The path to DSO: Sharing insights from Powerco and Baringa

21 July 2026

Agenda

The strategic importance of DSO – Powerco's perspective
Ryno Verster, Powerco

Developing DSO in Aotearoa – pathways, capabilities and enablers

Angus McPherson and Monico Aquino, Baringa

Powerco's DSO transformation – priorities, focus and timelines

Ryno

Learnings from Europe – observations, benefits and challenges

Michael O'Brien and Ryno, Powerco

Q&A

The non-agenda

What we’re not talking about today…

- What exactly is a DSO?
- What are flexibility services?
- How many DSOs do we need in New Zealand?
- All the reasons why a DSO won’t work – I’d much rather focus on why it will

But we’d be more than happy to discuss these aspects with anyone!

Here is where we're at

Powerco strategic objective – a fully functioning distribution system operator by 2030

- Separate, small, team to orchestrate transformation to a DSO
- Whole-of-Powerco transformation – not a separate DSO business unit
- Last two years - research, proofs, stakeholder engagement and some roll-outs
- Transformation now seriously ramping up - substantial operating changes and resources required
- Next two years all about building capability and processes – INTSA
- Contracted Baringa for a review of our plans, maturity and a roadmap

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The benefits of an explicit goal

Other EDBs are also implementing DSO principles, but not all are so explicit

- Clear understanding of goal - easier to engage internally and externally
- Winning hearts and minds helped by visible, clear company commitment
- Explicit definition of DSO goal responsibilities sets a clear team focus
- Clear KPIs and progress measurement

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Why a DSO?

• Our customers really care about the: **cost of electricity** **quality of service we provide** **impact on the environment**	DSO is a successful way to help meet these objectives
• DSO principles are the next evolution of good asset management	DSO improvements directly benefit the electricity network
• We want to operate a long-term, sustainable business	In a changing world, we need to adapt and reflect what provides value to our customers
• And we care!	Demonstrating a clear customer commitment and alignment with regulatory objectives

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Mythbusting!

Our customers barely afford power – they will never take up DG/EVs/BESS

The need for decarbonisation is a thing of the past

Lines charges are only a small component of energy costs

Retailers will never agree to pass on EDB price signals

Our networks are too small and unsophisticated

Our customers don't understand DSO/SAIDI/DG and couldn't care

More assets are economically beneficial, even if not really needed soon

We can't afford to develop the capabilities required

Build now, don't defer – things will only get more expensive

So why should we even think about a DSO?

But, let's be real!

All customers care about cost and service

Even if they don't understand the ins-and-outs of our world, it is our jobs, as the experts, to:

- Ensure appropriate reliability at the lowest possible cost
- Communicate well and understand their needs
- Help facilitate their move to a new energy environment

Retailers care about customers too

They have cost-drivers that look different from ours, but they compete for customers:

- If our offers are reasonable, they will pass it on
- We mostly have peak network demands that coincide
- Lines charges are not a minor portion of household bills

Maximising the use of our assets optimises value

Of course we will need more assets as we grow but it unduly increases energy cost if:

- We build too early or more than customers actually need
- Our risk-intolerance exceeds economic reality
- We don't recognise there is a time-value to money

- **Non-traditional solutions can absolutely reduce costs**
- **Flexibility will help with optimal investment timing**
- **Discipline and rigour improve investment decisions**
- **Dynamic network management will be essential in the evolving energy landscape**
- **Collaboration across the energy chain brings best results**

Therefore, bring on the DSO!

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Developing DSO in Aotearoa – pathways, capabilities and enablers

