QUANTIFYING DEMAND-SIDE FLEX

Stakeholder engagement report

EECA ENERGY EFFICIENCY & CONSERVATION AUTHORITY
TE TARI TIAKI PŪNGAO

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1. Foreword

This report is one of a suite of reports documenting research to quantify the potential of industrial demand-side flexibility (DSF) in the New Zealand Electricity Market (NZEM)

As the country moves towards a more sustainable and resilient energy future, understanding and harnessing the power of DSF becomes increasingly crucial. This study aimed to provide a detailed assessment of the current landscape, potential, and pathways for implementing DSF across various sectors of the New Zealand economy.

The primary objectives of this research were to:

- Evaluate the current state of demand response in New Zealand through a thorough literature review and stakeholder engagement.
- Quantify the potential for DSF across different sectors and regions of the country.
- Identify barriers and enablers for DSF implementation.
- Develop recommendations for unlocking the full potential of DSF in New Zealand.

To achieve these objectives, our research team employed a multi-faceted approach, combining data analysis, modeling, and stakeholder input. The study leveraged international best practices while adapting methodologies to suit the unique characteristics of New Zealand's electricity system.

By providing a comprehensive analysis of DSF potential in New Zealand, this suite of reports aims to inform policymakers, industry stakeholders, and researchers, ultimately contributing to the development of a more flexible, efficient, and sustainable electricity system for the country.

2. Executive summary

Jacobs prepared two sets of surveys – one for industrial end-users and another for EDBs. The industrial survey focuses on energy use and potential for DSF participation whereas the EDB survey focuses on DSF programs that facilitate DSF participation.

The purpose of the survey was to gather qualitative insights from as diverse a range of industrial sector stakeholders and EDBs as practicable. In particular, the survey captures a range of end-uses, sectors, and scales to ensure that the diversity of potential flexibility provision is captured.

In developing the list of respondents to invite to participate in the survey, we ensured that the sample is diverse with respect to:

- industrial sector
- scale
- region

and ensure that all sectors and uses that account for a material amount of industrial electricity consumption are represented. We have used EECA's Energy End-Use Database (EEUD) to identify

the top 10 end uses in the industrial sector in 2023 from an electricity consumption perspective and the top 10 sectors for each end use.

In addition to consumers, we also invited service providers to complete a different survey, particularly all Electricity Distribution Businesses, the generator/retailers providing data, and load aggregators. Questions are tailored considering their role in enabling flexibility in another party's load by providing some service.

Industrial survey

Production is still king for most industrial end-users. Production must continue regardless of electricity prices. There are also very few processes or equipment whose operations can be shifted to accommodate flexibility services with no major impact to operations. However, energy cost is still an important factor in business planning, and respondents are open to participation in flexibility services if the price is right. Respondents are open to exploring pricing mechanisms, optimizing energy usage and investing in flexibility. Therefore, any proposed DSF intervention must first target specific processes and equipment that have some degree of flexibility and are not critical to operations, such as water heating and pumping. Creative ways to deploy DSF should also be explored to unlock flexibility potential in processes or equipment that are not yet currently being considered for DSF services. The solutions must be tailored to each industrial customer as their operational needs vary as are their tolerances for operational disruptions.

EDB survey

EDB respondents currently provide customer incentives to participate in DSF mostly through ripple control and time-of-use pricing. Consequently, domestic hot water currently is among the top providers of DSF and is expected to continue to do so until 2040. However, the respondents believe storage will play bigger role by 2040 in terms of distributed storage and electric vehicles.

The capacity of each of the EDB respondent's network to support demand-side flexibility is currently low. Only one out of six respondents can support DSF for 100% of the load. The rest of the respondents have the capacity to support 0-25% of their networks' loads. To enhance their network's demand-side flexibility capabilities, respondents identified technology improvements and staff training as key investments. Despite currently low identified DSF potential, the respondents' knowledge and customer incentives for DSF show promise for accelerating deployment of DSF programs. However, it is necessary to ensure that EDBs have the capabilities and infrastructure in place to successfully implement DSF programs.

In ranking obstacles to DSF, 'market structure' and 'reliability and trust' were the highly nominated obstacles, with 'competing priorities' the least nominated obstacle to DSF. This suggests willingness by participants to deploy and promote DSF programs as soon as system-wide adoption issues are resolved.

3. Acknowledgments

EECA would like to acknowledge the invaluable contributions of data providers and survey respondents in this work.

Respondents			
McAlpines Ltd	Pukepine Sawmills (1998) Ltd	Graymont	Meridian Energy
Winstone Wallboards Limited	Oji Fibre Solutions	ANZCO Foods	Simply Energy
Methanex New Zealand	Astro pine ltd	Pan Pac Forest Products Limited	Genesis Energy
Whakatane Growers Ltd	Sequal Lumber Limited	Dominion Salt Ltd	Mercury Energy
Comfortech Building Performance Solutions	Kiwi Lumber	Fonterra	Network Tasman
DB Breweries Limited	WML	Cottonsoft	Waipa Networks
Timberlands	Pure Bottling	Fulton Hogan Ltd	Scanpower
Inghams	Alsco	Oceania healthcare	Alpine Energy
Tegal	The Tasman Tanning Co	Timberlands	Horizon Energy Distribution Limited
			PowerNet

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4. Acronyms and abbreviations

ACRONYM	Full Name
ANZSIC	Australian and New Zealand Standard Industrial Classification
Berkeley Lab	Lawrence Berkeley National Laboratory
CC	Customer Count
CR	Co-benefit Ratio
DER	Distributed Energy Resources
DERMS	Distributed Energy Resources Management System
DR-PATH	Demand Response Model developed by Berkeley Lab
DSF	Demand Side Flexibility
DSO	Distribution System Operator
DWP	Dispatch Weighted Price
EA	Electricity Authority
EDB	Electricity distribution business
EECA	Energy Efficiency and Conservation Authority
EEUD	Energy End-Use Database
EMI	Electricity Market Information
EMS	Energy Management Systems
ENA	Electricity Networks Aotearoa
ESS	Energy Storage System
EV	Electric Vehicle
f	Capital Recovery Factor
FC	Fixed Initial Capital Cost
FO	Fixed Operating Cost
GHG	Greenhouse gas

ACRONYM	Full Name
GXP	Grid Exit Point
HVAC	Heating, Ventilation, and Air Conditioning
IC	Incentive to consumers
ICP	Installation Control Point
ICT	Information and communication technology
IEA	International Energy Agency
kWp	kilowatt-peak
LBNL	Lawrence Berkeley National Laboratory
LF	End use constraint factor
LT	Loss
MBIE	Ministry of Business, Innovation and Employment
MDAG	Market Development Advisory Group
Mt	million tonnes
MW	Megawatt
MWh	Megawatt-hour
NPV	Net present value
NZAS	New Zealand Aluminium Smelters
NZEM	New Zealand Electricity Market
PPA	Power Purchase Agreement
RE	Renewable Energy
RETA	Regional Energy Transition Accelerator
TJ	Terajoule
TL	Technical Limit
TOU	Time of Use
TSO	Transmission and System Operator

ACRONYM	Full Name
UC	Uptake Cap
VC	Variable Initial Capital Cost
VO	Variable Operating Cost
VRE	Variable Renewable Energy

5. Purpose of this report

This report presents the findings from stakeholder engagement undertaken with industrial load customers and electricity distribution businesses (EDB)

The report is structured as follows:

- Approach: covering the engagement approach and survey design, and invitee selection
- Outcomes: providing a complete breakdown of respondent responses for each survey question
- Conclusions: summarising responses to find common themes and tensions in stakeholder views

6. Approach

This section details our approach to stakeholder surveys. It outlines the proposed survey approach, survey questions, and survey invitees for the Research to Quantify Demand-side Flexibility in the New Zealand Electricity Market.

6.1. Stakeholder Surveys

We prepared two sets of surveys – one for industrial end-users and another for EDBs. The industrial survey focused on energy use and potential for DSF participation whereas the EDB survey focused on DSF programs that EDBs may launch and the benefits of such programs for EDBs.

6.2. Approach

The purpose of the survey was to gather qualitative insights from as diverse a range of industrial sector stakeholders and EDBs as was practical within the time and budget limitations of the project. In particular, the survey captured a range of end-uses, sectors, and scales to ensure that the diversity of potential flexibility provision was captured.

Completeness needed to be traded off against the practical considerations of the time and effort involved in surveying many participants. To that end, we engaged with stakeholders in two phases:

Via an online survey with a collection of multiple-choice or short-form answers. This survey was sent to all invitees in the list in

and **Error! Reference source not found.**. Answers were multiple-choice and short-form answers that can be processed in bulk.

Via a follow up interview with a smaller set to get additional context/colour to answers provided in the survey. All invitees were asked if they were willing to participate in a 1-on-1 interview where we drew out more details and collect more nuanced insights into potential flexibility and barriers to unlocking it.

The list of survey invitees was long (more than 200) and it was not feasible to conduct 1-on-1 interviews with all of them within the scope of the project.

6.3. Invitees

This section discusses survey invitees and the rationale we used for making this selection.

Selection logic

Consumers

The objective of the invitee list was to make sure that the sample is diverse with respect to:

- industrial sector
- scale
- region

and to ensure that all sectors and uses that account for a material amount of industrial electricity consumption were represented.

To that end, we used EECA's Energy End-Use Database (EEUD) to identify the top 10 end uses in the industrial sector in 2023 from an electricity consumption perspective and the top 10 sectors for each end use. This is summarised in Table 1, where the rows are energy end-uses, and the columns contain the top 10 sectors for each end-use by 2023 electricity consumption.

Enablers

In addition to consumers, we also invited service providers to complete a different survey, particularly all Electricity Distribution Businesses, the generator/retailers providing data, and load aggregators. Questions were filtered for facilitators to reflect the fact that they are not considering management of their own load but look to enable flexibility in another party's load by providing some service.

Table 1. Ranking by end-use and sector

End use	High Temperature Heat (>300 C), Process Requirements	Motive Power, Stationary	Pumping
Top-ranking sectors	Primary Metal and Metal Product Manufacturing Non-Metallic Mineral Product Manufacturing Fabricated Metal Product, Transport Equipment, Machinery and Equipment Manufacturing Furniture and Other Manufacturing Wood Product Manufacturing	Petroleum, Basic Chemical and Rubber Product Manufacturing Mining Wood Product Manufacturing Meat and Meat Product Manufacturing and Seafood Primary Metal and Metal Product Manufacturing Food and Beverage Product Manufacturing	Electricity, Gas, Water and Waste Services Dairy Product Manufacturing Wood Product Manufacturing Food and Beverage Product Manufacturing (excluding Dairy, Meat, Seafood) Pulp, Paper and Converted Paper Product Manufacturing

		(excluding Dairy, Meat, Seafood) Construction Furniture and Other Manufacturing Non-Metallic Mineral Product Manufacturing Fabricated Metal Product, Transport Equipment, Machinery and Equipment Manufacturing	Non-Metallic Mineral Product Manufacturing
End use	Refrigeration	Fans	Iron and Steel Manufacturing
Top-ranking sectors	Meat and Meat Product Manufacturing and Seafood Dairy Product Manufacturing Food and Beverage Product Manufacturing (excluding Dairy, Meat, Seafood) Primary Metal and Metal Product Manufacturing	Wood Product Manufacturing Dairy Product Manufacturing Pulp, Paper and Converted Paper Product Manufacturing	Primary Metal and Metal Product Manufacturing
End use	Lighting	Low Temperature Heat (<100 C), Space Heating	Refiners
Top-ranking sectors	Wood Product Manufacturing Food and Beverage Product Manufacturing (excluding Dairy, Meat, Seafood) Dairy Product Manufacturing	Construction Dairy Product Manufacturing Food and Beverage Product Manufacturing (excluding Dairy, Meat, Seafood) Petroleum, Basic Chemical and Rubber Product Manufacturing	Wood Product Manufacturing Pulp, Paper and Converted Paper Product Manufacturing

	Meat and Meat Product Manufacturing and Seafood Construction Mining Primary Metal and Metal Product Manufacturing Furniture and Other Manufacturing Fabricated Metal Product, Transport Equipment, Machinery and Equipment Manufacturing Textile, Leather, Clothing and Footwear Manufacturing		
End use	Compressed Air	Electronics and Other Electrical Uses	Intermediate Heat (100-300 C), Process Requirements
Top-ranking sectors	Dairy Product Manufacturing Wood Product Manufacturing Food and Beverage Product Manufacturing (excluding Dairy, Meat, Seafood) Pulp, Paper and Converted Paper Product Manufacturing	Primary Metal and Metal Product Manufacturing Food and Beverage Product Manufacturing (excluding Dairy, Meat, Seafood) Mining Construction Furniture and Other Manufacturing Wood Product Manufacturing Fabricated Metal Product, Transport Equipment, Machinery and Equipment Manufacturing	Petroleum, Basic Chemical and Rubber Product Manufacturing Food and Beverage Product Manufacturing (excluding Dairy, Meat, Seafood) Textile, Leather, Clothing and Footwear Manufacturing Wood Product Manufacturing

		Textile, Leather, Clothing and Footwear Manufacturing Petroleum, Basic Chemical and Rubber Product Manufacturing Pulp, Paper and Converted Paper Product Manufacturing	
End use	Intermediate Heat (100-300 C), Cooking	Irrigation	Low Temperature Heat (<100 C), Water Heating
Top-ranking sectors	Food and Beverage Product Manufacturing (excluding Dairy, Meat, Seafood)	Dairy Cattle Farming	Dairy Product Manufacturing Meat and Meat Product Manufacturing and Seafood Dairy Cattle Farming Accommodation and Food Services Retail Trade - Food

Following sector and end-use identification, we completed desktop research to identify the top 10 companies by revenue in each sector to produce a proposed list of survey invitees. The table below contains the resulting list.

Selected invitees

The table below shows the proposed invitees and their associated sector and a count of invitees per sector.

Table 2. Count of invitees by sector

ANZSIC	Count
Primary Metal and Metal Product Manufacturing	18
Petroleum, Basic Chemical and Rubber Product Manufacturing	17
Electricity, Gas, Water and Waste Services	10
Meat and Meat Product Manufacturing and Seafood	15
Wood Product Manufacturing	10
Construction	18
Dairy Product Manufacturing	15
Food and Beverage Product Manufacturing (excluding Dairy, Meat, Seafood)	18
Textile, Leather, Clothing and Footwear Manufacturing	21
Non-Metallic Mineral Product Manufacturing	10
Mining	14
Pulp, Paper and Converted Paper Product Manufacturing	17
Fabricated Metal Product, Transport Equipment, Machinery and Equipment Manufacturing	20
Furniture and Other Manufacturing	21
Dairy Cattle Farming	18
Accommodation and Food Services	30
Retail Trade - Food	17

7. Outcomes

7.1. Stakeholder Perspectives

We summarize the key insights gained from surveys of large industrial consumers and distribution network operators, highlighting their views on DSF implementation, barriers, and opportunities. The survey results are based on the responses of 28 industrial respondents from different sectors and 6 respondents from distributors.

The survey shows that industrial stakeholders consider production to be king, therefore any interventions to enable DSF must address each industrial customer's unique energy needs. Distributors meanwhile consider the future of DSF to be promising and their recommendations for faster adoption of DSF can largely be influenced by policy guidance. There is however a divide between the perception of DSF benefits between those who are actively engaging in DSF programs and those who don't where those who are active perceive greater benefits from DSF versus those who aren't actively engaged.

7.2. Industrial survey results

As of May 28, 2025, a total of 28 industrial respondents completed the survey as shown in Table 3. Respondents came from different industries and were mostly in managerial positions or higher.

