structure a tariff which provides greater load shifting incentive for the flexible load than a standard FPVV tariff.

Based on our experience working with industrial customers, for the vast majority of sites, we do not believe transitioning the whole site / ICP from a regular FPVV tariff to a flexibility tariff is a viable proposition. This would involve asking the site to take on more risk (and more reward) through a tariff structure for non-flexible load. Far more likely is the site taking on a flexibility tariff for specific flexible load, and retaining a regular FPVV tariff for non-flexible load. Sites can then use their flexible load as a "natural hedge" against taking on additional spot or spot-linked exposure under the flexibility tariff.

We note the Authority is currently consulting on MTRs, however the focus is on residential customers and the planned scope is limited to enabling a different retailer for import and export channels of a meter at an ICP. In our view this will not advance the development of flexibility tariffs for commercial and industrial

customers. We encourage the Authority to explore where MTR can unlock the most value, and consider broader changes for MTR, like those identified in the MTR consultation as future workstreams and which are being implemented in the NEM.

Energy market participation

We note that the MTR approach itself does nothing to advance making the flexible load visible and dispatchable in the market. This will result in an ongoing barrier to the successful adoption of flexibility tariffs, as the effectiveness of the retailer and/or the customer's ability to manage wholesale risk is dependent on the accuracy of price forecasts (which as mentioned earlier is especially challenging at peak times). Like additional hedge products with spot customers, we believe in isolation MTRs have the potential to simply drive additional 'invisible' flexible load, which will result in increased system management costs rather than flexible load being used to support system management. Unpredictable load will also reduce the accuracy of load and price forecasting, which will have the unintended effect of driving customers towards FPVV tariffs.

We believe this highlights the essential role of Dispatchable Demand (or a modified version) in not only supporting spot-exposed industrials to manage costs (as discussed above), but also to unlock flexible load which is currently under an FPVV contract. If through a viable DD program customers have more certainty over electricity cost outcomes than simply reacting to volatile forecast and real-time prices, in our view they are far more likely to adopt spot or spot-linked tariffs for the flexible load within an ICP.

DD can also support a retailer building a portfolio of flexible load. The retailer could structure flexibility tariffs in a similar way to existing distributor controlled load tariffs, with a lower supply price in exchange for the retailer having control over certain equipment within the ICP. In this case, DD could provide a valuable tool for the retailer to control the flexible load and manage wholesale costs, rather than reacting to spot prices.

We note that the examples provided are constrained by the same operational DD barriers discussed in the section above on unlocking flexibility with currently spot-exposed industrials. Very few industrial flexible loads are operationally suited to follow 5-minute dispatch. Therefore, we believe that unlocking flexibility with FPVV customers will strongly benefit from the Authority following through with the planned DD consultation.

Responses to consultation paper questions

Please find our responses to the specific queries in the consultation paper below.

Please contact [redacted] or [redacted] if you wish to discuss further.

Ngā Mihi,

[redacted]

Rob Prest
Simply Energy

[redacted]

Luke Cartmell-Gollan
Simply Energy

Questions

Q1. Do you agree with our approach of focusing on industrial demand flexibility as an early initiative to enable demand flexibility more broadly? Why/Why not? Do you have any information to indicate that demand response from other consumer types may be more readily accessed?

We believe solutions should, where possible, be agnostic to participation between supply and demand side resources, and within demand side resources, agnostic to all consumer types. We made this point in our submission in relation to the proposed MFK review, highlighting that this approach, which prioritises short-term deliverability, will exclude load from being part of the solution.

We also agree with the Authority's focus in the consultation paper on 'type 2' explicit demand flexibility. As discussed in our submission, creating visibility and dispatchability of flexible resources is essential. The practical reality is that for many of the proposed solutions to incentivise this type of flexible load, commercial and industrial sites may be the most economic to deploy the necessary control, dispatch, metering/telemetry and other requirements needed to facilitate participation. This has been seen in the NEM with, for example, a different approach taken for large and small customers in both the WDRM and MTR mechanisms.

