



# DSO strategy

## Final Report

Powerco  
May 2026



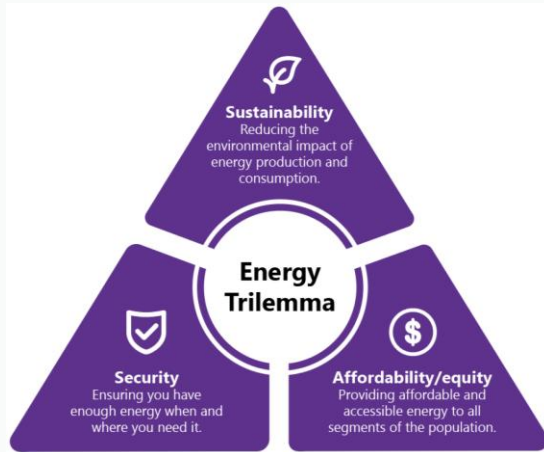
# Executive Summary

## Powerco DSO Strategy

## Confidentiality and Limitation Statement

This report has been prepared by Baringa Partners LLP or a Baringa group company (“Baringa”) for Baringa’s client (“Client”) and has been designed to meet the agreed requirements of Client only and not any other requirements including those of third parties. This report may not be altered or modified without Baringa’s prior written consent. No warranty is given by Baringa as to the accuracy of the contents of this report. This report has been prepared on the date specified and the content may be subject to change over time. This report should not be regarded as suitable to be used or relied upon by any party other than Client unless otherwise contractually agreed by Baringa and Client. Any party other than Client who obtains access to this report or a copy of this report and chooses to rely on this report (or any part of it) will do so at its own risk. This report is not intended to be used as the basis for trading in the shares of any company or for undertaking any other complex or significant financial transaction or investment. To the fullest extent permitted by law, Baringa accepts no responsibility or liability in respect of this report to any other person or organisation other than Client unless otherwise contractually agreed by Baringa and Client. If any of these terms are invalid or unenforceable for any reason, the remaining terms shall remain in full force and effect. Nothing in this statement shall limit or exclude Baringa’s liability for any liability which cannot be limited or excluded by law. Copyright © Baringa Partners LLP 2025. All rights reserved.

# To inform Powerco's future DSO ambition & strategy, we have undertaken a 3-phase engagement to align on key challenges and objectives



While the relative emphasis on each element may evolve, the **Energy Trilemma remains central to energy system design. However, increasing uncertainty** caused by technology change, DER uptake, energy shocks, inflation, and regulatory shifts **makes speed and adaptability critical for EDBs.** Building strong DSO capabilities will allow **Powerco to differentiate and accelerate growth while and manage risk** for both the business and its customers.

## Executive Summary and key findings per phase:

1

### Market insights & strategy overview

**Market Context:** New Zealand's energy market is changing, and Electricity Distribution Businesses (EDBs) will be required to develop 'Distribution System Operator' (DSO) capabilities. However, 'DSO Models' developed in equivalent markets such as the UK and Australia will not translate directly to New Zealand or Powerco's unique context.

**The Opportunity:** This creates an opportunity for Powerco to build on its strategy to be "customer first" and play a significant role in defining the role of DSOs in New Zealand and create new business growth opportunities.

**The Challenge:** A rapidly changing energy & technology landscape coupled with long-term regulatory uncertainty makes it difficult to quantify the 'value of DSO' for Powerco and therefore prioritise programs & investments.

2

### DSO Readiness Assessment

**Powerco's Current State:** Powerco has made strong progress in developing core capabilities and has actively pursued a range of DSO innovation initiatives. However, to deliver successfully demonstrate & quantify the value of DSO and influence DPP5, Powerco must prioritise those programs that deliver short-term customer value.

3

### DSO Roadmap Planning

**DSO Program Roadmap:** Based on the Powerco's DSO Strategy and current state, it is recommended that Powerco should focus on several short-term, high-impact **Flexible Services** and **Flexible Connections** DSO Programs while further developing **network pricing** strategies.

### Background

New Zealand's (NZ) electricity system and distribution networks are undergoing rapid change driven by customer electrification, DER uptake and evolving regulatory expectations.

- Electricity Distribution Businesses (EDBs) such as Powerco are increasingly expected to develop Distribution System Operator (DSO) capabilities to manage constraints, integrate DER, and deliver efficient customer outcomes.
- While international DSO models (such as in the UK and Australia) provide useful reference points, no single model translates directly to NZ's regulatory, customer and network context.
- Powerco has already made strong progress across DSO-enabling initiatives, but faces uncertainty, competing priorities and the challenge of demonstrating DSO value ahead of DPP5.

### Key outputs

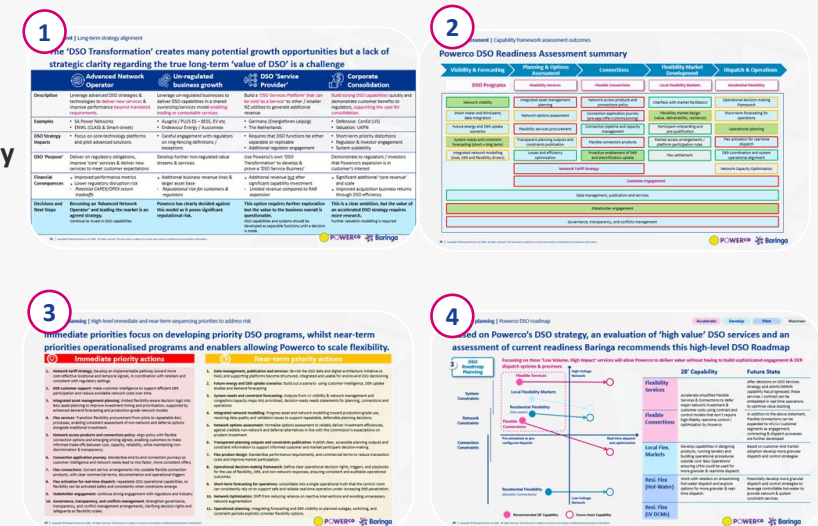
From our assessment, DSO programs only deliver intended customer and network value when delivery, governance and capability are aligned. To strengthen Powerco's DSO transition, this engagement has provided:

- A clear long-term strategic ambition, confirming Advanced Network Operator as Powerco's preferred DSO trajectory, with the DSO roadmap deliberately structured to deliver customer and regulatory value first, while keeping optionality and future growth pathways open** to focus effort where Powerco can demonstrate value quickly
- A structured DSO readiness assessment** identifying where Powerco should accelerate, develop, pilot or maintain capabilities, ensuring resources are directed to areas that matter most for DPP5 outcomes.
- Actionable guidance to 'industrialise' delivery**, moving priority DSO initiatives centring on Flexible Services and Flexible Connections from bespoke or ad-hoc execution toward repeatable products and BAU processes spanning planning, connections and operations.
- Clearer alignment between strategy and DSO capability model**, clarifying decision rights, governance expectations and cross-functional hand-offs required to operate as an intelligent, integrated DSO rather than a collection of stand-alone initiatives. We also provided a strategic customer narrative, positioning Powerco to engage with regulators and stakeholders by linking DSO investment and delivery directly to customer outcomes and system efficiency.