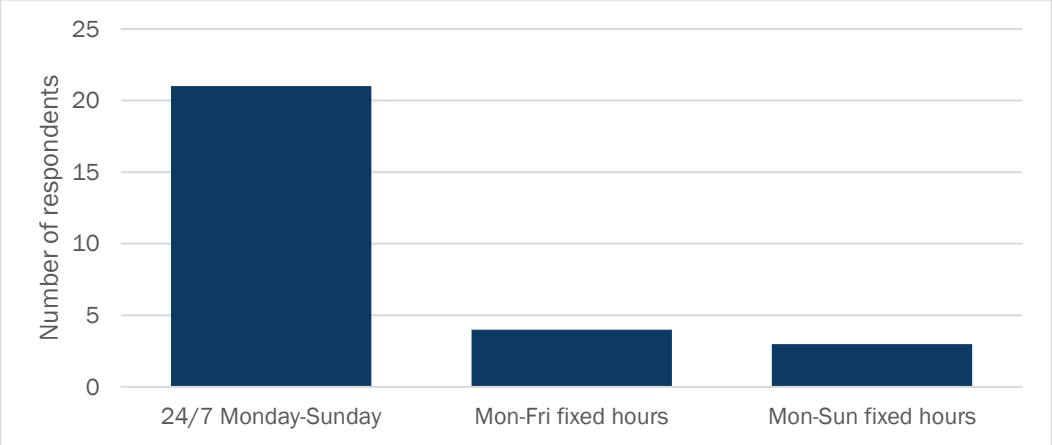
Table 3. Industrial respondents

Company		
McAlpines Ltd	Pukepine Sawmills (1998) Ltd	Graymont
Winstone Wallboards Limited	Oji Fibre Solutions	ANZCO Foods
Methanex New Zealand	Astro pine ltd	Pan Pac Forest Products Limited
Whakatane Growers Ltd	Sequal Lumber Limited	Dominion Salt Ltd
Comfortech Building Performance Solutions	Kiwi Lumber	Fonterra
DB Breweries Limited	WML	Cottonsoft
Timberlands	Pure Bottling	Fulton Hogan Ltd
Inghams	Alsco	Oceania healthcare
Tegal	The Tasman Tanning Co	Timberlands

Operational Profile

Most of the industrial respondents operate on a 24/7 basis, a few of them have fixed weekday schedules as shown in Figure 1.

Figure 1. Operational hours



Most of the respondents' operations are not seasonal as shown in Figure 2. Those with seasonal operations have peak activities mostly during summer as shown in Figure 3.

Figure 2. Seasonality

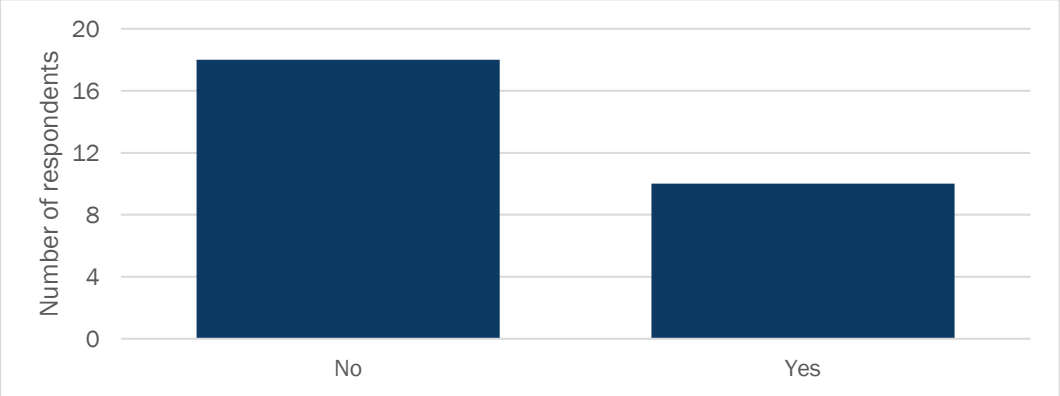
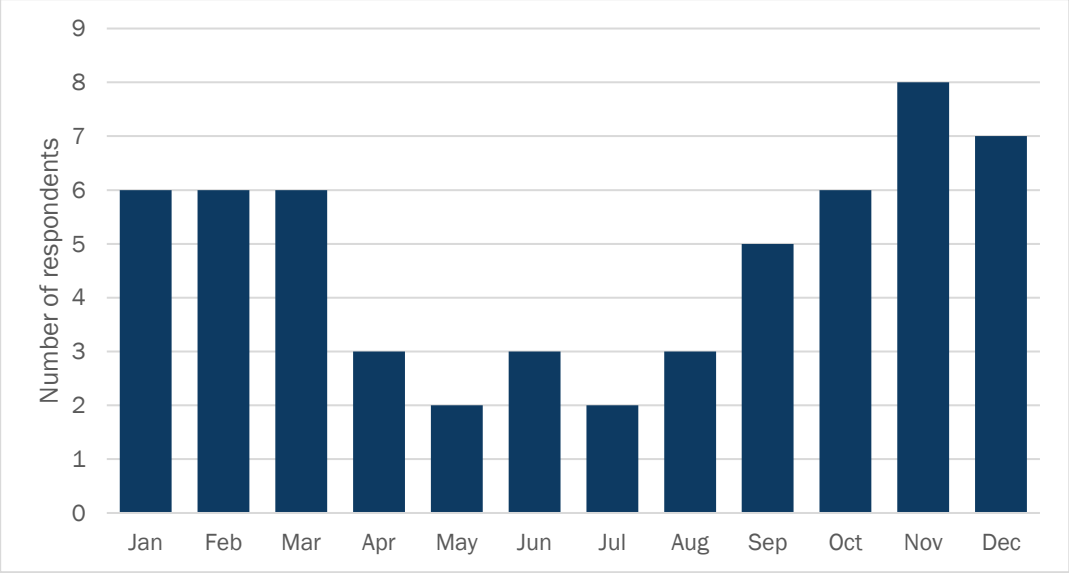
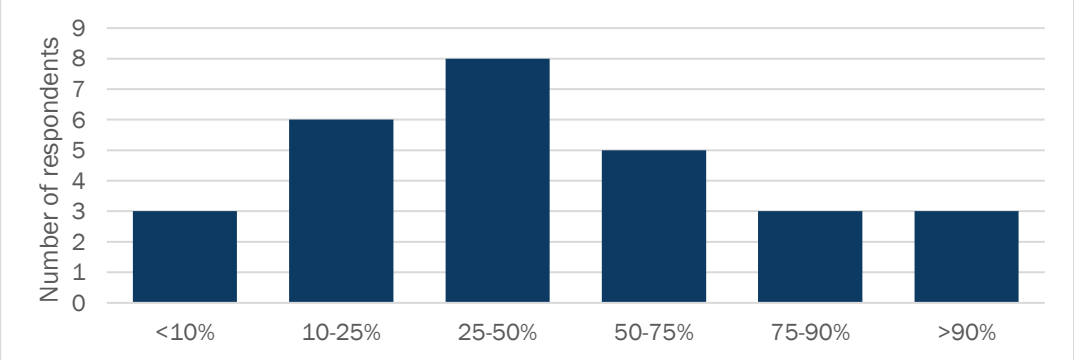


Figure 3. Peak months of respondents with seasonal operations



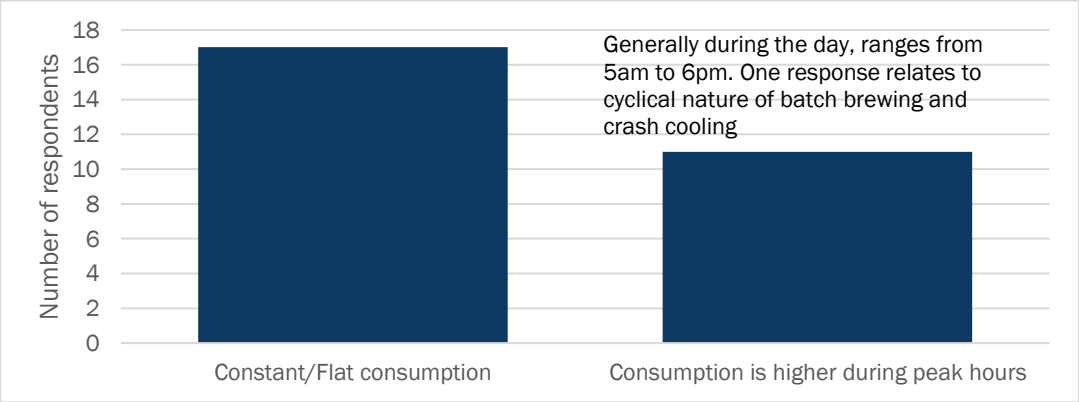
Proportion of electricity in total energy use varies from less than 10% to more than 90%, but it mostly ranges between 10-75% of total energy needs as shown in Figure 4.

Figure 4. Proportion of energy use relative to other sources (% electricity)



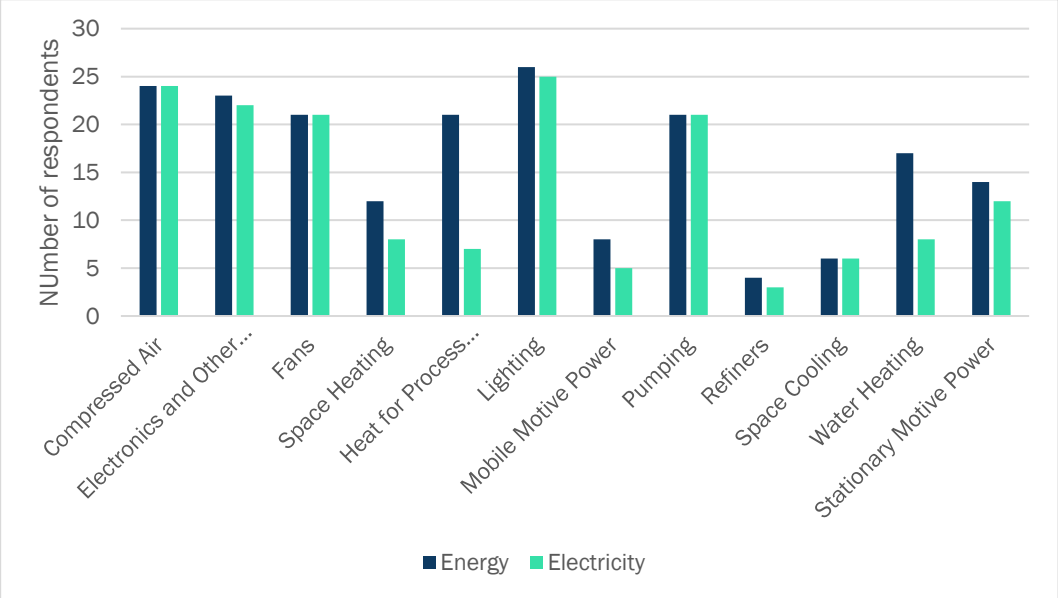
Most respondents have flat consumption as shown in Figure 5. This is consistent with previous data in Figure 1 and Figure 2 showing that majority of respondents have constant operations.

Figure 5. Energy consumption profile



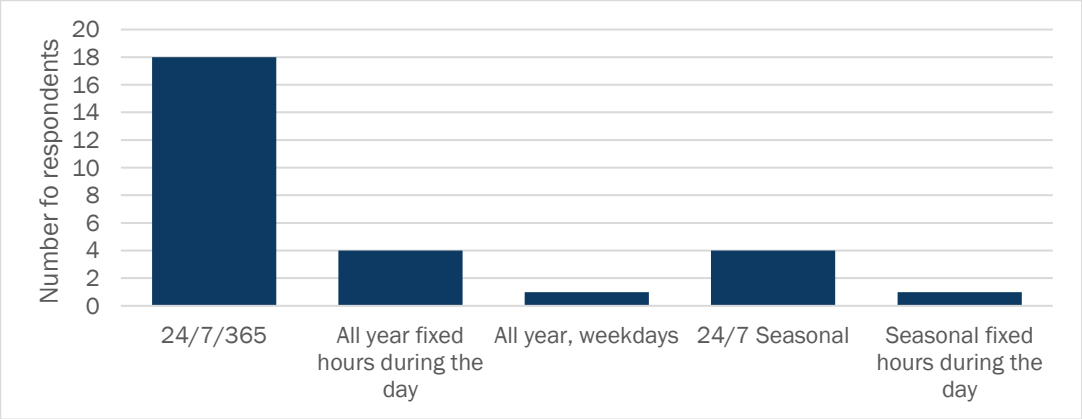
Compressed air, Lighting, Electronics, Fans, and Pumping are the most common processes that consume electricity, and energy in general, as shown in Figure 6[1].

Figure 6. Processes that consume energy and electricity



Of the processes and equipment that use electricity, the majority of these operate all year round as shown in Figure 7. Five out of 28 have seasonal uses of electricity. This is consistent with the respondents' operational hours that are generally not seasonal.

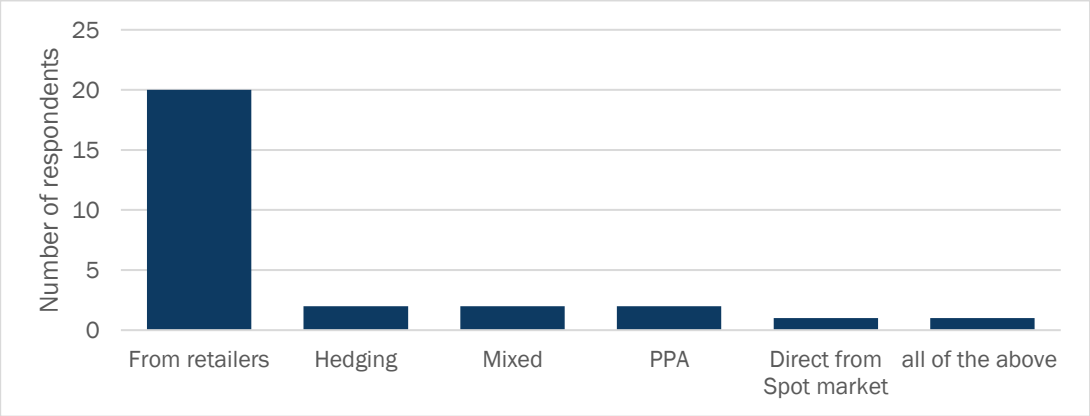
Figure 7. Electrical consumption profile of industrial processes and equipment



Most of the respondents procure their electricity from retailers as shown in Figure *8*.

[1] Note that respondents appear to have interpreted energy to be exclusive of electricity so we have adjusted responses so that an answer of "yes" for an end use in electricity also means a "yes" for energy in the same end use.

Figure 8. Procurement medium



While majority of respondents are on tariffs that vary at different times of the day (e.g. TOU/spot), a significant number still use flat rates as shown in Figure 9.

Table 4 shows chosen pricing mechanisms for each operational profile. Even if operations of most of these respondents are flat and inelastic relative to spot prices, surprisingly most of these industries follow spot market prices or respond to some price differentiation (e.g. TOU).