Q2. Do you agree with our estimates of the potential industrial demand flexibility capacity available in New Zealand currently and into the future? Why/why not? Do you have any evidence to support a materially different estimate?

No, as per our main submission, we believe the Sense Partners estimate of 113-129MW potential industrial flexibility during winter peaks (marginally higher during intra-day peaks) has materially underestimated the potential, and the report cannot be relied on for any decision making and should be completely discounted.

Before looking more closely at the Sense Partners analysis, we make the following observations:

- There is more industrial load than the Sense Partners estimate being offered into IL today
- Based on our discussions with industrials, there is more industrial load responding to spot prices within just a handful of sites than the Sense estimate of total potential
- Additionally, Tiwai has provided up to 205MW response

Sense Partners noted this potential flexible load is ~2% of typical NZ winter peak demand of ~6,500MW. It also equates to approximately 7-8% of industrial winter peak demand, and <10% of industrial intraday peak demand. The Sense Partners report was desktop only. We note that the Sense Partners estimates of industrial flexibility as a % of peak industrial demand are significantly lower than the past interviews with Australian industry which Sense Partners refers to in the report, which indicated DR potential of 20-40%. Based on our experience dealing with a wide range of industrials in NZ, we believe 20-40% is far more reasonable, and still too low. We discuss this further below.

It is important to consider that any industrial load, which would be responsive at spot prices less than scarcity values of $21,000/MWh, should be included in the available flexible load.

In our experience dealing with larger industrial sites:

- Load shedding thresholds are usually in place, at thresholds are commonly far lower than that suggested by Sense, as generally they are *shifting* production, not *destroying* production.
- Often 50-65% of the site load is designated for load shedding at these price thresholds, especially for energy intensive sectors like metals, pulp and paper, and cement.

Our flexibility estimates for large industrials (see further below) are far higher than Sense Partners. This may partially be based on disagreeing with this view from Sense Partners: '*Most of the DR potential comes from outside the usual industries expected to provide DR – i.e. not large industrial users… This is down to assessments of limited production shifting in the large industrials – that these plants tend to run near capacity if they can.*' Our experience suggests that industrials are often running at 75-90% capacity utilisation over the course of the year, and hence have significant scope to support the electricity system without reducing productive output.

Sense Partners also noted price thresholds of $1,000-5,000/MWh based on production/income loss. This seems reasonable, and we note that it is higher than common industrial load shedding thresholds which are generally based on load *shifting*, not load *destruction*. However, the important point here is that the Sense thresholds are still *significantly lower* than scarcity prices, so why would an industrial continue to run at $10,000/MWh, if it was making a loss? From this perspective, we believe it is likely that the vast majority of industrial load is price responsive at < $21,000/MWh scarcity prices (which also highlights the very limited applicability of an ERS).

With respect to smaller industrial sites, Sense Partners has used measures like whether the business has a defined energy manager, and the electricity costs as a share of business costs, to help evaluate likely DR potential. We disagree with this notion. What this misses is the role of a flexibility services provider to provide support with the tools and systems to unlock the flexible load. The vast majority of businesses Simply Energy works with on IL are smaller industrial and larger commercial businesses who do not have dedicated energy resources. However, Simply has provided the technology and resources required to manage IL participation. In our view, the barrier is not internal resourcing, the barrier is getting sufficient market mechanisms in place to incentivise the development of flexibility. If the Authority creates a competitive marketplace, innovation will thrive.

Figure 12 in the Sense Partners report provides an estimate of demand response potential by industry. We make the following observations:

- **Meat and meat products:** Sense Partners has assumed the same load profile as dairy with negligible load over winter. This is incorrect. While the meat industry has some seasonality, it is magnitudes less pronounced than dairy. We can share anonymised data upon request.
- **Dairy products:** Whilst the load profile is very seasonal, the proportion of flexible load at these sites is increasing. This includes the implementation of electric boilers where the site can still run on "dual fuel", enabling electric boilers to be ramped down when the grid is under stress. We are also aware of sites considering and installing buffer tanks that provides hours of hot water, with the express purpose to avoid times when electricity costs are higher. In general, flexibility is often an important business case consideration for electrification projects, and therefore we expect the proportion of flexible load at industrial dairy sites to grow over time.
- **Wood product manufacturing:** Sense Partners estimated <10MW. This sector is a significant contributor to IL. We are also aware of large industrials which use flexible load to support network constraints. With sufficient advance notice, we expect a significant proportion of the 177MW average intraday load identified by Sense would be price responsive, certainly at levels well below scarcity prices.
- **Primary metals and metals product manufacturing:** Sense Partners estimated ~10MW. This sector is also a significant contributor to the IL market, and has closer to 100MW today of load responding to spot prices at various thresholds.

- **Pulp and paper:** Sense Partners estimated a negligible amount. We are aware of at least 50MW which has responded to RCPD (effectively ~$2,000/MWh) in the past and continues to respond to spot prices. These sites may have additional flexible load at higher price thresholds.
- We are unsure where fruit, vegetables and other products which require a significant amount of refrigeration are covered in the Sense Partners table. In our experience, these industries can provide material volumes of flexibility, not just for IL, but for longer duration capacity management.
- Sense Partners do not show a 'general manufacturing' category. Industries like cement appear to have not been included, which are a significant contributor to flexible load. We expect a vast range of other manufacturing businesses will also be price responsive below $5,000/MWh.
- Sense Partners also noted they used GXP data to develop some of the industrial load profiles. This needs to have recognised that GXP data will be net of any demand response. If this has not been taken into account, the Sense analysis will have miscalculated the industry load shape and underestimated the flexibility potential.

Finally, we note that the Sense Partners estimates for potential flexibility are based on the industrial sector only. Electricity use in the commercial sector is approximately 75% of the industrial sector. A greater proportion of load within the commercial sector is on FPVV supply contracts, and therefore unlike spot exposed large industrials, most of this load has never faced any strong price signals to support the wholesale market, and hence we have less information on flexibility potential in this sector. However, the same energy and ancillary market mechanisms discussed in this submission can be used to both unlock industrial and commercial flexibility, and the Authority should take a broader view of the 'size of the prize' than just industrial load.

High level estimate of potential load flexibility

In our view a total potential load flexibility estimate of ~1,000MW based on current load and ~1,500MW based on future load growth feels reasonable.

Existing industrial load flexibility has been estimated based on the size of the sector and Simply Energy's experience. We have also included an estimate for commercial load flexibility, again based on the size of the sector, and recognising the different technical and commercial considerations to industrial load.

Our estimate for new commercial and industrial load flexibility is largely based on EECA RETA reports which estimate the electrification growth for process heat, for sites they believe going electric is more economic than biomass. We expect a high proportion of this new electric load to be flexible, as flexibility is an important driver of electrification economics. Additional flexible load will come from the transport sector.

The numbers above are high level estimates only; however the magnitude of the difference to the Sense Partners report highlights the need for further work in this area before prioritising flexibility roadmap actions.

Further analysis required

Sense described their report as a *"top-down desk-top analysis based on limited data and undertaken over a brief period of time"*. To support the Authority's decision making and priorities, we encourage the Authority to fully engage with industrials and other bodies like EECA (who we understand is currently completing a detailed analysis of the industrial flexible loads in New Zealand), to gain a well-informed understanding of the size and scope of the flexible load which can support the day-to-day efficiency of the wholesale market. In

the meantime, the Sense Partners report should not be relied on by the Authority to prioritise actions within a flexibility roadmap.

Q3. Do you agree with our focus on intra-day demand flexibility for this initiative? Why/why not? What other approach would you suggest?

As discussed in the main submission, we believe industrial flexibility can play a more valuable role than just short-term capacity management, without impacting productive output. Industrial flexibility will be an important component of an efficient, low cost, low emissions electricity system, especially as prices inevitably become more volatile with greater periods of surplus and shortage of renewables. We believe mechanisms are needed which incentivise and facilitate 'around the clock' market visibility and participation. This is a core part of the reason we believe mechanisms like DD which support more efficient market based demand response should be prioritised over an out of market ERS.