Electricity Networks Aotearoa Webinar

21st July 2026

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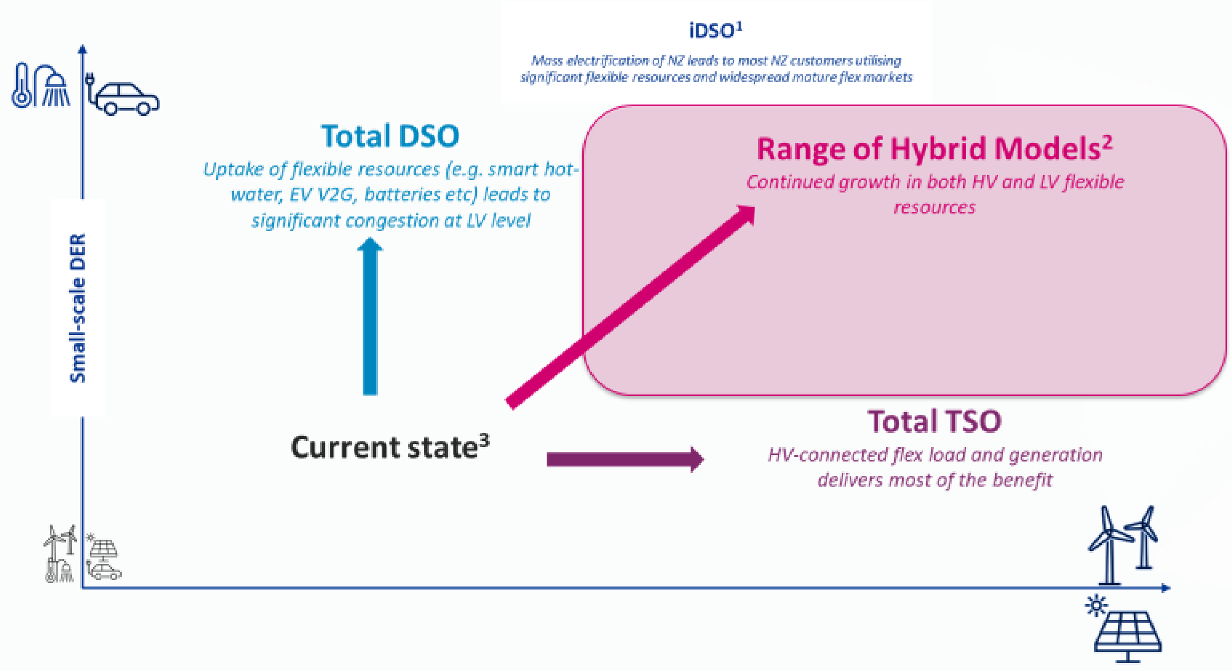
Previous ENA work recommended the 'Hybrid DSO' structure and 'no regrets' actions that many EDBs are already adopting but DSO regulation is still evolving



- Total TSO and Total DSO represent contrasting end points of market design and evolution. NZ should continue to closely monitor how sector developments may align with these models.
- There are many potential Hybrid Models covering the spectrum from Total DSO to Total TSO.
- A Hybrid Model requires the least amount of regulatory change and allows a logical expansion of existing entities' activities into the flexibility space.

	No-regrets DSO Enablers
	Continue collaborative development of DSO-like functions, do not delay action while waiting for the exact DSO model, roles & responsibilities to be set
	Agree a robust method for valuing costs and benefits of this system-wide transformation
	Develop a **preliminary plan that maps milestones** and persist/exit decision points to avoid overspending
	Develop **good practice principles to improve data availability** across the network
	Develop **shared standards for:** • **DER control and management**, including the protocols for control signals • Passing **dynamic and static operating envelope** information • **Bid and offer structures for flexibility services**
	Explore technology partners and solutions for DSO functions/capabilities
	Consider opportunities for joint DSOs/shared services

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The UK and Australia provide examples of regulatory vs. industry driven DSO models

Department for Energy Security & Net Zero | NESO National Energy System Operator | ofgem | ena energynetworks association

2019		Future Worlds impact assessment
2020	DESNZ/Ofgem smart systems and Flex plan	RIIO-ED2 DSO expectations (and business plans)
2021	Future System Operator consultation	
2022	Connections and Electricity Market Arrangements Reform	Future of local energy institutions & governance
2023	Strategic Spatial Energy Plan and NESO separation	Call for input on the Future of Distributed Flexibility; Year 1 DSO incentive outcomes
2024	Clean Power 2030 and GB Energy / Local Power Plans	Flexibility Markets Asset Registration consultation
2025	Regional Energy Strategic Plan consultation and DSO Pilot & MVP	Market facilitator transition

Timeline of key Australian DSO developments

2018	Open Energy Networks - no final joint AEMO/ENA report
2019	Distributed Energy Integration Program Access & Pricing
2020	AEMC Access, pricing & DER incentive arrangements
2021	Energy Security Board post-2025 review
2022	AER DER expenditure guideline and CECV
2024	Consumer Energy Resources Roadmap
2026 +	AEMC DSO roles review

Advantages	Strategic clarity, incentives & joint project coordination	Flexibility to innovate and 'push the boundaries'
Disadvantages	Poor calibration of incentives, changing regulations	Weak mandates, limited direction, changing regulations

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For example, the UK and Australia have chosen vastly different DSO-DNO separation models but NZ must choose for itself and Powerco has a role in shaping this model