Figure 9. Pricing basis

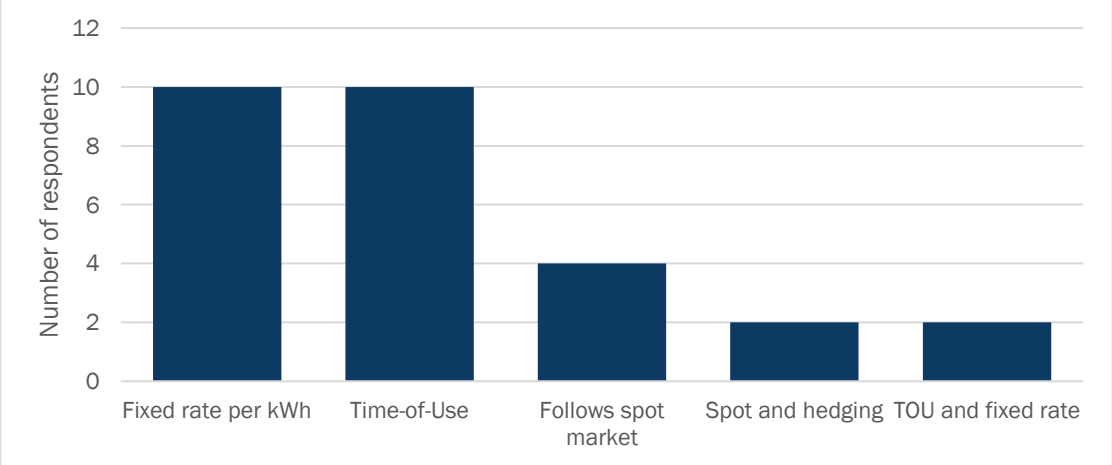


Table 4 Seasonality and pricing choice

Seasonality of electrical processes/equipment	How is their electricity priced?	Number of respondents
24/7/365	Time-of-Use	7
	Fixed rate per kWh	4
	Follows spot market	4
	Spot and hedging	2
	TOU and fixed rate	1

All year fixed hours during the day	Fixed rate per kWh	2
	Time-of-Use	2
All year, weekdays	TOU and fixed rate	1
24/7 Seasonal	Fixed rate per kWh	3
	Time-of-Use	1
Seasonal fixed hours during the day	Fixed rate per kWh	1

Nearly all the respondents are willing to explore other pricing mechanisms that will optimize benefits of adopting demand side flexibility as shown in

Figure 10. Of those who are willing, many of their existing pricing mechanisms are time-of-use and fixed rate as shown in Figure *11*. With the right support, these willing participants may be encouraged to enrol in DSF programs or shift to a pricing mechanism that are more responsive to grid needs.

Figure 10. Openness to exploring other pricing mechanisms

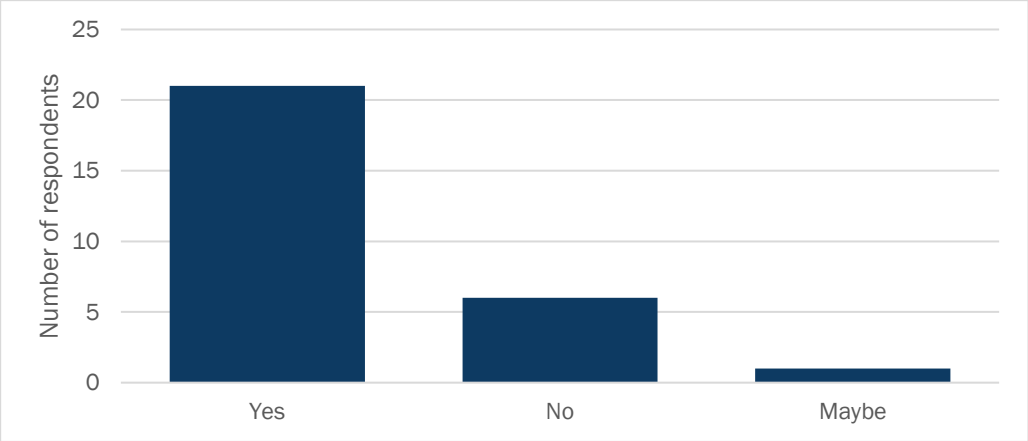
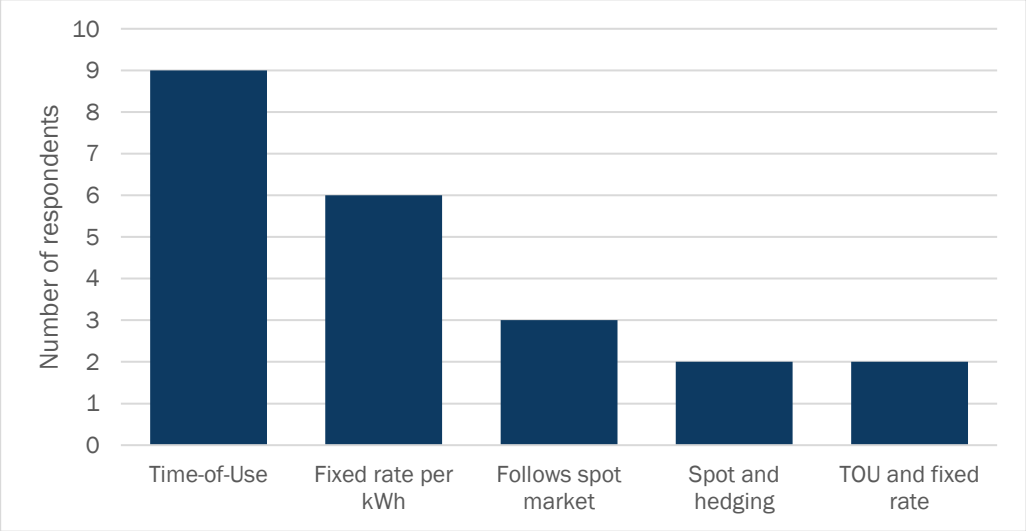


Figure 11. Existing pricing mechanisms of those willing to explore



Flexibility potential

Most of the respondents' operations are not sensitive to electricity prices – operations must continue whatever the prices are as shown in

Figure 12. However, about half of the respondents have some processes that can be operated off-peak or be shifted as shown in
Figure 13 and Figure 14 respectively. Thus while

Figure 10 shows openness to incentive-based mechanisms for DSF, operational requirements allow some options for DSF participation, albeit limited.

Figure 12. Electricity price sensitivity

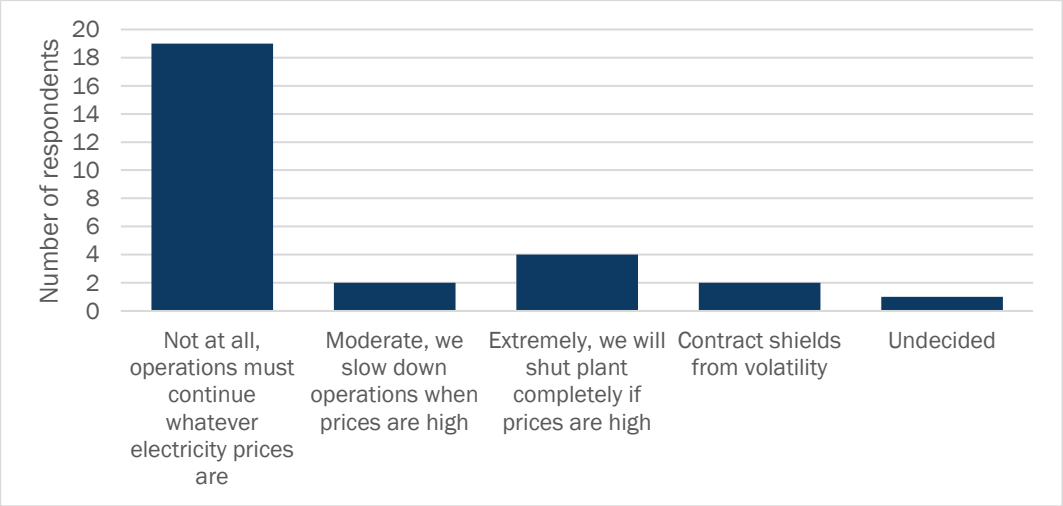


Figure 13. Processes that can be operated off-peak

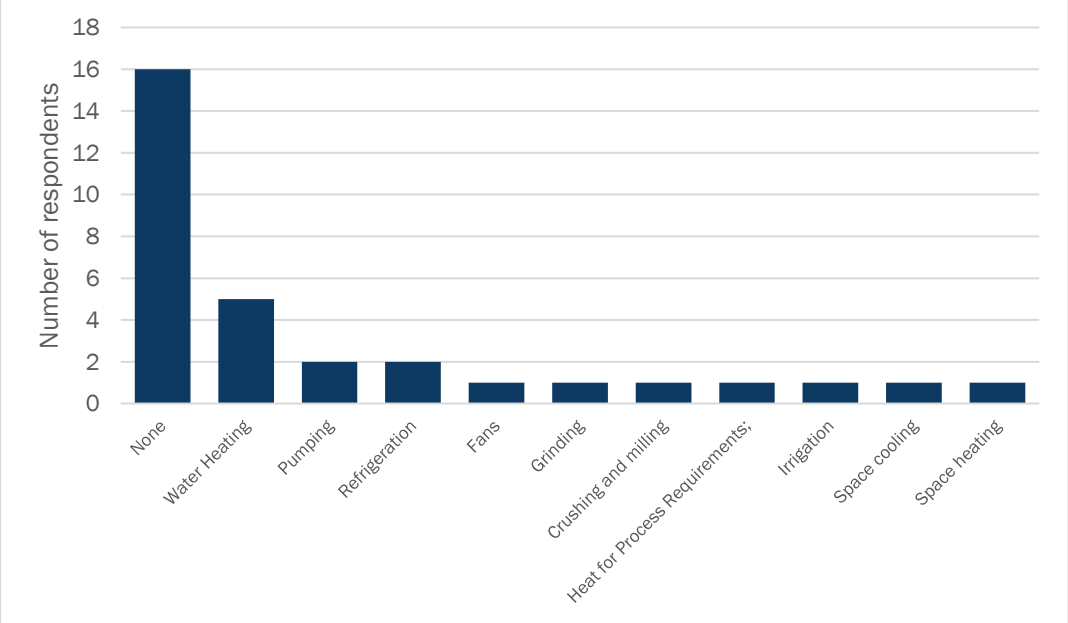
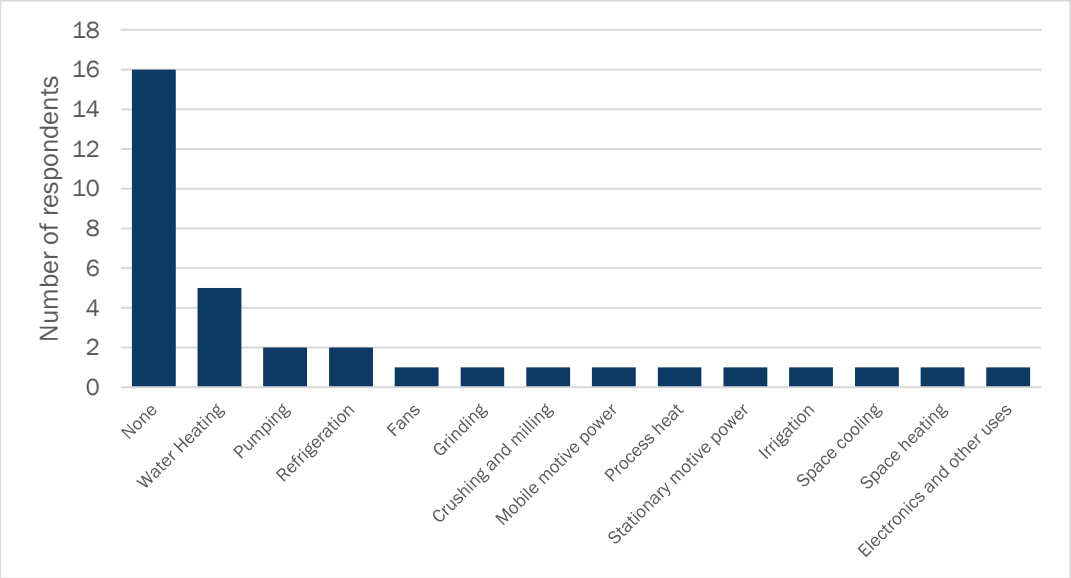


Figure 14. Non-critical operations that can be shifted



Majority of respondents are familiar with demand response and half of them have participated in demand response as shown in
Figure 15. However, participants are mostly unwilling or neutral about shifting energy usage as shown in

Figure 16. This is consistent with their response to the nature of their operational requirements being non-seasonal and insensitive to electricity prices.

Figure 15. Demand response awareness and participation

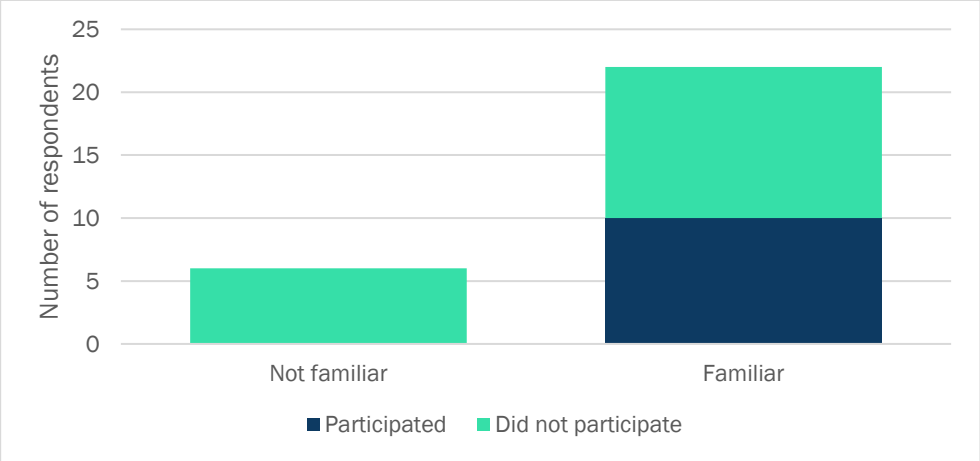
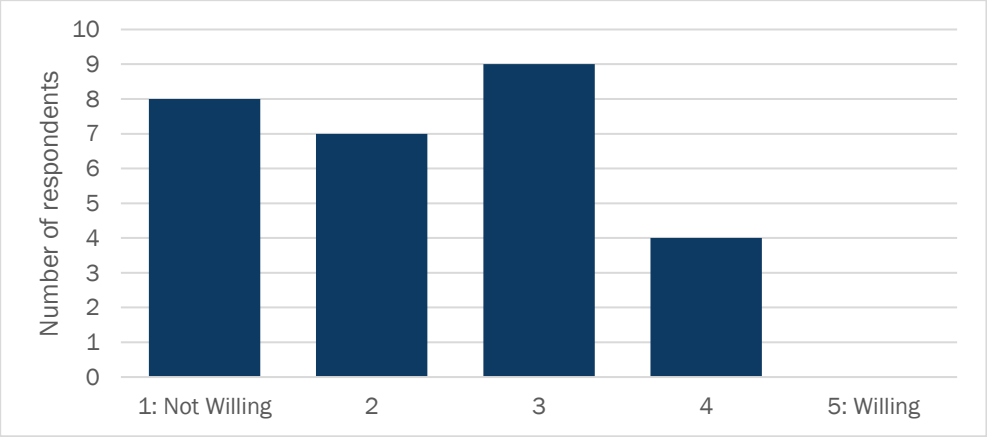


Figure 16. Willingness to shift energy usage



Only a third of respondents have implemented ways to avoid winter spikes as shown in Figure 17. The mechanisms they employed were evenly split between price hedging/contracts or temporarily changing operations/demand response as shown in
Figure 18.