In this context, early capability uplift of DSO programs and proof-of-delivery are critical to deliver Powerco's DSO strategy.

### Approach

- Market and regulatory insights:** Reviewed NZ policy developments, ENA DSO work and international DSO experience to frame Powerco's strategic choices.
- Strategy overview and stakeholder engagement:** Conducted targeted interviews and workshops with senior leaders and subject-matter experts across customer, operations, planning, regulation and digital functions.
- DSO readiness assessment:** Assessed maturity and strategic importance across a structured DSO capability framework adapted for the NZ context.
- DSO roadmap prioritisation:** Segmented the options for scalable DSO programs (e.g. flexible services, connections, market, tariffs) that could demonstrate customer value through delivery.



# Powerco's DSO roadmap must support both long-term and short-term strategic priorities without closing potential growth paths

1

## Market insights & strategy overview

### Long-term Strategy

Powerco will seek to **'lead the pack'** in becoming an **Advanced Network Operator** pioneering new capabilities to accelerate and shape the role of DSOs in NZ. This **'no regrets' path** allows Powerco to explore additional DSO Service Provider and Corporate Consolidation growth pathways in future

#### DSO Service Provider

### Consequences

Certain DSO capabilities should be developed separately to core operations until a decision is made

#### Corporate Consolidation

Powerco should progress a wide range of DSO programs providing future optionality but only focus on operationalising a few

### Next Steps

1. Study the economics of 'DSO Service Provider' business models and assess regulatory appetite for this model.
2. Perform an analysis on the 'economics of DSO' to the core business and potential acquisition targets
3. Continue strong regulatory engagement

### Short-term Strategy

To become an 'Advanced Network Operator', **Powerco must prove the value of DSO to shape the DPP5 regulatory period** by delivering quantified network and customer value in the short-term.

#### Network Value

### Findings

To deliver maximum value, Powerco should use DSO capabilities to resolve system & connection constraints

#### Customer Value

Powerco can provide the most value to larger Solar & BESS and C&I customers who experience network cost impacts most acutely

### Conclusion

Powerco should focus on the **Flexibility Services** and **Flexible Connection Programs** as these address short-term customer and network challenges and therefore demonstrate the value of DSO to regulators in advance of DPP5.

# Powerco's DSO roadmap must support both long-term and short-term strategic priorities without closing potential growth paths

2

## DSO Readiness Assessment

### Readiness Assessment

After conducting the DSO readiness assessment, we consider Powerco is well-positioned to progress toward an Advanced Network Operator model.

| ENSA Report no-regrets enablers                                                                                                                                                                                                                                                             | Current Initiatives                                                                                                                                                                                                                                                                         | LEADS to                                                                                                                                                                                                                                                                                    | Powerco Progress                                                                                                                                                                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Data, analytics and digital capabilities</li> <li>• Network planning and optimisation</li> <li>• Customer engagement and service</li> <li>• Operational excellence</li> <li>• Talent and capability</li> <li>• Governance and assurance</li> </ul> | <ul style="list-style-type: none"> <li>• Data, analytics and digital capabilities</li> <li>• Network planning and optimisation</li> <li>• Customer engagement and service</li> <li>• Operational excellence</li> <li>• Talent and capability</li> <li>• Governance and assurance</li> </ul> | <ul style="list-style-type: none"> <li>• Data, analytics and digital capabilities</li> <li>• Network planning and optimisation</li> <li>• Customer engagement and service</li> <li>• Operational excellence</li> <li>• Talent and capability</li> <li>• Governance and assurance</li> </ul> | <ul style="list-style-type: none"> <li>• Strong progress has been made on developing broad-based DSO enablers</li> <li>• Powerco is developing many different DSO Programs in parallel to address almost any customer &amp; network challenge</li> </ul> |

| Visibility & Forecasting                                                                                                                                                                                                                                        | Planning & Optimisation                                                                                                                                                                                                                 | Connections                                                                                                                                                                                                                             | Flexibility Market                                                                                                                                                                                                                      | Dispatch & Operations                                                                                                                                                                                                                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• DSO Programs</li> <li>• Network planning and optimisation</li> <li>• Customer engagement and service</li> <li>• Operational excellence</li> <li>• Talent and capability</li> <li>• Governance and assurance</li> </ul> | <ul style="list-style-type: none"> <li>• Network planning and optimisation</li> <li>• Customer engagement and service</li> <li>• Operational excellence</li> <li>• Talent and capability</li> <li>• Governance and assurance</li> </ul> | <ul style="list-style-type: none"> <li>• Network planning and optimisation</li> <li>• Customer engagement and service</li> <li>• Operational excellence</li> <li>• Talent and capability</li> <li>• Governance and assurance</li> </ul> | <ul style="list-style-type: none"> <li>• Network planning and optimisation</li> <li>• Customer engagement and service</li> <li>• Operational excellence</li> <li>• Talent and capability</li> <li>• Governance and assurance</li> </ul> | <ul style="list-style-type: none"> <li>• Network planning and optimisation</li> <li>• Customer engagement and service</li> <li>• Operational excellence</li> <li>• Talent and capability</li> <li>• Governance and assurance</li> </ul> |

### Summary

#### Strengths

- Strong progress has been made on developing broad-based DSO enablers
- Powerco is developing many different DSO Programs in parallel to address almost any customer & network challenge