Australian DSOs

- DSO development driven by policy and innovation reform rather than mandates
- DSOs experiment with different internal structures based on maturity

UK DSOs: some separation steps

- Ofgem seeks clear, separate decision-making frameworks with independent oversight to ensure transparency and scrutiny.
- DNOs have complied through functional internal separation or more substantial business separation

Degree of DSO separation

- Embedded functions
- DSO functions under one director
- True ring-fencing – with inefficiency of hand-offs
- Legal separation
- IT systems separation
- Shared services and full ownership separation

In all UK DNO/DSOs the CEO retains ultimate legal decision-making authority

Recommendations for New Zealand

- The UK's transparent separation of DNO and DSO functions has benefits in driving innovation.
- However, separation costs are significant despite the scale of UK DNOs and the regulatory certainty. The sector is still a significant way from having true 'iDSOs'
- NZ markets and customers are likely to be well served by a focus on oversight, reporting and compliance rather than separation.

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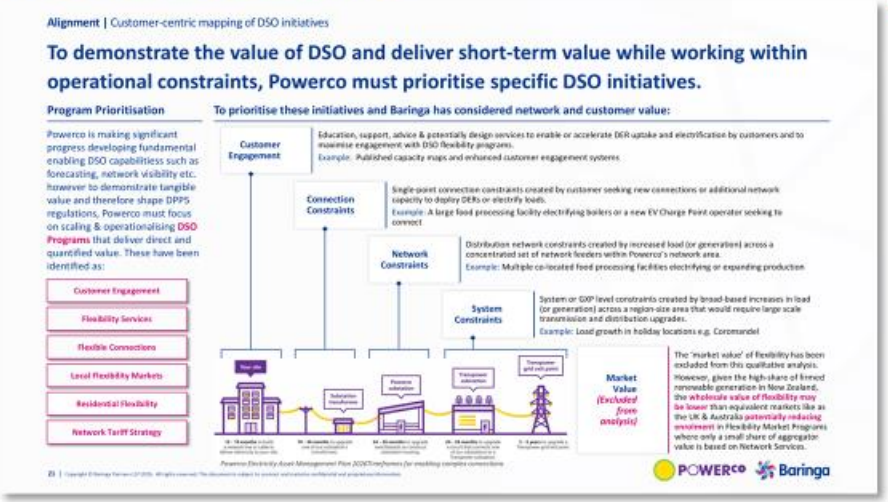
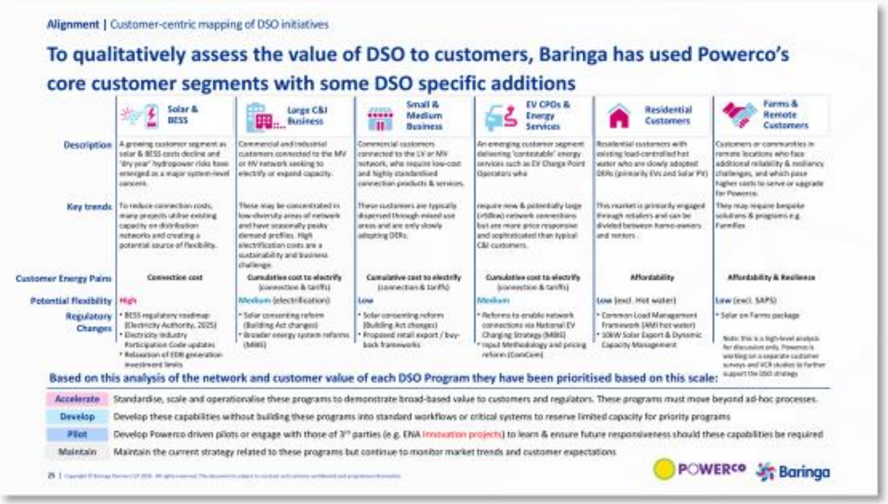
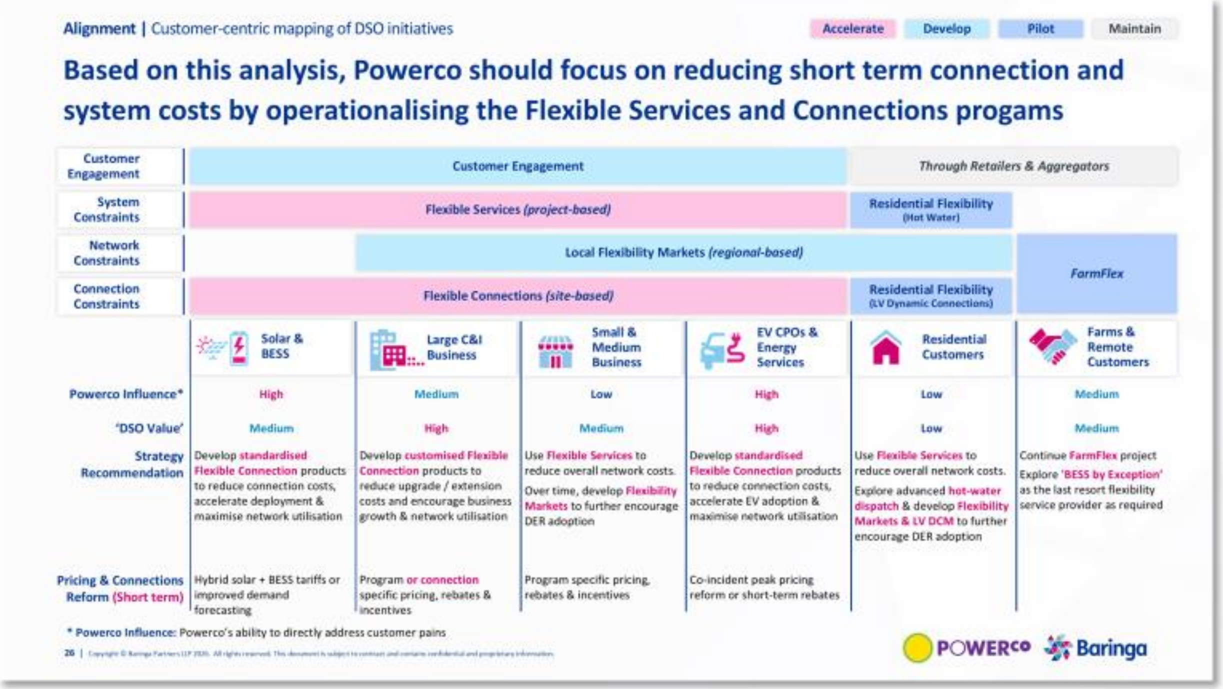
Powerco's DSO strategy is focussed on resolving network & customer challenges