Figure 17. Implemented price spike avoidance

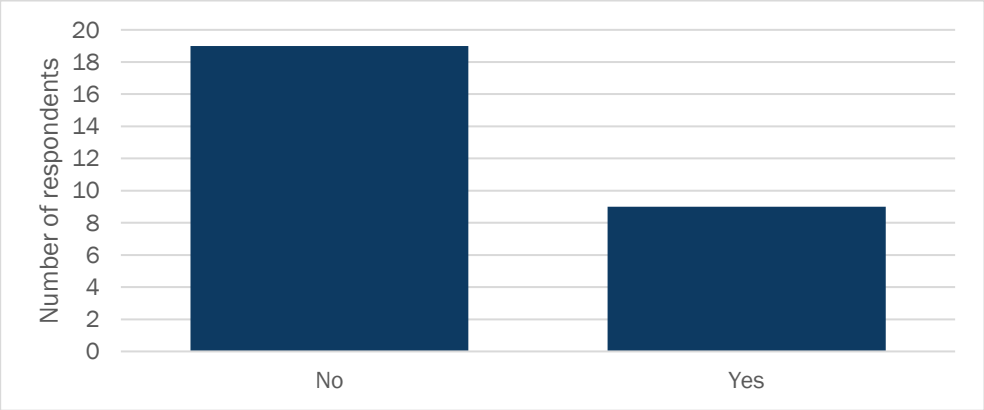
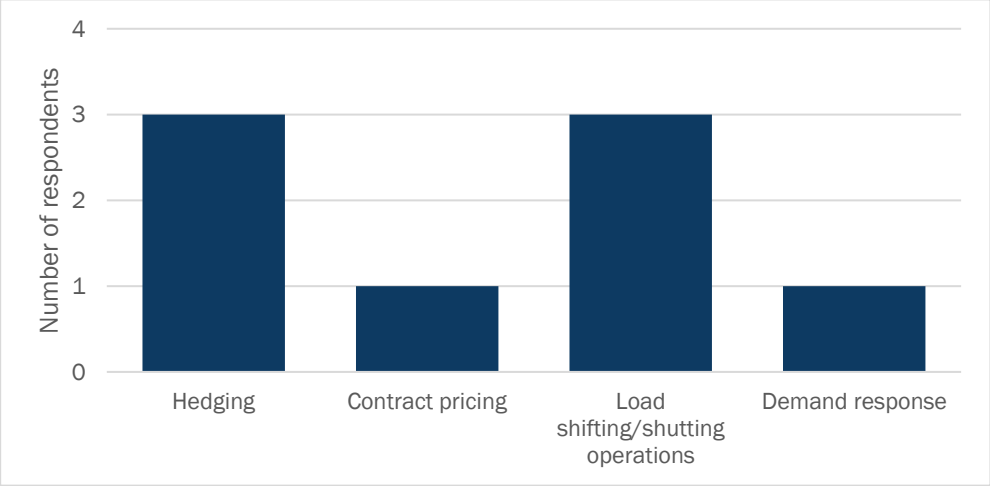


Figure 18. Means used to avoid price spikes



Technology and Systems

Around 40% of the respondents use energy management systems as shown in Figure 19. Fewer (21%) have onsite renewables such as solar PV and co-generation plants as shown in Figure 20. These are gaps that can potentially be explored to facilitate demand response.

Figure 19. Respondents that use EMS

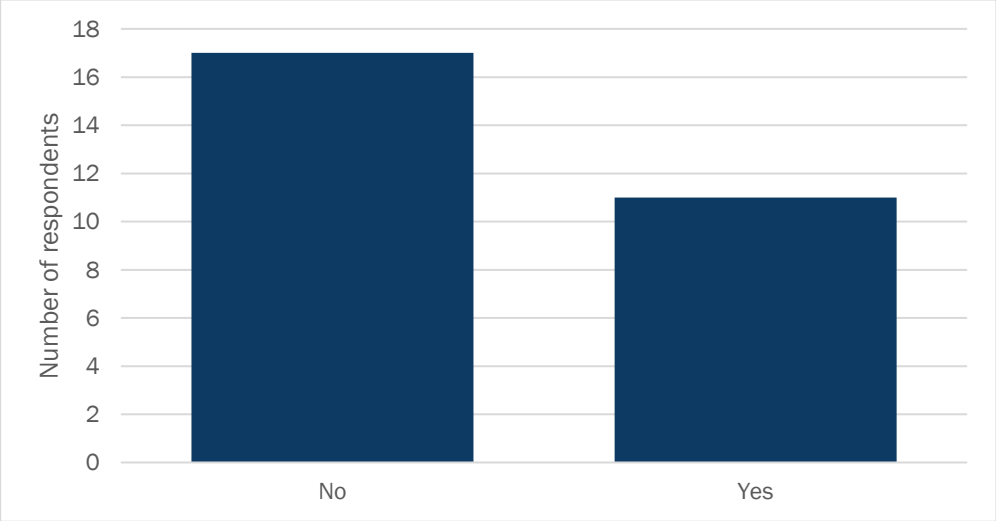
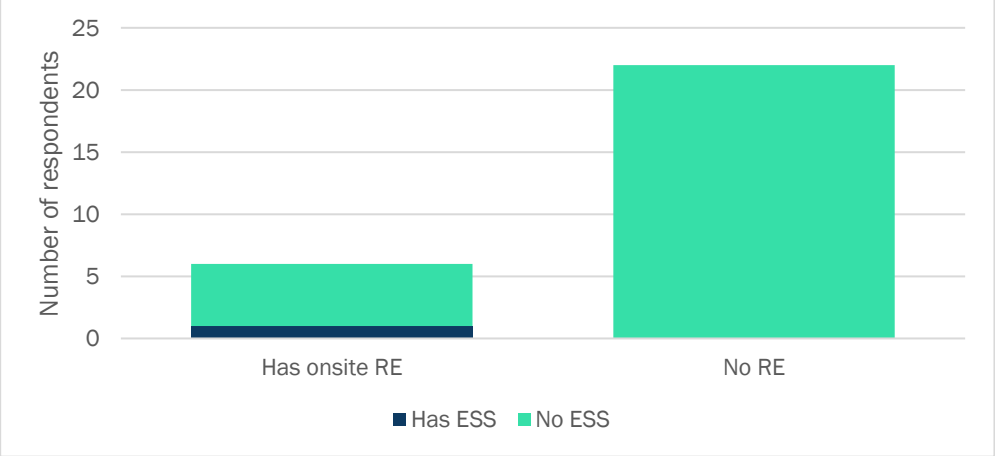
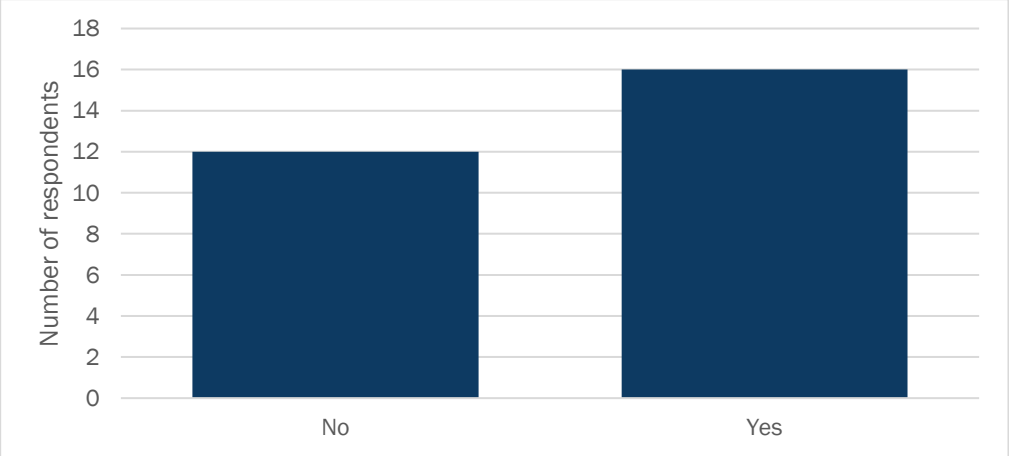


Figure 20. Respondents with onsite RE and ESS



More than half of the respondents believe they already have existing personnel who have knowledge on energy flexibility as shown in Figure 21. These personnel can potentially lead flexibility initiatives including gaps identified in Figure 19 and Figure 20.

Figure 21. Respondents with personnel that have energy flexibility capabilities



Barriers and Incentives

The nature of operations of most respondents leaves limited room for load shifting (e.g. 24/7/365 operations, most processes are critical) and respondents may be unwilling to participate in flexibility programs if participation means potential disruptions to production. However, nearly all are still willing to invest in flexibility if the price is right as shown in

Figure 22. Furthermore, about 2/3 of the respondents would consider automating load flexibility and 2/3 are also open to integrating their systems into a broader flexibility strategy (e.g., selling excess energy back to the grid) as shown in Figure 23 and Figure 24 respectively.

Figure 22. Willingness to invest in flexibility and effect of potential disruptions to production on willingness to participate in flexibility programs

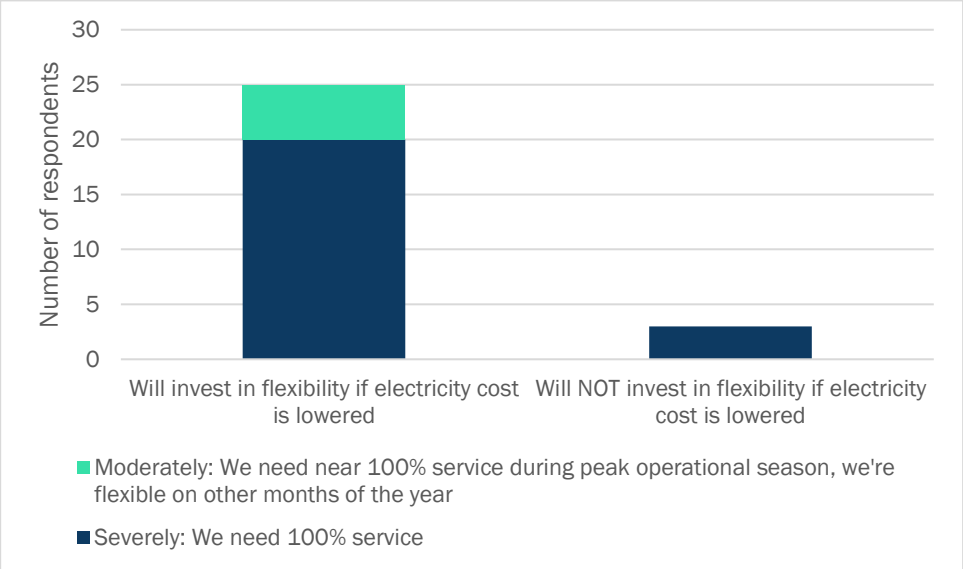


Figure 23. Openness to automation of load flexibility

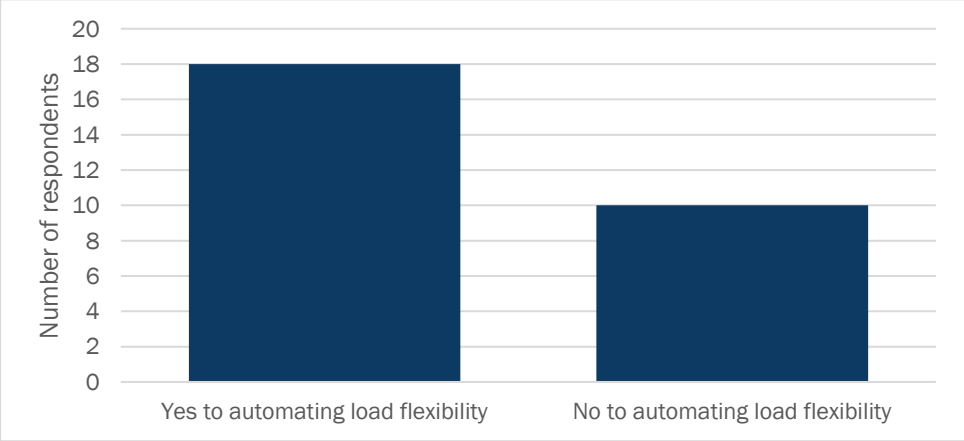
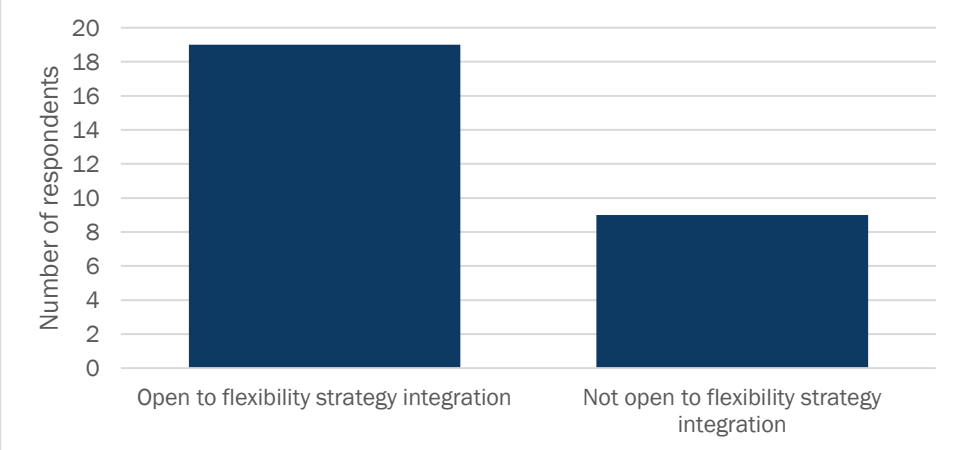


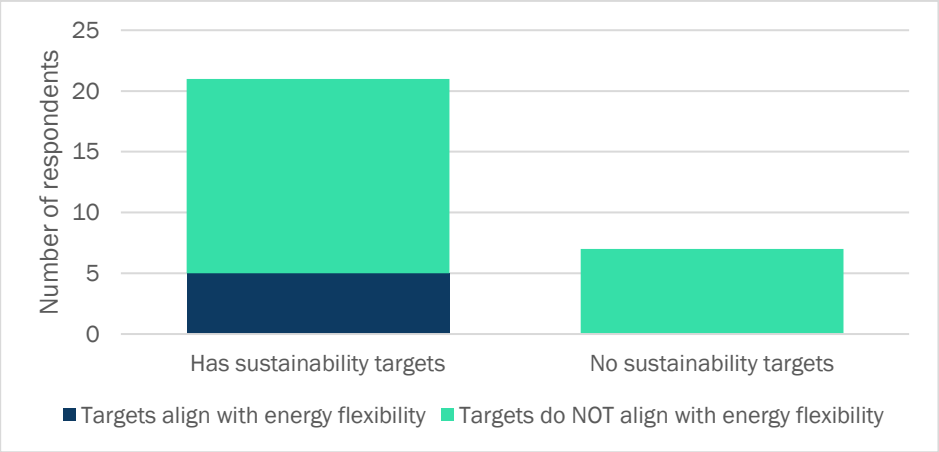
Figure 24. Openness to flexibility strategy integration



Future plans

Nearly all the respondents have sustainability targets as shown in Figure 25 however these targets are unlikely to be motivators for participation in electricity flexibility initiatives.

Figure 25. Sustainability targets



While unimpeded operation is the top priority (production first before energy costs) for most respondents, energy cost management is still an important consideration for their long-term business planning as shown in Figure 26. This is also reflected in their openness to collaborate with energy providers or third-party aggregators to optimize their energy usage as shown in Figure 27.