#### Weaknesses

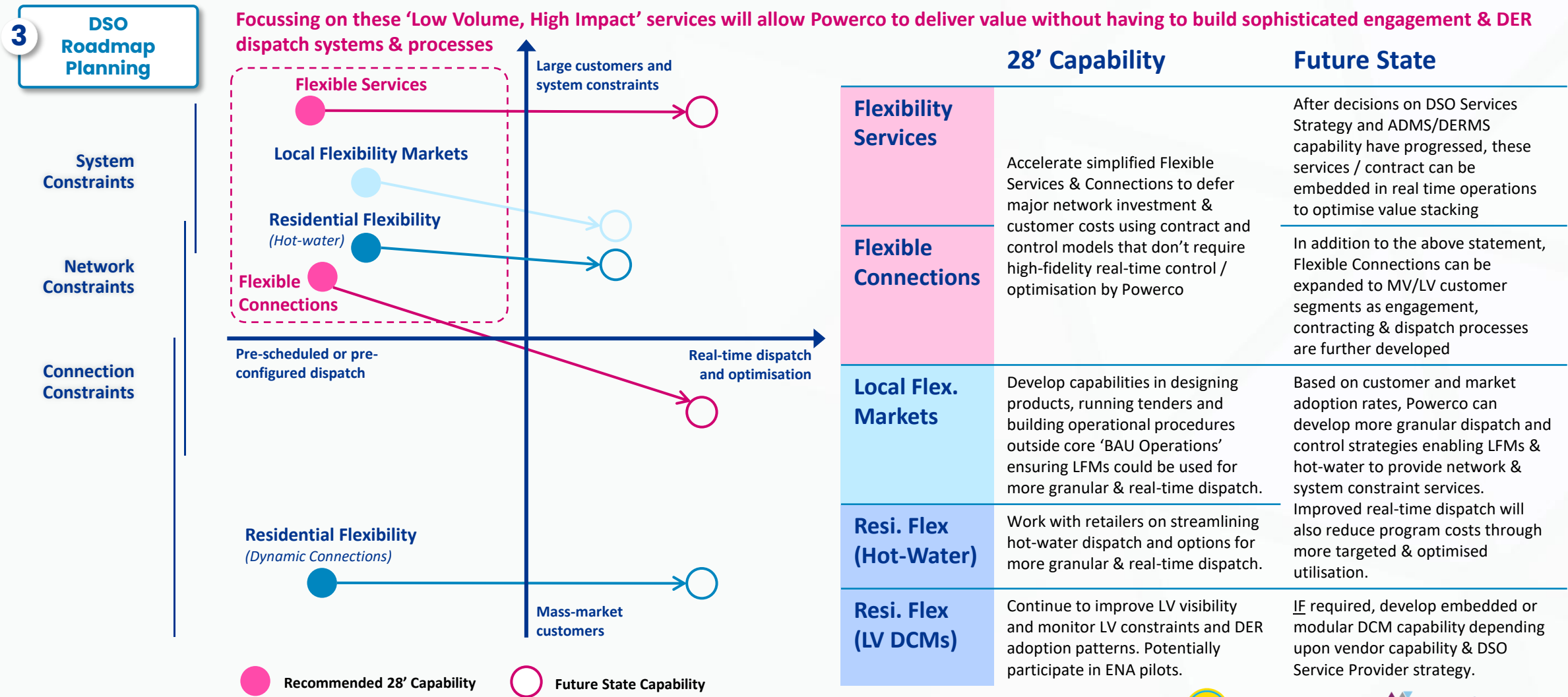
- There is limited organisational capability to develop scaled and systematised flexibility services with real-time dispatch
- Several DSO initiatives are still bespoke, manually executed or reliant on individual expertise, constraining repeatability and BAU transition.

#### Constraints

- Decision-making frameworks, governance and ownership across planning, operations and commercial functions are not yet fully aligned to support scaled DSO delivery
- Until a decision on 'DSO Services Provider' is made, Powerco should not deeply embed DSO functions in the business

**Conclusion:** Powerco should focus on 'low volume, high value' DSO Services that deliver immediate customer and network value. Work should continue on key programs and foundational initiatives as identified in the INTSA application. These initiatives will support the multi-phased evolution to deliver more advanced real-time services over time. In parallel, longer-term initiatives such as Network Tariff Strategy and operating model clarity must be progressed to not close future growth paths.

# Based on Powerco’s DSO strategy, an evaluation of ‘high value’ DSO services and an assessment of current readiness Baringa recommends this high-level DSO Roadmap



# Market context and insights

## Powerco DSO Strategy

# There are 3 key drivers propelling Powerco's DSO strategy

Powerco's DSO transition is being driven by converging regulatory expectations, accelerating DER-led customer change, and rising pressure to deliver efficient, affordable network outcomes.

1



## Regulatory and market

### Drivers – changing regulatory settings within the last 6-12 months

- Evolving regulatory settings (EA Model, EA rule changes, Congestion Load Management) placing greater emphasis on:
  - Efficient integration of DER and non-network solutions
  - Transparency around capacity, constraints and connection processes
  - Better coordination with Transpower and wider system planning
- Increasing focus of capex-led growth, reinforcing the need for flexibility, dynamic operating envelopes and alternative solutions to defer or avoid network investment

2



## Customer and DER

### Drivers – customer electrification & DG uptake

- Rapid growth in distributed generation and electrification across Powerco's networks, including commercial rooftop solar and growing interest in BESS, EV charging, and electrified heat/processes
- Rising customer expectations for:
  - Faster, more transparent connection assessments
  - Clear visibility of local network capacity and constraints
  - Products that reward flexibility (e.g. flexible connections, dynamic pricing)
- Large and industrial customers seeking greater certainty on load growth pathways, and options for long-term connection solutions aligned to decarbonisation plans