Q4. Are there any other ways that currently enable industrial demand flexibility in New Zealand?

Not that we are aware of.

Q5. Do you agree with our description of the barriers affecting the provision of industrial demand flexibility? Why/why not? Are any other barriers relevant to the provision of demand flexibility from other consumer types?

Our submission highlights what we believe are the key areas where industrials face barriers, and new or updated market mechanisms are needed, including:

- There is currently no ancillary service which provides energy reserves to help manage increasing supply and demand volatility and uncertainty, and the proposed MFK changes are for batteries only
- There is currently no energy market mechanism which is operationally suitable for spot exposed load to more effectively manage costs than trying to react and respond to volatile 5 minute prices
- There is currently no energy market mechanism which enables customers which prefer a fixed supply price to consider different supply tariffs at site for flexible and non-flexible load

Q6. Do you agree that existing incentives and contracts for demand flexibility are resulting in inefficiently low levels of demand flexibility?

Yes, we think additional incentives are required.

Q7. Are you aware of any additional barriers to enabling more industrial demand flexibility?

We believe effective resourcing from the Authority will be essential to deliver on the flexibility vision outlined in the consultation paper.

Q8. Do you agree with our vision for industrial demand flexibility? Why/why not?

Yes.

However, we disagree with the proposed roadmap and proposed lack of actions in the short and medium term to deliver on the vision. This is covered in detail in our submission.

Q9. Do you believe that this vision is applicable to other forms of demand flexibility, or to flexibility more generally?

Yes.

Q10. Do you agree with our view that demand flexibility providers should be able to receive payment for providing flexibility services that exceeds avoided energy costs, provided the demand response is efficient (as defined)? Why/why not?

Yes. An example is the incentives put in place by the AEMC for 'Dispatch Mode', which will include both payments to industrials and a market mechanism to facilitate avoided energy costs, on the basis that overall the program is efficient for all consumers.

Q11. Do you believe that a different level of payment would be appropriate? Why/why not?

No, we agree with the Authority's position in section 6 of the consultation paper.

Q12. Do you agree with our proposed guiding principles? Why/why not? Are other specific considerations which you believe should be included in the evaluation framework?

Guiding principles can be helpful, but we believe the roadmap and actions are far more important. Our submission has covered multiple areas the proposed actions are at odds with the principles.

Q13. Do you agree with our view that there is currently insufficient potential industrial demand flexibility to justify the establishment of new market mechanisms or platforms other than the proposed ERS and standardised demand flexibility product?

We strongly disagree with the Authority's view. This has been addressed in detail in the *"The 'size of the prize' has been significantly underestimated"* section within our main submission, and in response to Q2 above.

Q14. Do you consider there are other cost-effective measures that can be implemented urgently to enable industrial demand flexibility to support reliability and efficient in the wholesale market?

We disagree with the premise of the question. Our view was discussed in the '*A longer-term strategic approach is needed'* section of the main submission.

Q15. Do you agree with our proposal to establish an ERS? Why/why not?

No, which has been discussed at length in our main submission.

Q16. For demand flexibility providers – do you consider it likely that you could make demand flexibility capacity available for an ERS in time for Winter 2026?

We do not agree with prioritising an ERS.

Q17. Do you agree with our proposal to investigate a standardised demand flexibility product? Why/why not?

As discussed in our submission, we do not support this being one of the fast-track measures.

Q18. Do you support our other proposed roadmap actions? Why/why not?

We believe the Authority's focus would be better served on overcoming the 3 barriers identified above in response to Q5. As mentioned in other parts of this submission, we understand the Authority is resource constrained, so focus should be on developing the strategic market development opportunities that will deliver the most value to consumers.

Q19. Do you believe there are other actions that we should consider in the roadmap? If so, please outline the actions and rationale.

This has been discussed in the main submission and in response to Q5.

Q20. Do you support the proposed sequence and timing of actions in our proposed roadmap? Why/why not?

No, as discussed in the main submission.

Q21. Is there anything else relevant to this issue that the Authority should consider? If so, please provide any relevant information to support the Authority's consideration.

No.