Figure 26. Importance of energy cost management

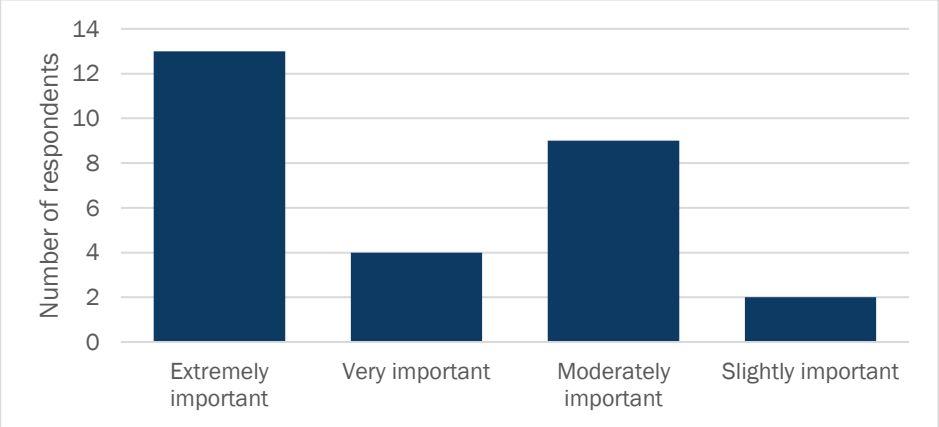
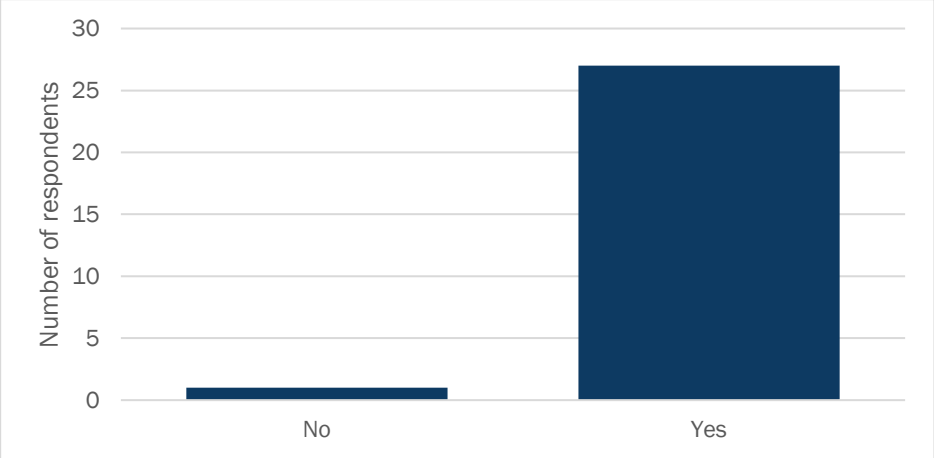


Figure 27. Willingness to engage third parties



Key takeaways

Production is still king for most respondents. For most respondents, production must continue regardless of electricity prices. There are still considerable albeit limited number of processes or equipment whose operations can be shifted to accommodate flexibility services. However, energy cost is still an important factor in business planning, and respondents are open to participation in flexibility services if the price is right. Respondents are open to exploring pricing mechanisms, optimizing energy usage and investing in flexibility. Therefore, any proposed DSF intervention must first target the specific processes and equipment that have some degree of flexibility and/or are not critical to operations, such as water heating and pumping. Creative ways to deploy DSF should also be explored to unlock flexibility potential in processes or equipment that are not yet currently being considered for DSF services. Solutions must be tailored to each industrial customer as their operational needs vary as do their tolerances for operational disruptions.

7.3. EDB survey results

A total of 6 EDB respondents have completed the survey as shown in Table 5. This is a relatively small subset of EDBs in NZ and does not include some of the most active in the DSF space.

Table 5 EDB respondents

Company	
Network Tasman	Horizon Energy Distribution Limited
Waipa Networks	PowerNet
Scanpower	Alpine Energy

DSF experience

Half of the respondents have implemented DSF programs and majority self-reported low ratings in terms of their organizations' current level of experience with demand-side-flexibility initiatives as shown in Table 6.

Table 6 DSF implementation and self-ratings

EDB	Implemented DSF programs?	DSF experience rating (5 as highest)
EDB A	Yes	5
EDB B	Yes	2
EDB C	Yes	2
EDB D	No	2
EDB E	No	1
EDB F	No	1

Generally small volumes (in terms of MW) of DSF are currently available for deployment in each network as shown in Figure 28. Respondents are familiar with the different technologies to enable DSF as shown in

Figure 29. While DSF potential is currently estimated to be low, the respondents' knowledge of DSF technologies may make it easier to implement DSF programs in the future and unlock new DSF capacities as the networks increase their experience and capabilities.

Figure 28. Potential for demand-side flexibility

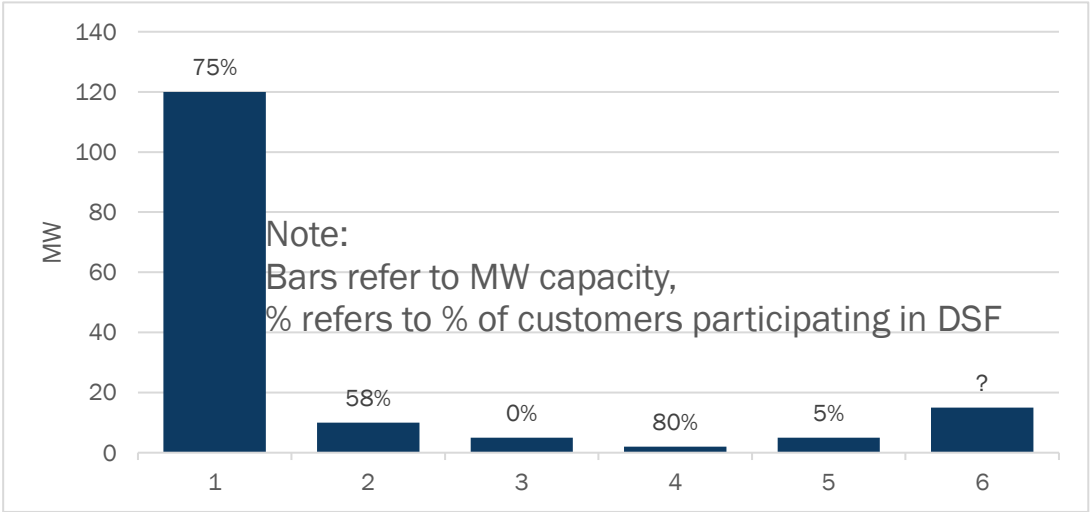
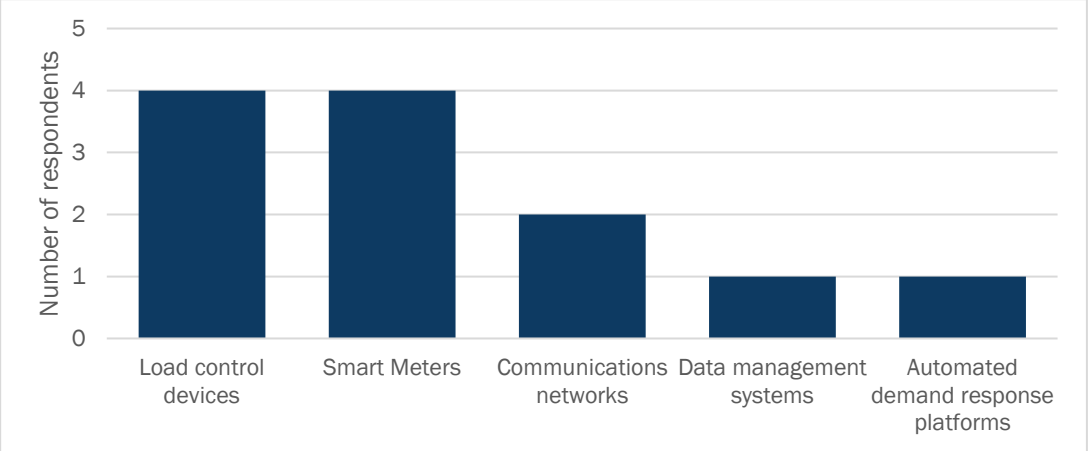
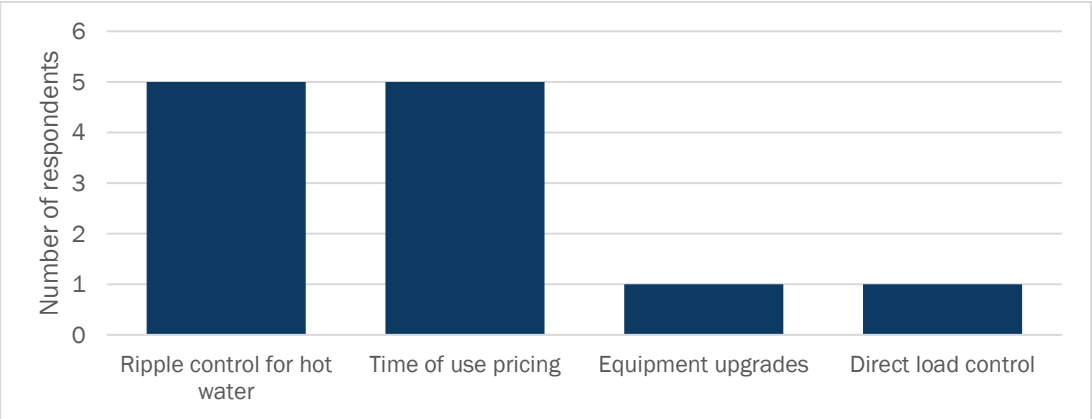


Figure 29. Technologies used to deploy DSF



Respondents currently provide customer incentives to participate in DSF mostly through ripple control and time-of-use pricing as shown in Figure 30.

Figure 30. Customer incentives



There are existing customer incentives for DSF participation which may be leveraged to accelerate further deployment of DSF programs. These incentives may be scaled and additional incentives may also be introduced, however it is necessary to ensure that the respondents have the capacities and infrastructure in place to successfully implement and scale DSF programs.

Capacities and infrastructure

The current capacity of each of the respondent's network to support demand-side flexibility is currently low as shown in

Figure 31. Only one out of six respondents can support DSF for 100% of the load. The rest of the respondents have the capacity to support 0-25% of their networks' loads. To enhance their network's demand-side flexibility capabilities, respondents identified technology improvements and staff training as key investments as shown in

Figure 32.

Figure 31. Capacity to support DSF

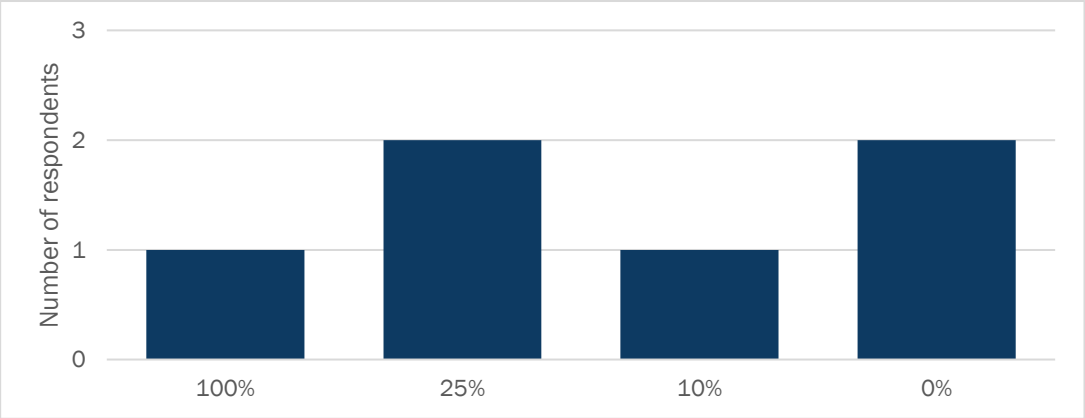
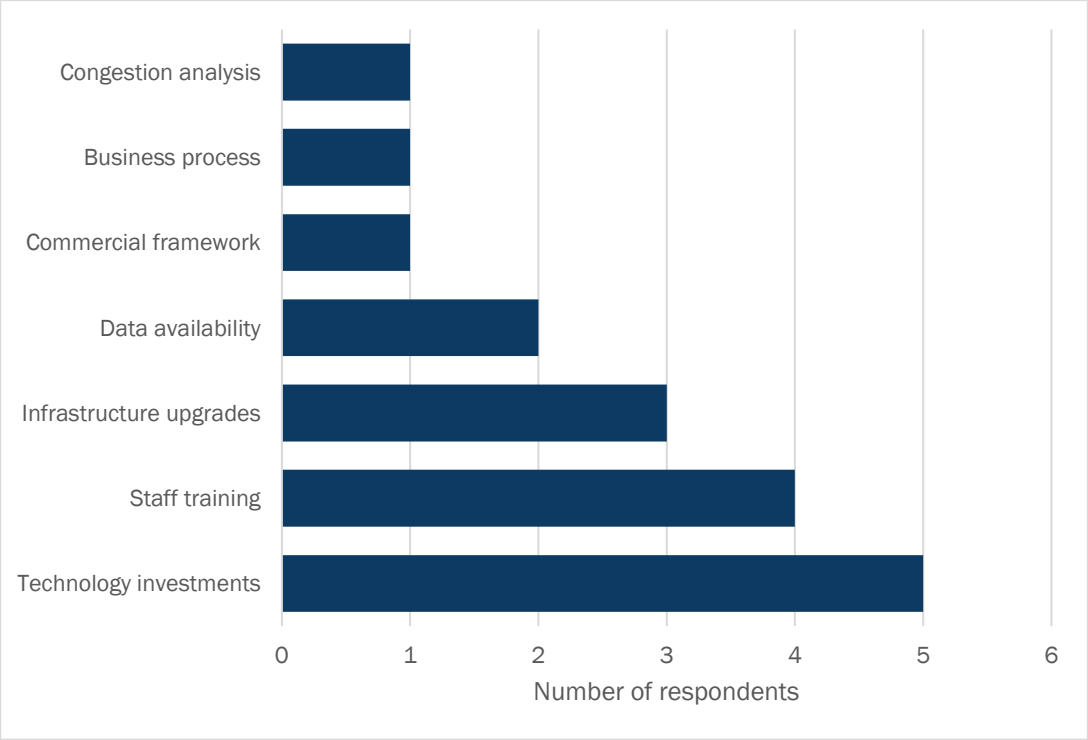


Figure 32. Upgrades needed to increase participation in DSF



Current DSF monitoring practices

The most commonly used metrics by EDB respondents for measuring and monitoring DSF are reduction in the network's peak demand and number of customers enrolled in the DSF program as shown in

Figure 33. The metrics are often measured only on a “when needed” basis as shown in Figure 34, with smart meters being the most commonly used tool for measurement purposes as shown in Figure 35.