3

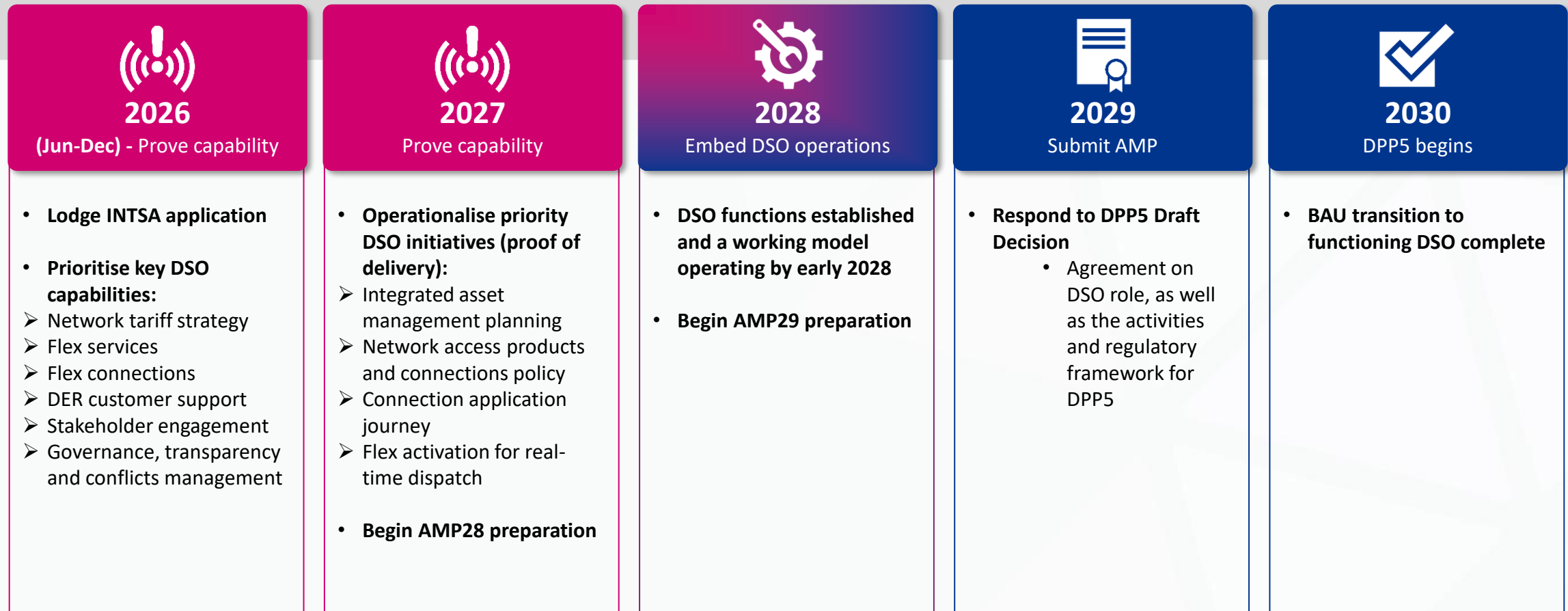


## Cost and network performance

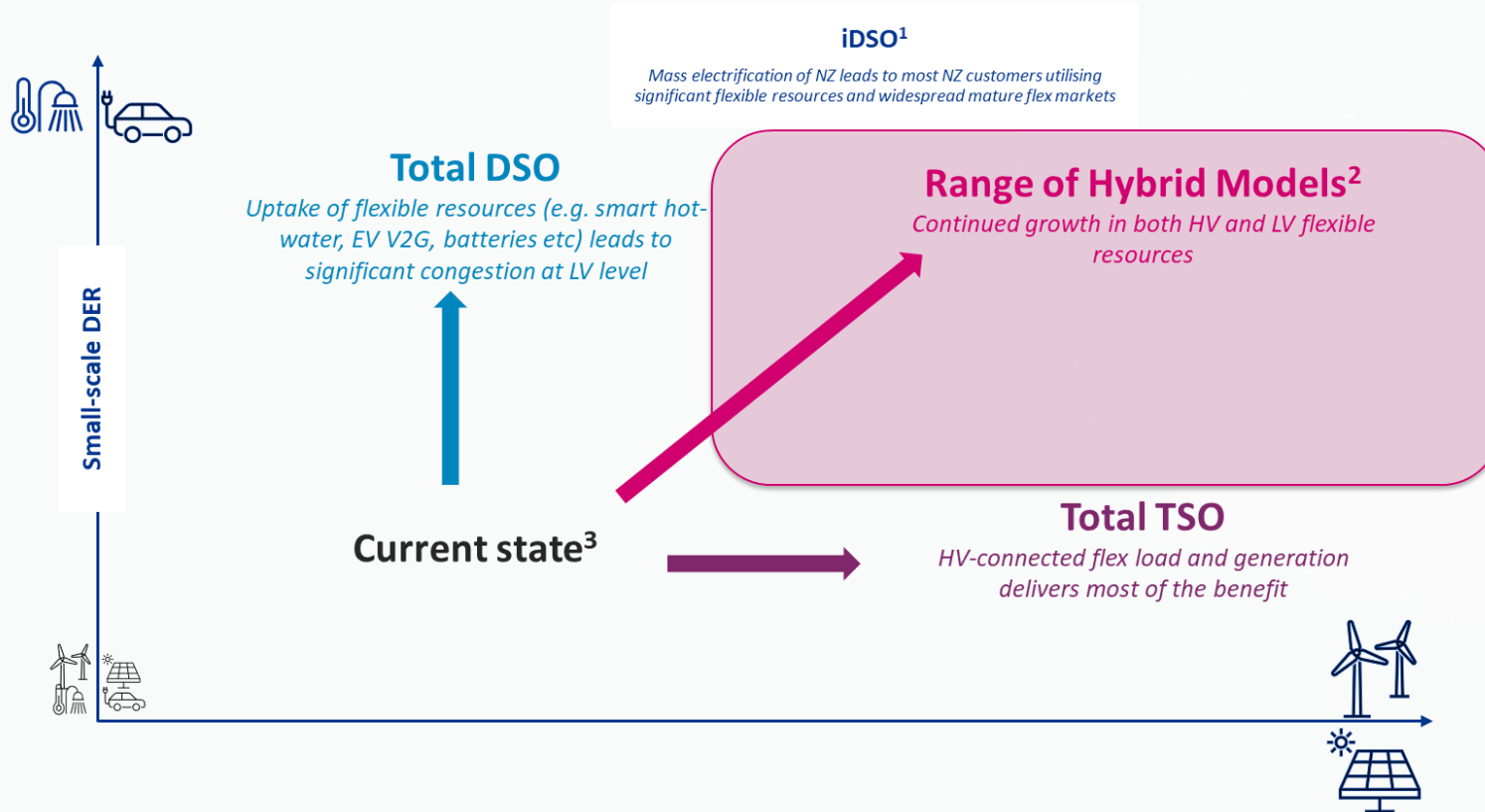
### Drivers – costs to maintain and operate the network

- Material cost-to-serve pressures from continuing network growth, asset renewal and resilience requirements across diverse and regional areas
- Increasing operational complexity driven by bi-directional power flows, local constraints and intermittent DER behaviour
- Unlock system intelligence through:
  - Improved planning accuracy
  - Enabling cost-effective use of flexibility instead of traditional reinforcement
- Other DSO capabilities as a lever to manage long-term affordability, by deferring augmentation and improving utilisation of existing assets

## Over the next 18 months, Powerco must prove their DSO capability through delivery, and lock in the key decisions that make Powerco DSO ready for DPP5



## NZ has potential directions for travel for each of the industry structures, with many EDBs already observing and responding to emerging challenges and market changes

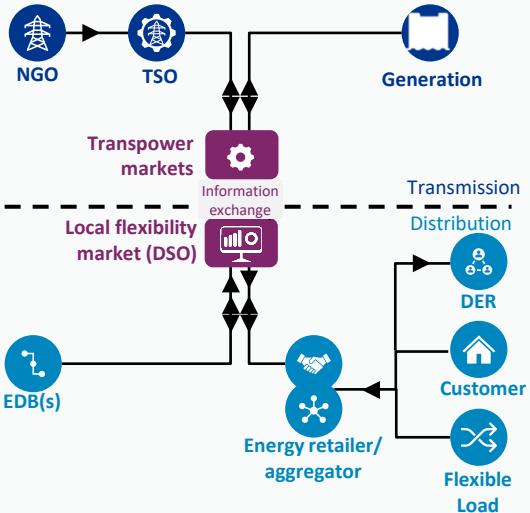


\* The initial path could trend towards Total TSO but then evolve towards Hybrid, even a Hybrid Model nearer Total DSO, over time. Conversely, if LV headroom issues are considered the priority challenge, the initial move could be towards Total DSO, with later moves towards some Hybrid Model features to improve management of HV-connected flex resources.