Network Constraints



Customer Challenges





Alignment | Customer-centric mapping of DSO initiatives

Accelerate | Develop | Pilot | Maintain

Based on this analysis, Powerco should focus on reducing short term connection and system costs by operationalising the Flexible Services and Connections progams

	Solar & BESS	Large C&I Business	Small & Medium Business	EV CPOs & Energy Services	Residential Customers	Farms & Remote Customers
Customer Engagement	Customer Engagement				*Through Retailers & Aggregators*	
System Constraints	Flexible Services *(project-based)*				Residential Flexibility (Hot Water)	
Network Constraints		Local Flexibility Markets *(regional-based)*				*FarmFlex*
Connection Constraints	Flexible Connections *(site-based)*				Residential Flexibility (LV Dynamic Connections)	
Powerco Influence*	High	Medium	Low	High	Low	Medium
'DSO Value'	Medium	High	Medium	High	Low	Medium
Strategy Recommendation	Develop standardised Flexible Connection products to reduce connection costs, accelerate deployment & maximise network utilisation	Develop customised Flexible Connection products to reduce upgrade / extension costs and encourage business growth & network utilisation	Use Flexible Services to reduce overall network costs. Over time, develop Flexibility Markets to further encourage DER adoption	Develop standardised Flexible Connection products to reduce connection costs, accelerate EV adoption & maximise network utilisation	Use Flexible Services to reduce overall network costs. Explore advanced hot-water dispatch & develop Flexibility Markets & LV DCM to further encourage DER adoption	Continue FarmFlex project. Explore 'BESS by Exception' as the last resort flexibility service provider as required
Pricing & Connections Reform (Short term)	Hybrid solar + BESS tariffs or improved demand forecasting	Program or connection specific pricing, rebates & incentives	Program specific pricing, rebates & incentives	Co-incident peak pricing reform or short-term rebates		

* Powerco Influence: Powerco's ability to directly address customer pains

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The resulting 'DSO Programs' were then mapped to a DSO Framework adapted for the NZ market and a readiness assessment conducted to determine roadmap priorities