Figure 33. Metrics used to measure and monitor DSF

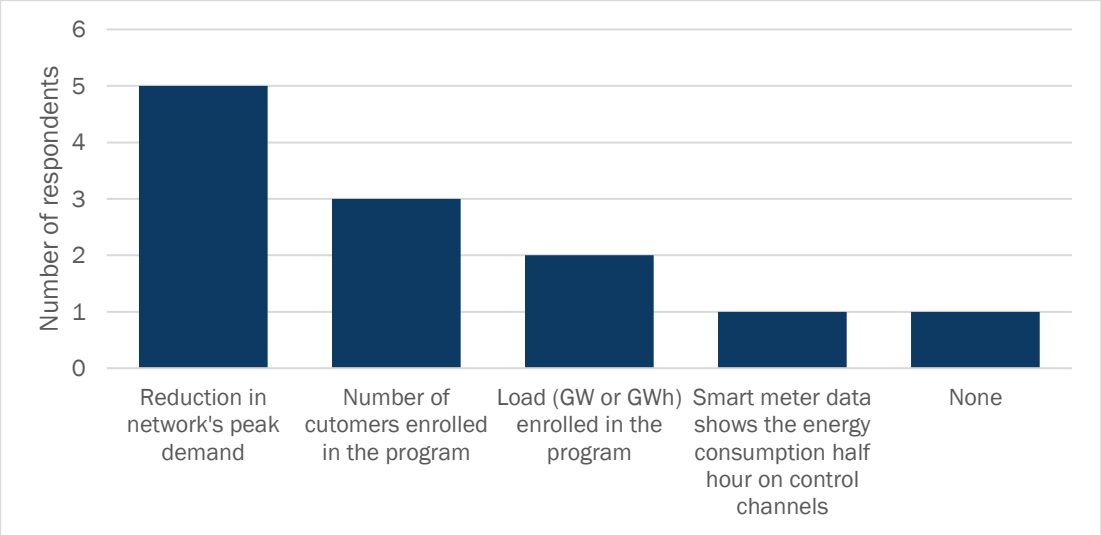


Figure 34. How often DSF is measured and monitored

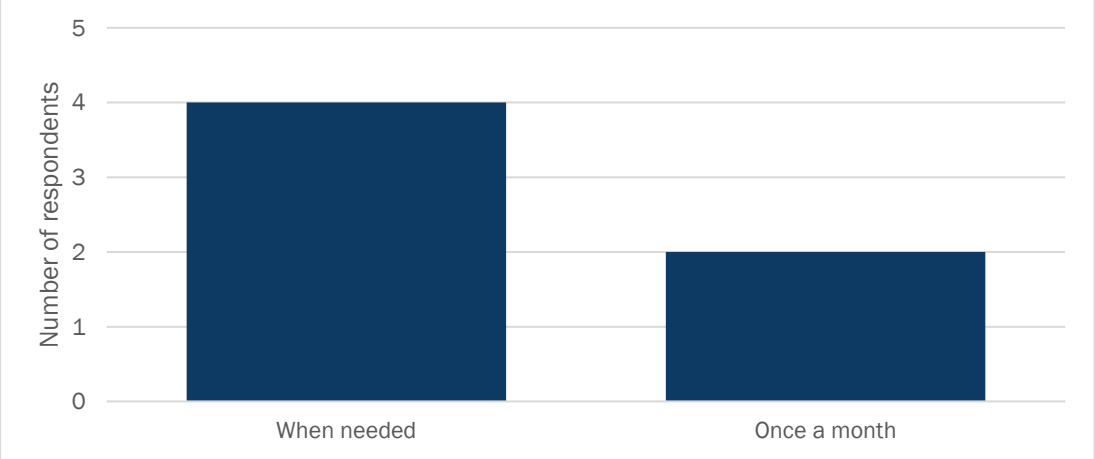
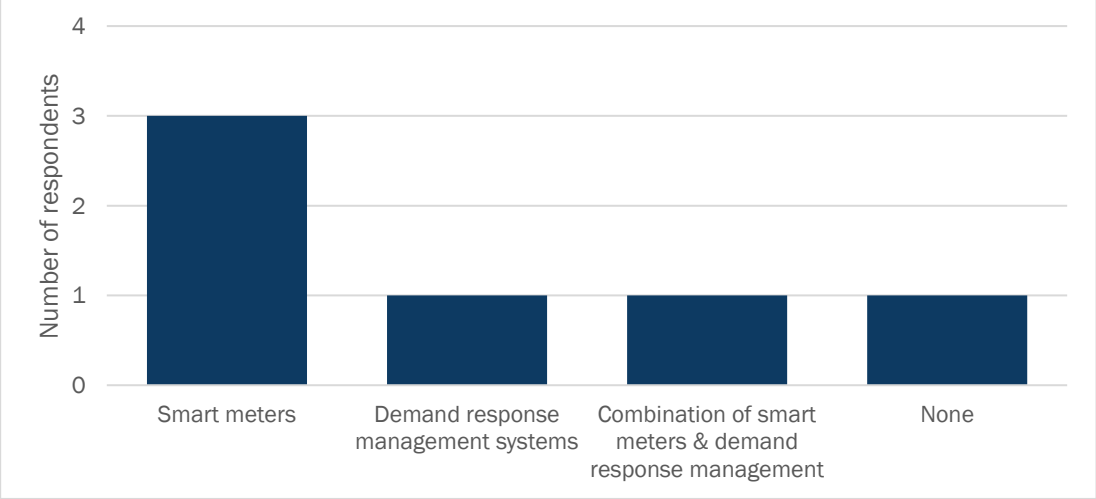
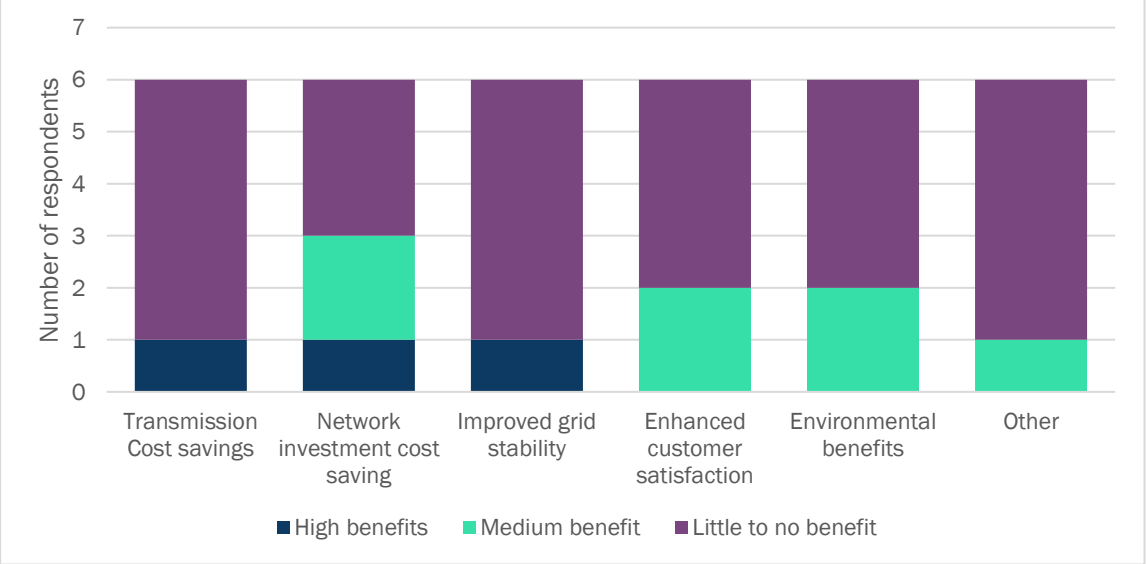


Figure 35. Tools for measuring and monitoring DSF



Most of the respondents reported they don't gain significant benefits from DSF programs as shown in Figure 36 however closer scrutiny of those who have implemented DSF programs versus those who haven't showed that those who have implemented DSF programs perceive high benefits in terms of transmission cost savings, network investment cost savings and improved grid stability. This suggests that DSF benefits only become visible to respondents once they have actual experience in it. This presents a chicken-and-egg problem where respondents who have no prior experience do not see the value of DSF and may not be motivated to pursue DSF programs.

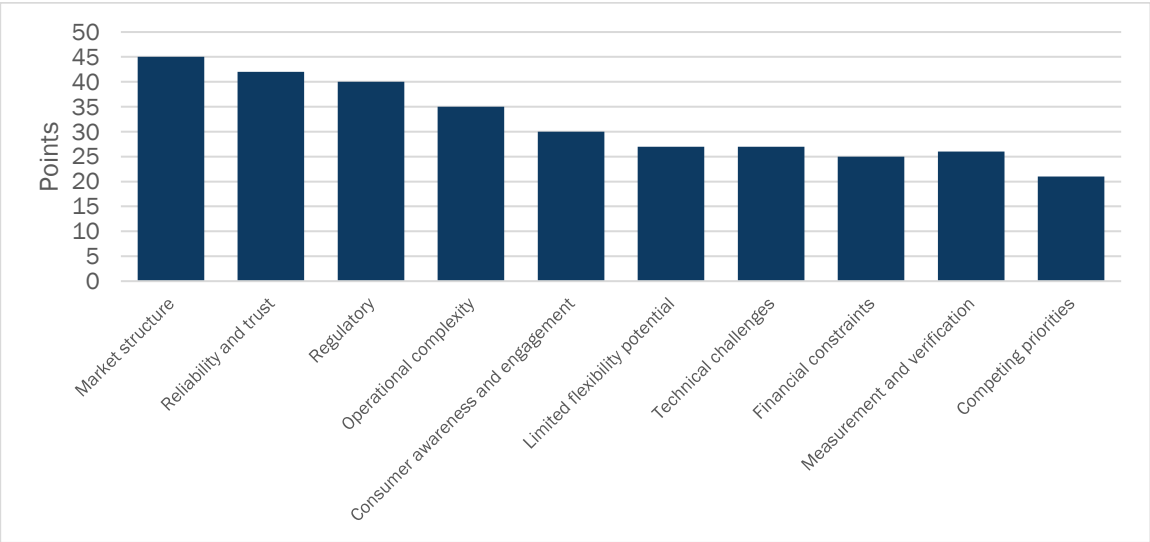
Figure 36. Benefits gained from DSF programs



Opinions and Challenges

In ranking obstacles to DSF, 'market structure' and 'reliability and trust' were the highly nominated obstacles, with 'competing priorities' the least nominated obstacle to DSF as shown in Figure 37. This suggests willingness by participants to deploy and promote DSF programs as soon as system-wide adoption issues are resolved.

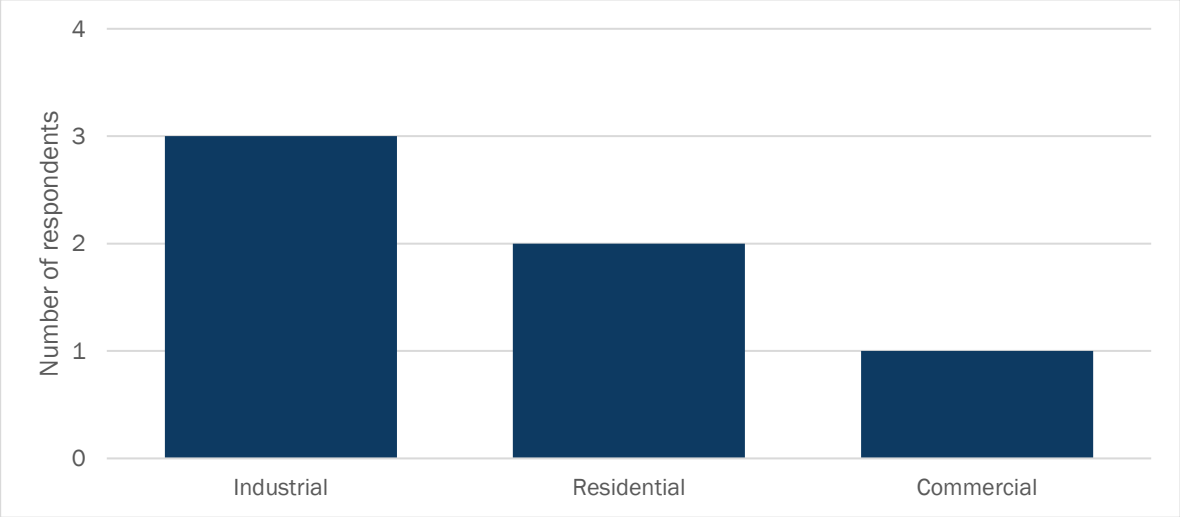
Figure 37. Rankings of obstacles to DSF



Respondents believe that the industrial and residential sectors have the highest potential for DSF as shown in

Figure 38. Note however that “industrial” would often capture very large sites like the aluminium smelter or steel mill in many people’s minds which possibly skew this answer toward very large, slow-response DSF.

Figure 38. Sectors with greatest DSF potential



Based on the aggregate rankings of the respondents, the top 3 activities that currently provide the most flexibility from customers are domestic hot water, industrial heat processes, and distributed generation as shown in Figure 39. However, the respondents believe that DSF landscape will evolve and by 2040 the top providers will be distributed storage, domestic hot water, and electric vehicles as shown in

Figure 40. Domestic hot water currently is among the top providers of DSF and is expected to continue to do so until 2040. However, the respondents believe storage will play bigger role by 2040 in terms of distributed storage and electric vehicles.

Figure 39. Ranking of activities currently providing the most flexibility from customers

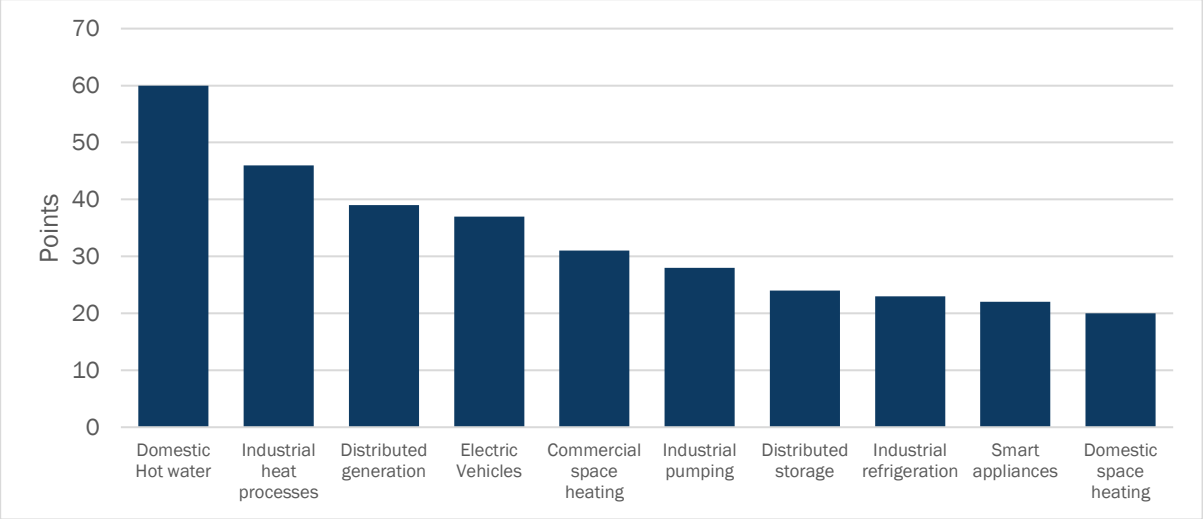
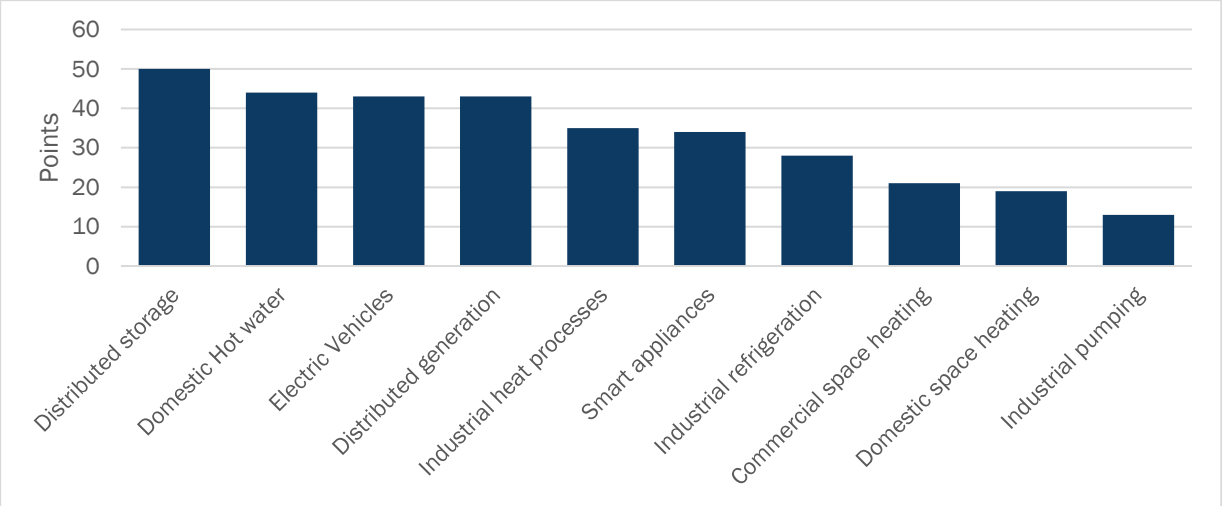
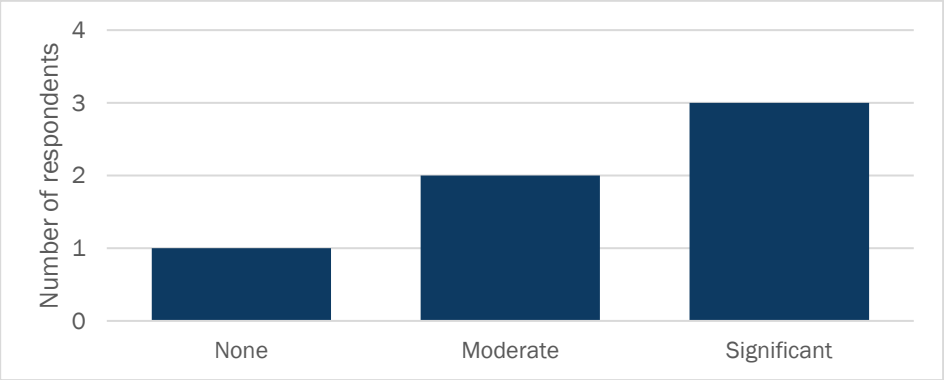


Figure 40. Ranking of activities most likely to provide flexibility in 2040



There are mixed sentiments as to the role that aggregators will play in DSF deployment. Whilst responders generally recognised a role for aggregators as shown in Figure 41, there were qualifications around what value they add, especially in contrast to distributors directly managing DSF. Where aggregators are seen to have the most value is in encouraging participation in the residential sector where they can potentially simplify the participation of this customer group.