### Implications for NZ

- 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.
- Current market settings and regulation (e.g. separate operation of local flex services and wholesale markets) are a form of hybrid model similar to the one assessed in this report.
- Note this two-dimensional diagram does not capture how the best model for NZ could evolve over time.\*

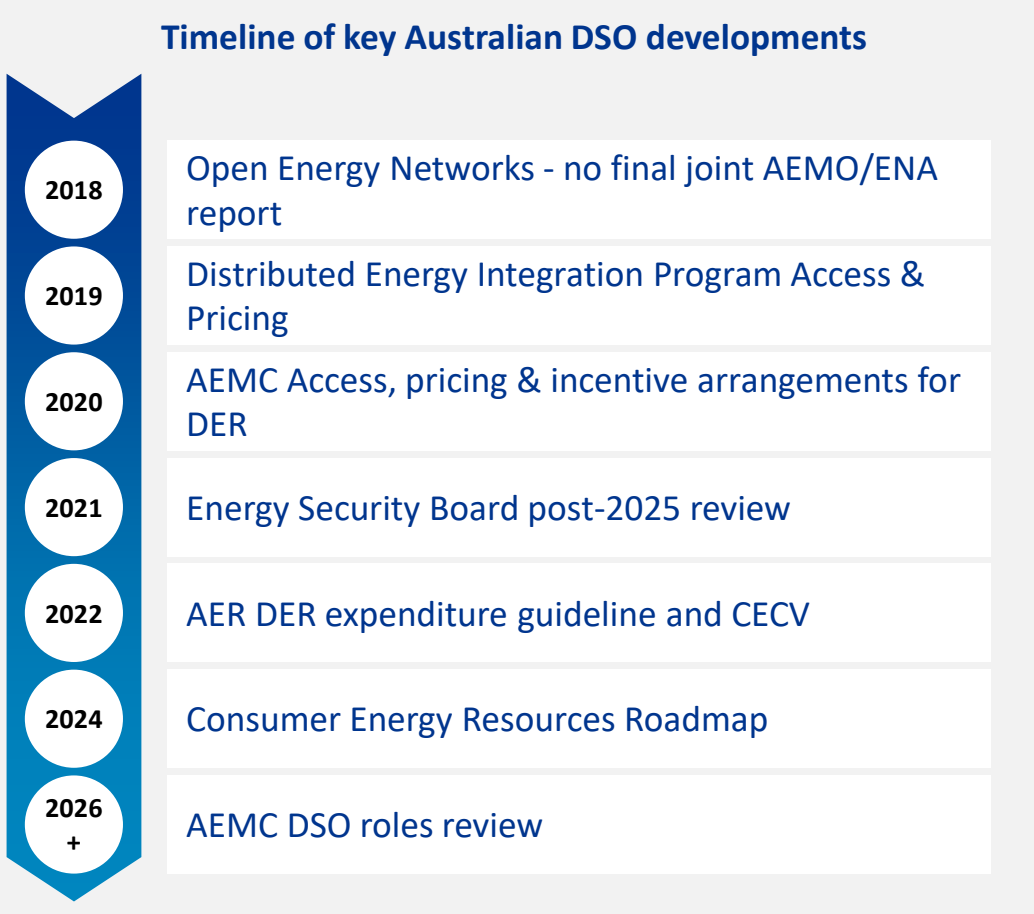
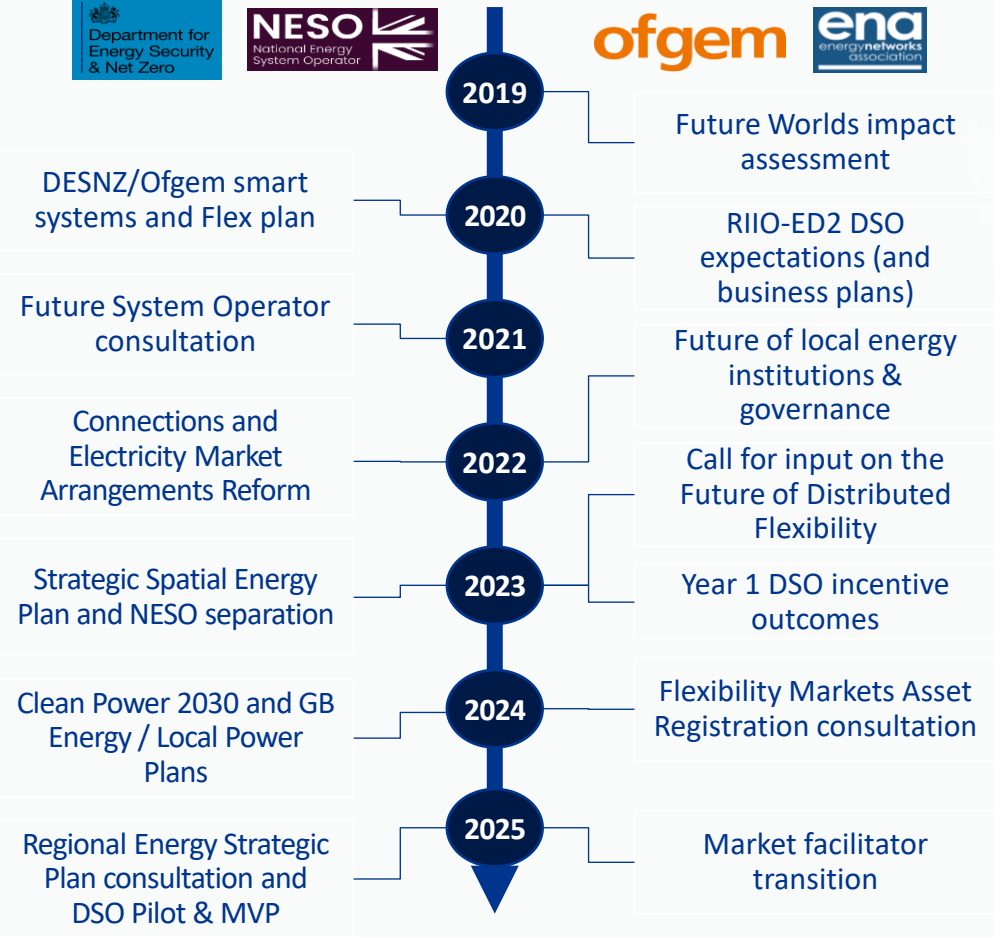
# The DSO model in NZ is still evolving creating an uncertain regulatory environment for EDBs to build business and technology strategy beyond a set of no-regrets actions

| Model name         | Hybrid Model <sup>1</sup>                                                                                                                                                                                                                                                                                                               | No-regrets DSO Enablers                                                               |                                                                                                                                                                                                                                                                                   |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Description        | A hybrid approach, where the DSO operates local flexibility markets and optimises constraints within its own distribution network. The TSO optimises the wholesale market at transmission level. Aggregators can offer services to one or both DSO and TSO. The EA noted there is strong support for the hybrid DSO model. <sup>2</sup> |    | 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                                                                                                                                                                                           |
| Simplified Diagram |                                                                                                                                                                                                                                                       |    | 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: <ul style="list-style-type: none"><li>DER control and management, including the protocols for control signals</li><li>Passing dynamic and static operating envelope information</li><li>Bid and offer structures for flexibility services</li></ul> |
|                    |                                                                                                                                                                                                                                                                                                                                         |  | Explore technology partners and solutions for DSO functions/capabilities                                                                                                                                                                                                          |
|                    |                                                                                                                                                                                                                                                                                                                                         |  | Consider opportunities for joint DSOs/shared services                                                                                                                                                                                                                             |

<sup>1</sup> There are many variants of a hybrid DSO framework – this description and model diagram represent just one way this could work, noting it is one that is already evolving in NZ.