Visibility & Forecasting	Planning & Options Assessment	Connections	Flexibility Market Development	Dispatch & Operations
DSO Programs	**Flexibility Services**	**Flexible Connections**	**Local Flexibility Markets**	**Residential Flexibility**
Network visibility	Integrated asset management planning	Network access products and connections policy	Interface with market facilitators	Operational decision-making framework
Smart meter and third-party data integration	Network options assessment	Connection application journey (pre-app/offer/commissioning)	Flexibility market design (value, deliverability, resilience)	Short-term forecasting for operations
Future energy and DER uptake scenarios	Flexibility services procurement	Connection pipeline and capacity management	Participant onboarding and pre-qualification	Operational planning
System needs and constraint forecasting (short + long term)	Transparent planning outputs and constraints publication	Flexible connection products	Market access arrangements / platform participation rules	Flex activation for real-time dispatch
Integrated network modelling (load, DER and flexibility drivers)	Losses and efficiency optimisation	Proactive enablement of DER and electrification uptake	Flex settlement	DER coordination and system operational alignment
	Network Tariff Strategy			Network Capacity Optimisation
	Customer Engagement			
Data management, publication and services				
Stakeholder engagement				
Governance, transparency, and conflicts management				

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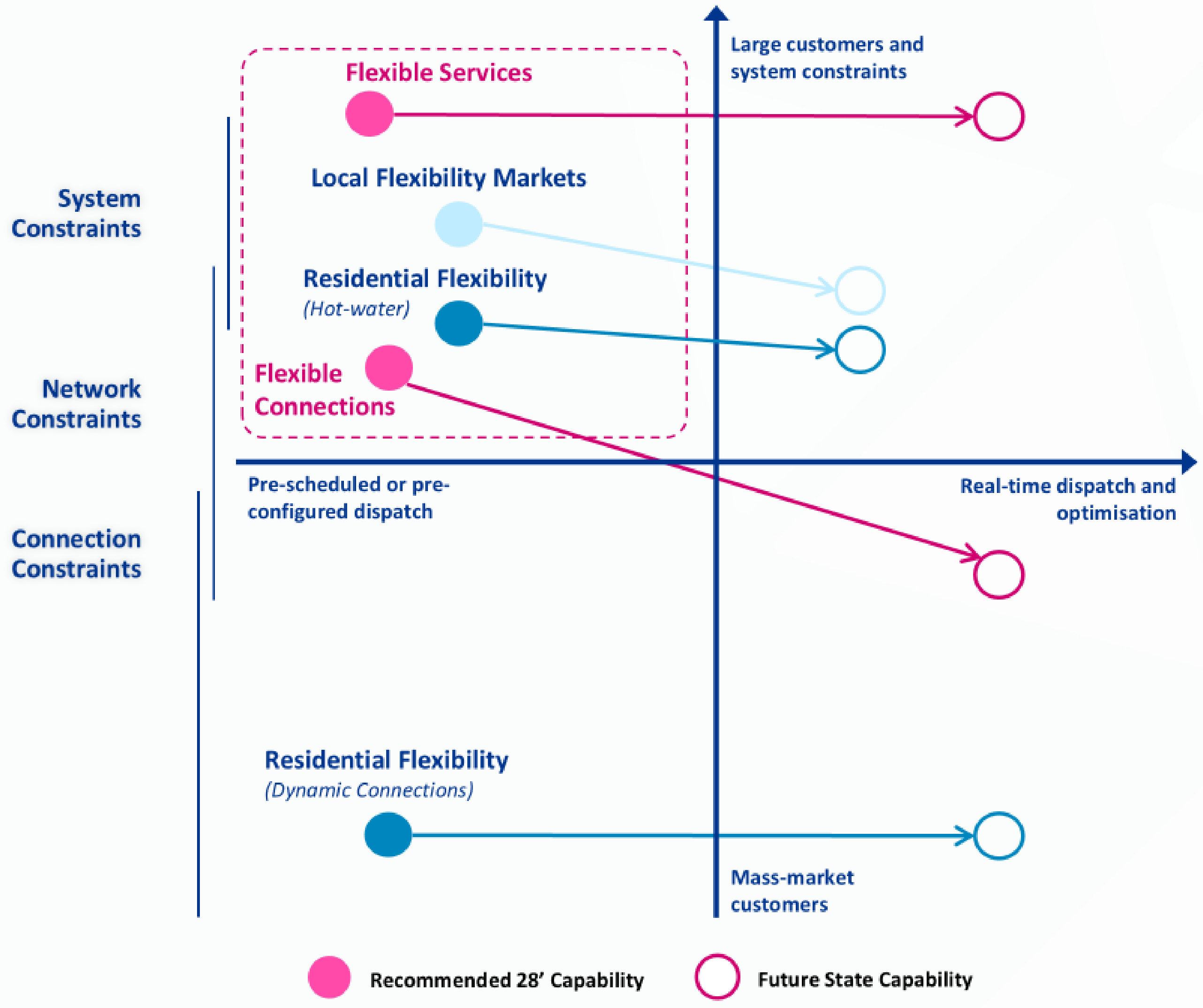
Based on Powerco's DSO strategy, an evaluation of 'high value' DSO services and an assessment of current readiness Baringa recommended this high-level DSO Roadmap