Figure 41. Role of aggregators

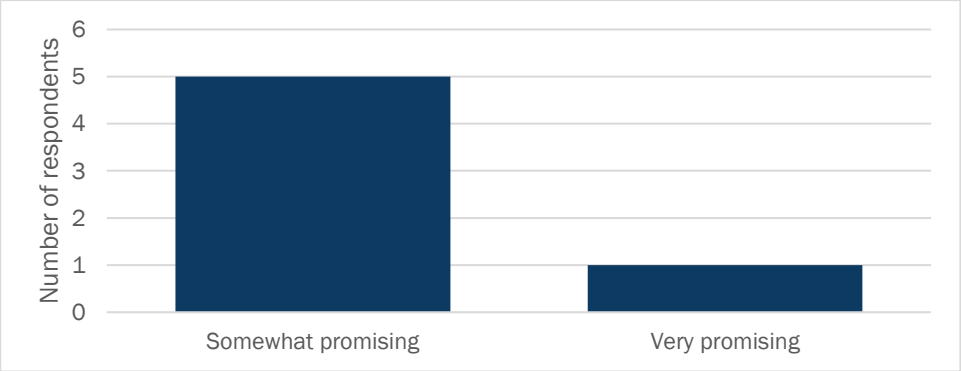


All respondents saw the future of DSF as either very promising or somewhat promising as shown in

Figure 42. In terms of the potential cost savings or network benefits from increased DSF, the respondent that self-reported a DSF experience score of 5 out 5 in Table 6 estimated $5m per annum of benefits on a base of 45,000 consumers. Other respondents have either not yet quantified potential benefits or have highlighted the difficulty of developing accurate estimates. Perceived difficulties in estimation of benefits included uncertainty in availability of DSF and range of load types across the network.

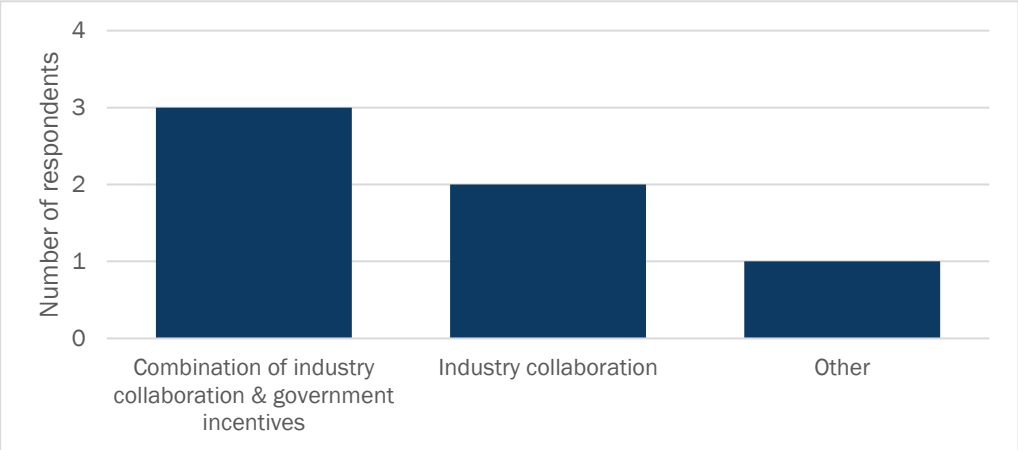
One of the respondents remarked that the work to quantify the impact and value of demand flexibility should go beyond desktop studies that provide only notional estimates and that the focus should shift towards implementing actual programmes that can measure and demonstrate real value for different types of consumers.

Figure 42. Future of DSF



Most respondents identified industry collaboration and government incentives as the key support and resources they need to better implement demand-side flexibility as shown in Figure 43.

Figure 43. Favoured support to better implement DSF



Respondents have also expressed other comments that reveal some unaddressed concerns hindering DSF deployment. Some respondents pointed to the creation of a well-functioning market with aggregators playing a role in engaging customers, building customer trust, access to smart meter data, retailer pricing and likely issues with gentailer interest conflicts, coordination of various electricity participants, and uncertainty for EDB's flex initiatives created by EA's guidance to separate flex services from their business.

8. Conclusions, Recommendations, and Next Steps

Production is still king for most industrial end-users. Production must continue regardless of electricity prices. There are however about half of respondents with some processes or equipment whose operations can be shifted to accommodate flexibility services.

Respondents' sentiments suggest that industrial participants can be nudged towards more active participation in DSF programs. Energy cost is still an important factor in business planning, and respondents are open to participation in flexibility services if the price is right. Respondents are open to exploring pricing mechanisms, optimizing energy usage and investing in flexibility. Therefore, any proposed DSF intervention must first target the processes and equipment that have some degree of flexibility and or not critical to operations, such as water heating and pumping. Creative ways to DSF should also be explored to unlock flexibility potential in processes or equipment that are not yet currently being considered for DSF services. The solution however must be tailored to each respondent or industrial group as their operational needs vary as are their tolerances for operational disruptions.

EDB respondents can currently provide customer incentives to participate in DSF mostly through ripple control and time-of-use pricing. Consequently, domestic hot water currently is among the top providers of DSF and is expected to continue to do so until 2040. However, the respondents believe storage will play bigger role by 2040 in terms of distributed storage and electric vehicles.

The current capacity of each of the EDB respondent’s network to support demand-side flexibility is currently low. Only one out of six respondents can support DSF for 100% of the load. The rest of the respondents have the capacity to support 0-25% of their networks’ loads. To enhance their network's demand-side flexibility capabilities, respondents identified technology improvements and staff training as key investments. Despite currently low identified DSF potential, the respondents’ knowledge and customer incentives for DSF show promise for accelerating deployment of DSF programs. However, it is necessary to ensure that the respondents have the capacities and infrastructure in place to successfully implement DSF programs.

In ranking obstacles to DSF, ‘market structure’ and ‘reliability and trust’ were the highly nominated obstacles, with ‘competing priorities’ the least nominated obstacle to DSF. This suggests willingness by participants to deploy and promote DSF programs as soon as system-wide adoption issues are resolved.

9. Appendix List of invitees

Company	ANZSIC	Company	ANZSIC
OBAYASHI CORPORATION LIMITED	Construction	Air Liquide New Zealand	Petroleum, Basic Chemical and Rubber Product Manufacturing
ABC Group of Companies	Construction	AZELIS NEW ZEALAND LIMITED	Petroleum, Basic Chemical and Rubber Product Manufacturing
BLUECURRENT ASSETS NZ LIMITED	Construction	Ballance Agri	Petroleum, Basic Chemical and Rubber Product Manufacturing
City Care	Construction	BP New Zealand	Petroleum, Basic Chemical and Rubber Product Manufacturing
CMP KOKIRI LIMITED	Construction	Chevron New Zealand	Petroleum, Basic Chemical and Rubber Product Manufacturing
DGL INVESTMENTS LIMITED	Construction	COREGAS NZ LIMITED	Petroleum, Basic Chemical and Rubber Product Manufacturing
Dominion Constructors	Construction	DULUXGROUP (NEW ZEALAND) PTY LTD	Petroleum, Basic Chemical and Rubber Product Manufacturing
Eastern Consulting	Construction	ECOLAB NEW ZEALAND	Petroleum, Basic Chemical and Rubber Product Manufacturing
Electrix	Construction	HWR HYDROGEN LIMITED	Petroleum, Basic Chemical and Rubber Product Manufacturing
Fletcher and subsidiaries	Construction	KOPPERS PERFORMANCE CHEMICALS NEW ZEALAND LIMITED	Petroleum, Basic Chemical and Rubber Product Manufacturing
Fulton Hogan	Construction	Methanex New Zealand	Petroleum, Basic Chemical and Rubber Product Manufacturing
H CONSTRUCTION NORTH ISLAND LIMITED	Construction	Mobil Oil New Zealand	Petroleum, Basic Chemical and Rubber Product Manufacturing
Hawkins	Construction	Nuplex Industries	Petroleum, Basic Chemical and Rubber Product Manufacturing

Company	ANZSIC	Company	ANZSIC
HEB Construction	Construction	Orica New Zealand	Petroleum, Basic Chemical and Rubber Product Manufacturing
LIQUIGAS LIMITED	Construction	Ravensdown	Petroleum, Basic Chemical and Rubber Product Manufacturing
Naylor Love	Construction	TASMAN INSULATION NEW ZEALAND LIMITED	Petroleum, Basic Chemical and Rubber Product Manufacturing
Tonkin + Taylor	Construction	Z Energy	Petroleum, Basic Chemical and Rubber Product Manufacturing
WESTERN ENERGY SERVICES LIMITED	Construction	ALTUS NZ LIMITED	Primary Metal and Metal Product Manufacturing
THE A2 MILK COMPANY LIMITED	Dairy Product Manufacturing	Aluminium Smelter	Primary Metal and Metal Product Manufacturing
Dairy Goat Co	Dairy Product Manufacturing	ARCHITECTURAL PROFILES LIMITED	Primary Metal and Metal Product Manufacturing
DANONE NUTRICIA NZ LIMITED	Dairy Product Manufacturing	AW Fraser	Primary Metal and Metal Product Manufacturing
Fonterra Co	Dairy Product Manufacturing	Fletcher Aluminium	Primary Metal and Metal Product Manufacturing
GOODMAN FIELDER NEW ZEALAND LIMITED	Dairy Product Manufacturing	Great Plains Stainless (NZ) Limited	Primary Metal and Metal Product Manufacturing
Miraka	Dairy Product Manufacturing	Nalco	Primary Metal and Metal Product Manufacturing
NESTLE NEW ZEALAND LIMITED	Dairy Product Manufacturing	NATIONAL ALUMINIUM LIMITED	Primary Metal and Metal Product Manufacturing
New Zealand Dairy Company	Dairy Product Manufacturing	NEW ZEALAND ALUMINIUM SMELTERS LIMITED	Primary Metal and Metal Product Manufacturing
Oceania Dairy	Dairy Product Manufacturing	New Zealand Steel	Primary Metal and Metal Product Manufacturing
Open Country Dairy	Dairy Product Manufacturing	NZ TUBE MILLS LIMITED	Primary Metal and Metal Product Manufacturing
Synlait Milk	Dairy Product Manufacturing	TIGER STEEL NZ LIMITED	Primary Metal and Metal Product Manufacturing
Tatua Co	Dairy Product Manufacturing	Pacific Steel	Primary Metal and Metal Product Manufacturing

Company	ANZSIC	Company	ANZSIC
UNILEVER NEW ZEALAND LIMITED	Dairy Product Manufacturing	Patton	Primary Metal and Metal Product Manufacturing
Westland Milk Products	Dairy Product Manufacturing	PAYNES ALUMINIUM LIMITED	Primary Metal and Metal Product Manufacturing
Yashili New Zealand Dairy Co.	Dairy Product Manufacturing	SOUTHERN SPARS LIMITED	Primary Metal and Metal Product Manufacturing
Energy for Industry	Electricity, Gas, Water and Waste Services	Stevenson Concrete and Aggregates	Primary Metal and Metal Product Manufacturing
HydroTech	Electricity, Gas, Water and Waste Services	VULCAN STEEL LIMITED	Primary Metal and Metal Product Manufacturing
Metrowater	Electricity, Gas, Water and Waste Services	AMCOR FLEXIBLES (NEW ZEALAND) LIMITED	Pulp, Paper and Converted Paper Product Manufacturing
Nelmac	Electricity, Gas, Water and Waste Services	Cannon Hygiene International	Pulp, Paper and Converted Paper Product Manufacturing
Oilfield Mechanical Services	Electricity, Gas, Water and Waste Services	Cecily	Pulp, Paper and Converted Paper Product Manufacturing
Shell Todd Oil Services	Electricity, Gas, Water and Waste Services	Cottonsoft	Pulp, Paper and Converted Paper Product Manufacturing
TRILITY NEW ZEALAND LIMITED	Electricity, Gas, Water and Waste Services	Hally Labels	Pulp, Paper and Converted Paper Product Manufacturing
VEOLIA WATER SERVICES (ANZ) PTY LTD	Electricity, Gas, Water and Waste Services	Labelmakers	Pulp, Paper and Converted Paper Product Manufacturing
Waste Management NZ	Electricity, Gas, Water and Waste Services	OJI FIBRE SOLUTIONS (NZ) LIMITED	Pulp, Paper and Converted Paper Product Manufacturing
Water New Zealand	Electricity, Gas, Water and Waste Services	Oji Fibre Solutions	Pulp, Paper and Converted Paper Product Manufacturing
A W FRASER LIMITED	Fabricated Metal Product, Transport Equipment, Machinery and Equipment Manufacturing	OJI OCEANIA MANAGEMENT (NZ) LIMITED	Pulp, Paper and Converted Paper Product Manufacturing
Auckland Engineering Supplies Ltd	Fabricated Metal Product, Transport Equipment, Machinery and Equipment Manufacturing	OPAL PACKAGING NEW ZEALAND LIMITED	Pulp, Paper and Converted Paper Product Manufacturing
C W F HAMILTON & CO LIMITED	Fabricated Metal Product, Transport Equipment, Machinery	Orion	Pulp, Paper and Converted Paper Product Manufacturing