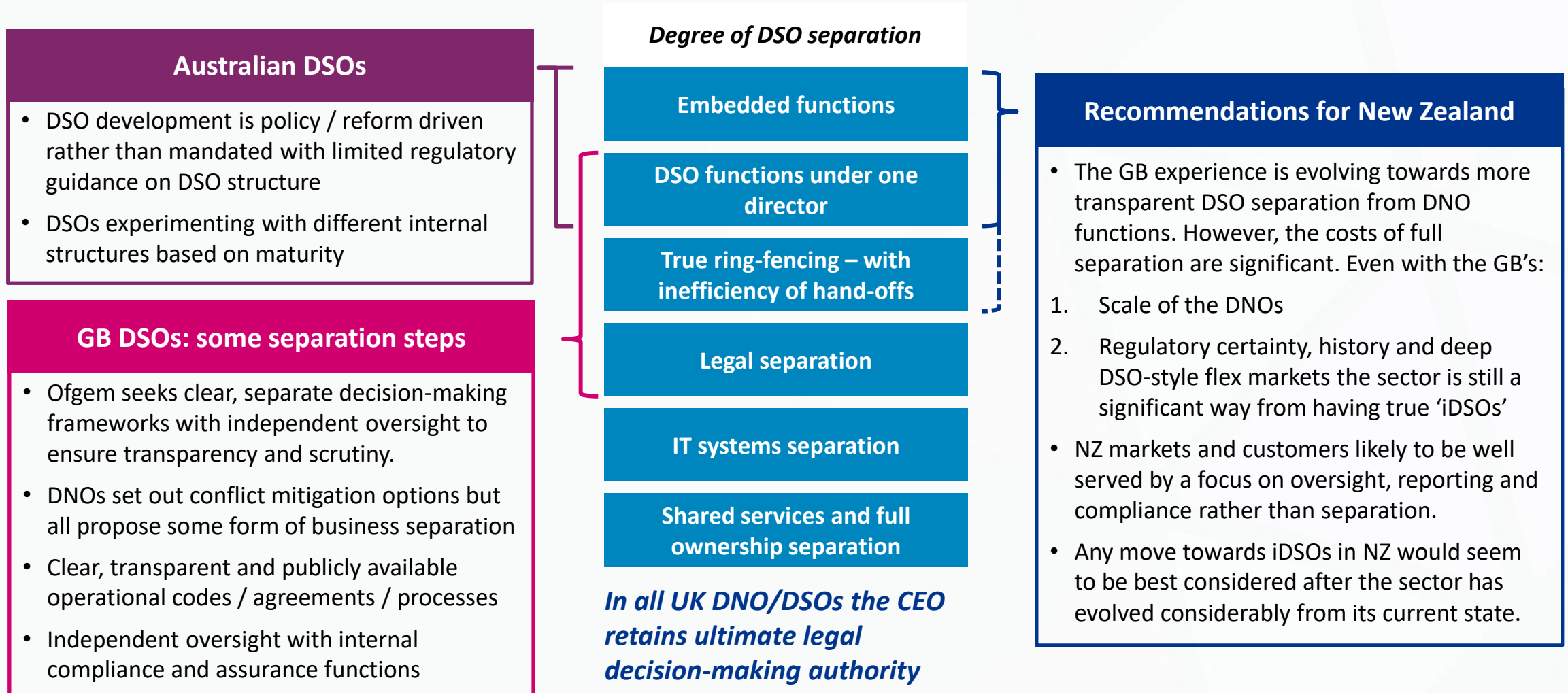
<sup>2</sup> Source: [Future System Operation project - update and next steps](#) | Electricity Authority  
13 | Copyright © Baringa Partners LLP 2026. All rights reserved. This document contains confidential and proprietary information.

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



|               |                                                            |                                                        |
|---------------|------------------------------------------------------------|--------------------------------------------------------|
| 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 |

## 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



# DSO Strategy Alignment

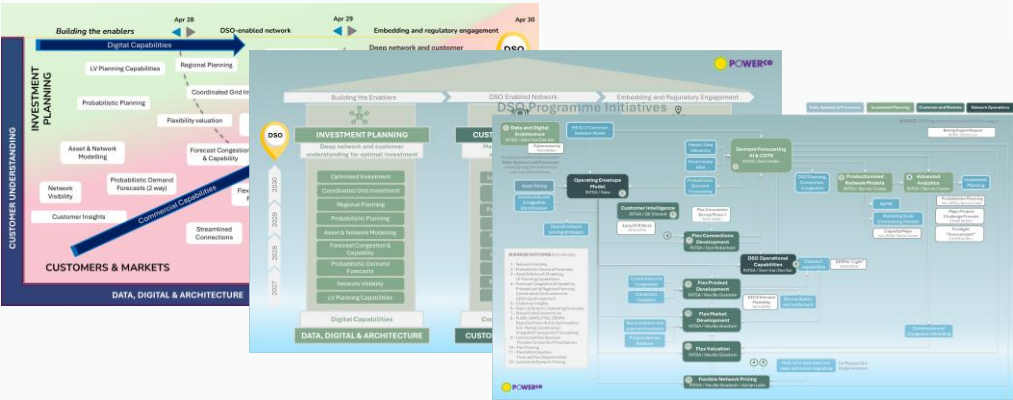
## Powerco DSO Strategy

## The 'DSO Transformation' creates many potential growth opportunities but a lack of strategic clarity regarding the true long-term 'value of DSO' is a challenge