DSO Roadmap Planning



Focussing on these 'Low Volume, High Impact' services will allow Powerco to deliver value before DPP5 without the need to build sophisticated engagement & DER dispatch systems & processes.

In parallel, Powerco should continue to develop DSO enablers, engage with regulators and participate in innovation schemes while exploring additional DSO growth opportunities.

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So, based on our objectives and Baringa's advice, our DSO priorities for the immediate future are…

Greatly expand the use of flexibility services

- Understanding customer needs and network constraints
- Operating envelopes and capacity management
- Solid pricing and commercial basis for flex services
- Engagement with flexibility service providers

Developing flexible connection products

- Understanding customer needs and network constraints
- Engagement with customers on potential for matching their needs with network capacity
- Operating envelopes and capacity management
- Accelerating connection times and reducing costs

While:

Continuing to develop the wider suite of capabilities and enablers required for a fully functioning DSO

and

Building evidence for how a DSO would best function in New Zealand, engaging with customers, regulators and the wider industry

DSO timeline and desired functionality

NOW

- Developing the enablers
- Demonstrating concepts
- Building processes

Anticipated features within FY28

- Flex scheduling
- Multiple active flex contracts
- Investment framework to support (and demonstrate) optimal customer outcomes
- Static operating envelopes informing pricing
- Deep understanding of the cost of constraints/value of flex
- Granular capacity and constraint mapping, seasonality and future congestion forecasts
- Suite of flexible connection products available
- Limited DERMS capacity

2028

- Early-stage DSO
- Building evidence

DPP5 prep period
Informing DPP5 Settings

Apr 2030

Regulatory reset

Functioning , maturing DSO

Anticipated features by Apr 2030

- Active mass-market flex participation
- Short-term and emergency response flex scheduling
- Dynamic operating envelopes informing pricing and connection agreements
- Dynamic, locational pricing – signalling congestion
- Statement of flex opportunities, regularly updated (web-based map interface)
- Dynamic system (stability) monitoring
- Fully-fledged DERMS

Core enabling capabilities to develop/improve

Demand forecasting	Network visibility	Capacity and congestion mapping	Customer insights	DSO/Flex Valuation	Flex market platform	Flexible network pricing
Network models	Network data quality	Operational capability development	Data architecture & platforms	DERMS	Flexible connections	Flex products and trials

We aim to learn from others – not invent ourselves

- Our teams undertake extensive research on DSO developments, especially across UK and Australian jurisdictions.
- We directly engage with DSOs, industry, retailers, regulators and consultants.

But learning from others can only go so far

- The New Zealand context and our levels of maturity are unique
- Much internal development and change management is still required
- Markets and regulation need to mature to support

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Key takeaways from our recent DSO fact-finding:

- Each country has its own **context for DSO and flex**, but also broad similarities (such as UK net-zero targets, Netherlands grid congestion).
- Primarily seeking **market-based solutions**, rather than direct control of consumer DER.
- **Most flex is auction/contract based**, with pricing signals only beginning to be seriously explored.
- Data and systems underpin DSO capability, requiring significant **investment in digital capability and data standards**.
- The DSO journey has been underway for 10+ years in the UK, with plenty more work to do. **We cannot just jump to the end state!**
- Doing DSO well requires considerable change. Effective **change management is critical**.

Some key ongoing debates in Europe

- The role of **price signals vs contracts** to facilitate flexibility services.
- **Direct or indirect** control of customer devices.
- How to **best involve customers** in energy solutions
- The importance of **regulatory incentives** – efficiency and opex/capex equivalence.
- A more nuanced **role for flex** – much wider than just deferring build.
- Flex turn-up is important – **but who pays**?

Questions?

We'd love the opportunity to continue the discussion on how to best evolve DSOs for New Zealand and also to collaborate with others as we transform our business. Be in touch!