Company	ANZSIC	Company	ANZSIC
	and Equipment Manufacturing		
CONSOLIDATED ALLOYS (N.Z.) LIMITED	Fabricated Metal Product, Transport Equipment, Machinery and Equipment Manufacturing	ORORA PACKAGING NEW ZEALAND LIMITED	Pulp, Paper and Converted Paper Product Manufacturing
DAIRY TECHNOLOGY SERVICES LIMITED	Fabricated Metal Product, Transport Equipment, Machinery and Equipment Manufacturing	Treasures	Pulp, Paper and Converted Paper Product Manufacturing
Fisher & Paykel Appliances Holdings Ltd	Fabricated Metal Product, Transport Equipment, Machinery and Equipment Manufacturing	VISY BOARD (HAMILTON) LIMITED	Pulp, Paper and Converted Paper Product Manufacturing
Gallagher Group Ltd	Fabricated Metal Product, Transport Equipment, Machinery and Equipment Manufacturing	VISY HOLDINGS (NZ) LIMITED	Pulp, Paper and Converted Paper Product Manufacturing
HamiltonJet	Fabricated Metal Product, Transport Equipment, Machinery and Equipment Manufacturing	WHAKATANE MILL LIMITED	Pulp, Paper and Converted Paper Product Manufacturing
HAYES INTERNATIONAL	Fabricated Metal Product, Transport Equipment, Machinery and Equipment Manufacturing	WPI International	Pulp, Paper and Converted Paper Product Manufacturing
Hynds Pipe Systems Ltd	Fabricated Metal Product, Transport Equipment, Machinery and Equipment Manufacturing	ACCENT FOOTWEAR LIMITED	Textile, Leather, Clothing and Footwear Manufacturing
KINETIC ENGINEERING DESIGN LIMITED	Fabricated Metal Product, Transport Equipment, Machinery and Equipment Manufacturing	BLACK SHEEP LEATHERS	Textile, Leather, Clothing and Footwear Manufacturing

Company	ANZSIC	Company	ANZSIC
NDA ENGINEERING LIMITED	Fabricated Metal Product, Transport Equipment, Machinery and Equipment Manufacturing	Cavalier Bremworth	Textile, Leather, Clothing and Footwear Manufacturing
Page Macrae Engineering	Fabricated Metal Product, Transport Equipment, Machinery and Equipment Manufacturing	Hallenstein Glasson Holdings	Textile, Leather, Clothing and Footwear Manufacturing
Scott Technology Ltd	Fabricated Metal Product, Transport Equipment, Machinery and Equipment Manufacturing	HAMMERKING ROLLERS LIMITED	Textile, Leather, Clothing and Footwear Manufacturing
Skellerup Holdings Ltd	Fabricated Metal Product, Transport Equipment, Machinery and Equipment Manufacturing	Icebreaker	Textile, Leather, Clothing and Footwear Manufacturing
Stainless Design Ltd	Fabricated Metal Product, Transport Equipment, Machinery and Equipment Manufacturing	JAMES DUNLOP TEXTILES GROUP LIMITED	Textile, Leather, Clothing and Footwear Manufacturing
STEEL & TUBE HOLDINGS LIMITED	Fabricated Metal Product, Transport Equipment, Machinery and Equipment Manufacturing	John Bull Footwear	Textile, Leather, Clothing and Footwear Manufacturing
SUTTON TOOLS (NZ) LIMITED	Fabricated Metal Product, Transport Equipment, Machinery and Equipment Manufacturing	Kathmandu	Textile, Leather, Clothing and Footwear Manufacturing
Tait Communications	Fabricated Metal Product, Transport Equipment, Machinery and Equipment Manufacturing	KIWITRENDS NZ LIMITED	Textile, Leather, Clothing and Footwear Manufacturing
UNITED STEEL MERCHANTS LIMITED	Fabricated Metal Product, Transport Equipment, Machinery	LOWE CORPORATION LIMITED	Textile, Leather, Clothing and Footwear Manufacturing

Company	ANZSIC	Company	ANZSIC
	and Equipment Manufacturing		
AB WORLD FOODS PTY LTD	Food and Beverage Product Manufacturing (excluding Dairy, Meat, Seafood)	MARSHIRE INVESTMENTS (NZ) LIMITED	Textile, Leather, Clothing and Footwear Manufacturing
ADM NEW ZEALAND LIMITED	Food and Beverage Product Manufacturing (excluding Dairy, Meat, Seafood)	McKinlays Footwear	Textile, Leather, Clothing and Footwear Manufacturing
ARNOTT'S NEW ZEALAND LIMITED	Food and Beverage Product Manufacturing (excluding Dairy, Meat, Seafood)	Meyer Wool	Textile, Leather, Clothing and Footwear Manufacturing
CEREBOS GREGG'S LIMITED	Food and Beverage Product Manufacturing (excluding Dairy, Meat, Seafood)	Moa Clothing	Textile, Leather, Clothing and Footwear Manufacturing
DB Breweries	Food and Beverage Product Manufacturing (excluding Dairy, Meat, Seafood)	PENTLAND NEW ZEALAND LIMITED	Textile, Leather, Clothing and Footwear Manufacturing
Delegat	Food and Beverage Product Manufacturing (excluding Dairy, Meat, Seafood)	PREMOSO PTY. LIMITED	Textile, Leather, Clothing and Footwear Manufacturing
Frucor Suntory	Food and Beverage Product Manufacturing (excluding Dairy, Meat, Seafood)	Swazi Apparel	Textile, Leather, Clothing and Footwear Manufacturing
Goodman Fielder	Food and Beverage Product Manufacturing (excluding Dairy, Meat, Seafood)	THE LENDING DEPARTMENT LIMITED	Textile, Leather, Clothing and Footwear Manufacturing
Griffin's Foods	Food and Beverage Product Manufacturing (excluding Dairy, Meat, Seafood)	THE TASMAN TANNING COMPANY LIMITED	Textile, Leather, Clothing and Footwear Manufacturing
HEINZ WATTIE'S LIMITED	Food and Beverage Product Manufacturing (excluding Dairy, Meat, Seafood)	Untouched World	Textile, Leather, Clothing and Footwear Manufacturing

Company	ANZSIC	Company	ANZSIC
Hubbards	Food and Beverage Product Manufacturing (excluding Dairy, Meat, Seafood)	Fletcher Building Limited	Wood Product Manufacturing
Lion New Zealand	Food and Beverage Product Manufacturing (excluding Dairy, Meat, Seafood)	Nature's Flame Limited	Wood Product Manufacturing
MCCAIN FOODS (NZ) LIMITED	Food and Beverage Product Manufacturing (excluding Dairy, Meat, Seafood)	Pan Pac Forest Products Limited	Wood Product Manufacturing
MY FOOD BAG GROUP LIMITED	Food and Beverage Product Manufacturing (excluding Dairy, Meat, Seafood)	Oregon Group Limited	Wood Product Manufacturing
T&G PROCESSED FOODS LIMITED	Food and Beverage Product Manufacturing (excluding Dairy, Meat, Seafood)	Juken New Zealand Limited	Wood Product Manufacturing
Tegel Foods	Food and Beverage Product Manufacturing (excluding Dairy, Meat, Seafood)	Daiken New Zealand Limited	Wood Product Manufacturing
Whittaker's	Food and Beverage Product Manufacturing (excluding Dairy, Meat, Seafood)	Daiken Southland Limited	Wood Product Manufacturing
YASHILI NEW ZEALAND DAIRY CO., LIMITED	Food and Beverage Product Manufacturing (excluding Dairy, Meat, Seafood)	United Timber Merchants Limited	Wood Product Manufacturing
ASPECT FURNITURE SYSTEMS LIMITED	Furniture and Other Manufacturing	New Zealand Panels Group Limited	Wood Product Manufacturing
Briscoes	Furniture and Other Manufacturing	Black Holdings (NZ) Limited	Wood Product Manufacturing
C.I. 2002 LIMITED	Furniture and Other Manufacturing	Beef + Lamb New Zealand	Dairy Cattle Farming
CONCEPT 2012 LIMITED	Furniture and Other Manufacturing	BeingDiabetic.co.nz	Dairy Cattle Farming

Company	ANZSIC	Company	ANZSIC
FACKELMANN Housewares	Furniture and Other Manufacturing	CROFTERS' LEA LIMITED	Dairy Cattle Farming
FORMWAY HOLDINGS LIMITED	Furniture and Other Manufacturing	CROFTERS' MEADOW LIMITED	Dairy Cattle Farming
GLOBAL WINDOW COVERINGS NZ LIMITED	Furniture and Other Manufacturing	FEREDAY ISLAND LIMITED	Dairy Cattle Farming
H & K RESTAURANT SYSTEMS UNLIMITED COMPANY	Furniture and Other Manufacturing	HETHERINGTON FARM LIMITED	Dairy Cattle Farming
Harrows	Furniture and Other Manufacturing	Landcorp Farming	Dairy Cattle Farming
Harvey Furnishings	Furniture and Other Manufacturing	LIC (Livestock Improvement Corporation)	Dairy Cattle Farming
HETTICH NEW ZEALAND LIMITED	Furniture and Other Manufacturing	Motukawa Land	Dairy Cattle Farming
Kitchen Mania	Furniture and Other Manufacturing	ORTON GRAZING LIMITED	Dairy Cattle Farming
Lifestyle Furniture	Furniture and Other Manufacturing	PANNU FARMS LIMITED	Dairy Cattle Farming
Lighting Plus	Furniture and Other Manufacturing	PATERSON CAPITAL LIMITED	Dairy Cattle Farming
Mebel Furniture	Furniture and Other Manufacturing	PGG Wrightson	Dairy Cattle Farming
NEW ZEALAND COMFORT GROUP LIMITED	Furniture and Other Manufacturing	Semex	Dairy Cattle Farming
NEW ZEALAND WINDOW SHADES LIMITED	Furniture and Other Manufacturing	SOUTHBURN DAIRY LIMITED	Dairy Cattle Farming
North South Furnishings Group	Furniture and Other Manufacturing	STORMCOAST LIMITED	Dairy Cattle Farming
RILS INDUSTRIES LIMITED	Furniture and Other Manufacturing	Te Mania	Dairy Cattle Farming
SEALY NEW ZEALAND LIMITED	Furniture and Other Manufacturing	WILL AND LOU BAILEY TRUSTEE COMPANY LIMITED	Dairy Cattle Farming
Smiths City Group	Furniture and Other Manufacturing	Absolute Caterers	Accommodation and Food Services

Company	ANZSIC	Company	ANZSIC
Alliance Group	Meat and Meat Product Manufacturing and Seafood	ACCOR AUSTRALIA & NEW ZEALAND HOSPITALITY PTY LIMITED	Accommodation and Food Services
ANZCO Foods	Meat and Meat Product Manufacturing and Seafood	Ace Caterers	Accommodation and Food Services
BAKELS EDIBLE OILS (NZ) LIMITED	Meat and Meat Product Manufacturing and Seafood	ANTARES RESTAURANT GROUP LIMITED	Accommodation and Food Services
BOUNTY HOLDINGS NEW ZEALAND LIMITED	Meat and Meat Product Manufacturing and Seafood	AUSTRALASIAN FOODS TOPCO NZ LIMITED	Accommodation and Food Services
Greenlea Premier Meats	Meat and Meat Product Manufacturing and Seafood	Ceres	Accommodation and Food Services
JBS AUSTRALIA PTY LIMITED	Meat and Meat Product Manufacturing and Seafood	Club Pacific Queenstown	Accommodation and Food Services
NEW ZEALAND KING SALMON INVESTMENTS LIMITED	Meat and Meat Product Manufacturing and Seafood	COMPASS GROUP NEW ZEALAND LIMITED	Accommodation and Food Services
Sanford Limited	Meat and Meat Product Manufacturing and Seafood	Dusted and Delicious Catering	Accommodation and Food Services
Sealord Group	Meat and Meat Product Manufacturing and Seafood	Eden Park Bed and Breakfast	Accommodation and Food Services
Silver Fern Farms	Meat and Meat Product Manufacturing and Seafood	Egmont Eco Leisure Park	Accommodation and Food Services
Talley's Group	Meat and Meat Product Manufacturing and Seafood	Event Junkies	Accommodation and Food Services
Taylor Preston	Meat and Meat Product Manufacturing and Seafood	Feature House International	Accommodation and Food Services
TEGEL GROUP HOLDINGS LIMITED	Meat and Meat Product Manufacturing and Seafood	Manaia Camp	Accommodation and Food Services

Company	ANZSIC	Company	ANZSIC
Westpac Mussels Distributors	Meat and Meat Product Manufacturing and Seafood	MCDONALD'S RESTAURANTS (NEW ZEALAND) LIMITED	Accommodation and Food Services
Wilson Hellaby	Meat and Meat Product Manufacturing and Seafood	MILLENNIUM & COPTHORNE HOTELS NEW ZEALAND LIMITED	Accommodation and Food Services
Bathurst Resources	Mining	Omaka Camp	Accommodation and Food Services
CHRIS AND DONNA MEATES TRUSTEE COMPANY LIMITED	Mining	REEFTON DISTILLING CO. LIMITED	Accommodation and Food Services
COROMANDEL GOLD LIMITED	Mining	RESTAURANT BRANDS NEW ZEALAND LIMITED	Accommodation and Food Services
KOHATU MAKAAWHIO LIMITED	Mining	Robertson Lodges	Accommodation and Food Services
MITSUI E&P AUSTRALIA PTY LTD	Mining	SKYCITY ENTERTAINMENT GROUP LIMITED	Accommodation and Food Services
New Zealand Petroleum & Minerals	Mining	SKYLINE SKYRIDES LIMITED	Accommodation and Food Services
OCEANA GOLD (NEW ZEALAND) LIMITED	Mining	Temptations Kerikeri - $3.6 million	Accommodation and Food Services
OMV NEW ZEALAND LIMITED	Mining	The Rose Irish Pub	Accommodation and Food Services
ORICA NEW ZEALAND LIMITED	Mining	The Vines Club	Accommodation and Food Services
Pike River Coal	Mining	The Waves Studio	Accommodation and Food Services
SAREDA (NZ) LIMITED	Mining	Toolport	Accommodation and Food Services
SHELL (PETROLEUM MINING) COMPANY LIMITED	Mining	Waves Campsite	Accommodation and Food Services
Sims Pacific Metals	Mining	Windsong Catering	Accommodation and Food Services
Solid Energy New Zealand	Mining	YANPING TRADING LIMITED	Accommodation and Food Services
Winstone Wallboards Limited	Non-Metallic Mineral Product Manufacturing	Affco NZ	Retail Trade - Food

Company	ANZSIC	Company	ANZSIC
Fletcher Building Holdings New Zealand Limited	Non-Metallic Mineral Product Manufacturing	BARKER FRUIT PROCESSORS LIMITED	Retail Trade - Food
Fletcher Building Products Limited	Non-Metallic Mineral Product Manufacturing	COSTCO WHOLESALE NEW ZEALAND LIMITED	Retail Trade - Food
Fletcher Concrete and Infrastructure Limited	Non-Metallic Mineral Product Manufacturing	Countdown	Retail Trade - Food
Tasman Insulation New Zealand Limited	Non-Metallic Mineral Product Manufacturing	DSM NUTRITIONAL PRODUCTS NEW ZEALAND LIMITED	Retail Trade - Food
Fletcher Building Holdings Limited	Non-Metallic Mineral Product Manufacturing	FEI'S BLOSSOM LIMITED	Retail Trade - Food
Orora Packaging New Zealand Limited	Non-Metallic Mineral Product Manufacturing	Foodstuffs North Island	Retail Trade - Food
Rondo Building Services Pty Ltd	Non-Metallic Mineral Product Manufacturing	Foodstuffs South Island	Retail Trade - Food
Visy Glass Operations (NZ) Limited	Non-Metallic Mineral Product Manufacturing	GENERAL DISTRIBUTORS LIMITED	Retail Trade - Food
AML Limited	Non-Metallic Mineral Product Manufacturing	MILL STREET FOOD WAREHOUSE LIMITED	Retail Trade - Food
		NJK GROUP LIMITED	Retail Trade - Food
		OXFORD FARM LIMITED	Retail Trade - Food
		Pak'nSave	Retail Trade - Food
		SuperValue	Retail Trade - Food
		Wattie's	Retail Trade - Food
		WHOLESALE DISTRIBUTORS LIMITED	Retail Trade - Food
		Woolworths New Zealand	Retail Trade - Food