|                                 |  <b>Advanced Network Operator</b>                                                                   |  <b>Un-regulated business growth</b>                                                   |  <b>DSO 'Service Provider'</b>                                                                     |  <b>Corporate Consolidation</b>                                                          |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Description</b>              | Leverage advanced DSO strategies & technologies to <b>deliver new services</b> & improve performance <b>beyond mandated requirements</b> .                                           | Leverage un-regulated businesses to deliver DSO capabilities in a shared ownership/services model <b>enabling trading or contestable services</b>                        | Build a <b>'DSO Services Platform'</b> that <b>can be sold 'as a Service'</b> to other / smaller NZ utilities to generate additional revenue                                          | <b>Build strong DSO capabilities</b> quickly and demonstrate customer benefits to regulators, <b>supporting the case for consolidation</b> .                                |
| <b>Examples</b>                 | <ul style="list-style-type: none"> <li>SA Power Networks</li> <li>ENWL (CLASS &amp; Smart-street)</li> </ul>                                                                         | <ul style="list-style-type: none"> <li>Ausgrid / PLUS ES – BESS, EV etc.</li> <li>Endeavour Energy / Ausconnex</li> </ul>                                                | <ul style="list-style-type: none"> <li>Germany (Energieforen Leipzig)</li> <li>The Netherlands</li> </ul>                                                                             | <ul style="list-style-type: none"> <li>Defensive: ConEd (US)</li> <li>Valuation: UKPN</li> </ul>                                                                            |
| <b>DSO Strategy Impacts</b>     | <ul style="list-style-type: none"> <li>Focus on core-technology platforms and pilot advanced solutions</li> </ul>                                                                    | <ul style="list-style-type: none"> <li>Careful engagement with regulators on ring-fencing definitions / exceptions</li> </ul>                                            | <ul style="list-style-type: none"> <li>Requires that DSO functions be either separable or replicable</li> <li>Additional regulator engagement</li> </ul>                              | <ul style="list-style-type: none"> <li>Short-term priority distortions</li> <li>Regulator &amp; investor engagement</li> <li>System scalability</li> </ul>                  |
| <b>DSO 'Purpose'</b>            | Deliver on regulatory obligations, improve 'core' services & deliver new services to meet customer expectations                                                                      | Develop further non-regulated value streams & services                                                                                                                   | Use Powerco's own 'DSO Transformation' to develop & prove a 'DSO Service Business'                                                                                                    | Demonstrate to regulators / investors that Powerco's expansion is in customer's interest                                                                                    |
| <b>Financial Consequences</b>   | <ul style="list-style-type: none"> <li>+ Improved performance metrics</li> <li>+ Lower regulatory disruption risk</li> <li>- <i>Potential CAPEX/OPEX return tradeoffs</i></li> </ul> | <ul style="list-style-type: none"> <li>+ Additional business revenue lines &amp; larger asset base</li> <li>- <i>May pose reputational or regulatory risk</i></li> </ul> | <ul style="list-style-type: none"> <li>+ Additional revenue <u>but</u> after significant capability investment</li> <li>- <i>Limited revenue compared to RAB expansion</i></li> </ul> | <ul style="list-style-type: none"> <li>+ Significant additional 'core revenue' and scale</li> <li>+ Improved acquisition business returns through DSO efficiency</li> </ul> |
| <b>Decisions and Next Steps</b> | <b>Becoming an 'Advanced Network Operator' and leading the market is an agreed strategy.</b>                                                                                         | <b>This growth model is not the focus of Powerco's current DSO strategy</b>                                                                                              | <b>This option requires further exploration and the potential value to the business must be quantified.</b>                                                                           | <b>This is a clear ambition, but the value of an accelerated DSO strategy requires more research.</b>                                                                       |

# While long-term strategy is important, Powerco has made great progress on many DSO initiatives that set the foundation for an ‘Advanced Network Operator’

To help structure Powerco’s existing DSO initiatives, Powerco has used several internal formats:

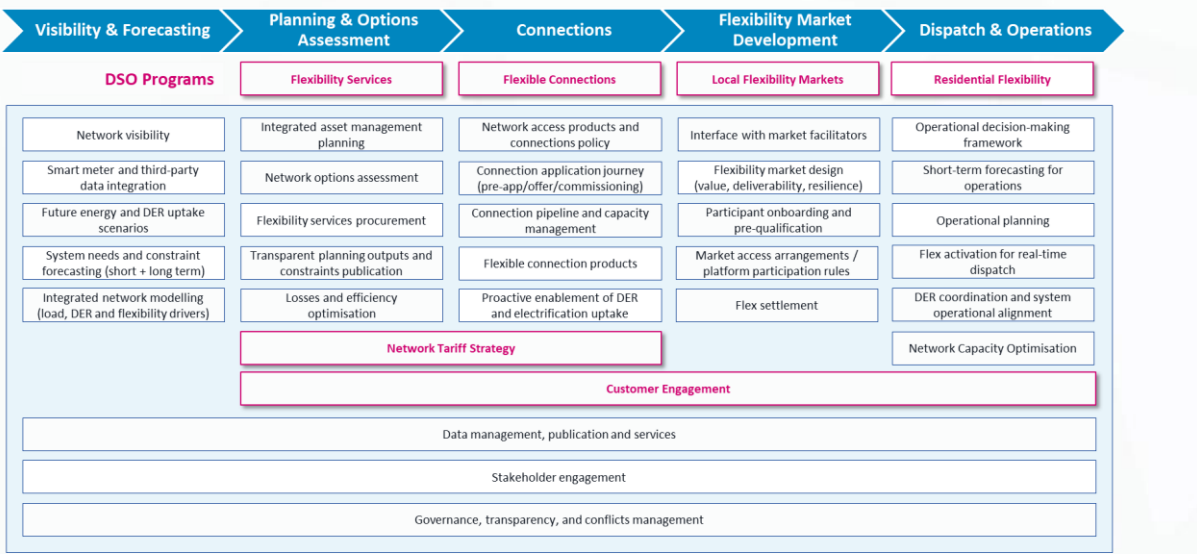


To benchmark and operationalise Powerco’s DSO strategy additional frameworks were considered:

| Objective                    | Work programme               | Organisations involved      | 2026 | 2027 | 2028 | 2029 | 2030 |
|------------------------------|------------------------------|-----------------------------|------|------|------|------|------|
| Design and delivery of DSOs  | Design and delivery of DSOs  | Powerco, Baringa, ERM, etc. |      |      |      |      |      |
| Driving efficiency           | Driving efficiency           | Powerco, Baringa, ERM, etc. |      |      |      |      |      |
| Accelerating flexibility     | Accelerating flexibility     | Powerco, Baringa, ERM, etc. |      |      |      |      |      |
| Connecting and pricing right | Connecting and pricing right | Powerco, Baringa, ERM, etc. |      |      |      |      |      |
| Prioritising customers       | Prioritising customers       | Powerco, Baringa, ERM, etc. |      |      |      |      |      |

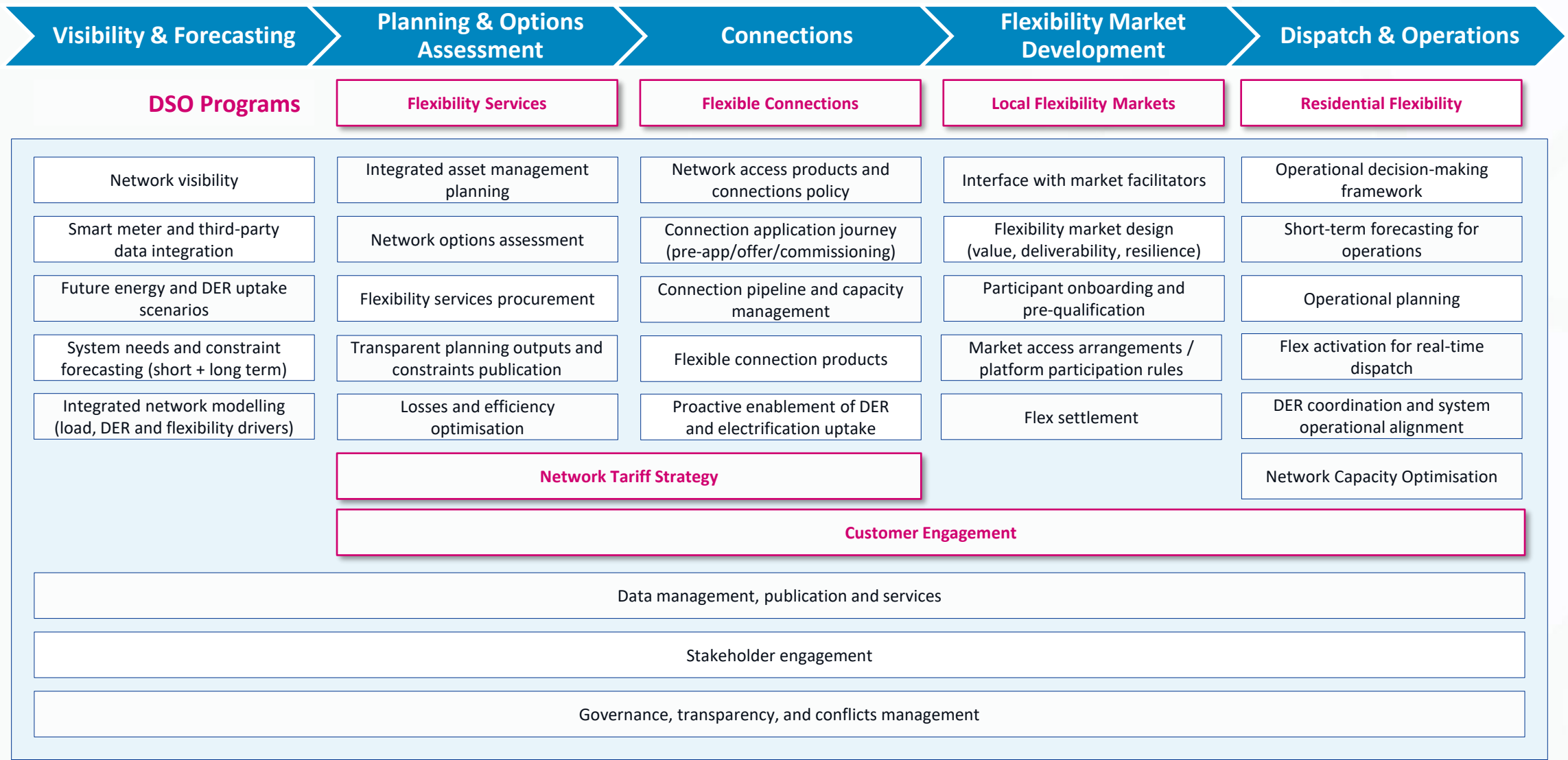
Based on this review, Baringa proposes this DSO Framework adapted from the UK’s proposed ED-RIO3 version to reflect NZ’s context because:

- It provides an international benchmark
- Provides sufficient granularity & accurately reflects the range of DSO initiatives that are mapped to Powerco’s Operating Model.
- Can be updated as Powerco’s DSO strategy or NZ’s regulatory context evolves.



The framework has been adapted, and several major **DSO Programs** have been identified for more extensive roadmap analysis. These DSO Programs are based on the underlying functions identified in the framework but do not require all functions to be mature to create customer and network value as part of Powerco’s DSO strategy.

# Powerco has made strong progress on a range of DSO Framework functions



# Definitions

|                               | Function                                                        | Definition                                                                                                                                                                                                                                                                                      |
|-------------------------------|-----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Visibility & Forecasting      | <b>Network visibility</b>                                       | The ability to obtain timely, sufficiently granular, and reliable data on the state of the distribution network, including demand, generation, constraints, voltage, and asset loading, to support operational decision-making, planning, and market interaction across relevant time horizons. |
|                               | <b>Smart meter and third-party data integration</b>             | The capability to ingest, integrate, and utilise smart meter data and relevant third-party datasets (e.g. DER telemetry, weather, EV charging data) in a controlled and governed manner to improve network visibility, forecasting accuracy, and customer outcomes.                             |
|                               | <b>Future energy and DER uptake scenarios</b>                   | The development and use of forward-looking scenarios that reflect plausible pathways for electrification, DER uptake, and customer behaviour, to inform network planning, flexibility needs, and investment decisions under uncertainty.                                                        |
|                               | <b>System needs and constraint forecasting</b>                  | The capability to identify, forecast, and spatially locate current and future short-term and long-term system needs and constraints across operational, tactical, and strategic timeframes, forming a common evidence base for planning, flexibility procurement, and connections decisions.    |
|                               | <b>Integrated network modelling</b>                             | The use of consistent, integrated models that represent interactions between load growth, DER behaviour, and flexibility responses to assess network performance, risks, and options under different scenarios.                                                                                 |
| Planning & Options Assessment | <b>Integrated asset management planning</b>                     | The coordination of asset, demand, DER, and flexibility considerations within planning processes to deliver least-cost, whole-of-system outcomes over the asset lifecycle, rather than treating traditional reinforcement and non-network options separately.                                   |
|                               | <b>Network options assessment</b>                               | A structured assessment of credible network and non-network options (including flexibility and operational measures) to address identified system needs, considering cost, risk, delivery certainty, resilience, and consumer outcomes.                                                         |
|                               | <b>Flexibility services procurement</b>                         | The capability to specify, procure, and contract flexibility services in a transparent and competitive manner, aligned to defined system needs and integrated with planning and operational frameworks.                                                                                         |
|                               | <b>Transparent planning outputs and constraints publication</b> | The publication of clear, accessible information on network constraints, future needs, and planning assumptions to support informed customer, market participant, and investor decisions and enable efficient participation in flexibility and connections processes.                           |
|                               | <b>Losses and efficiency optimisation</b>                       | The systematic consideration of opportunities to reduce technical losses and improve network efficiency through planning, operational practices, and the use of DER and flexibility where cost-effective.                                                                                       |

|                                | Function                                                         | Definition                                                                                                                                                                                                                                     |
|--------------------------------|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Connections                    | <b>Network access products and connections policy</b>            | A clear and internally consistent framework defining network access rights, connection products (including flexible or conditional access), and associated obligations, aligned with regulatory policy and system operation requirements.      |
|                                | <b>Connection application journey</b>                            | End-to-end processes that provide customers with clarity, predictability, and timely decision-making across the connection lifecycle, from early engagement in pre-application through to offer, commissioning and post-connection compliance. |
|                                | <b>Connection pipeline and capacity management</b>               | The active management of current and prospective connection enquiries and committed capacity to ensure efficient utilisation of network headroom, visibility of future risks, and alignment with planning and flexibility approaches.          |
|                                | <b>Flexible connection products</b>                              | Connection arrangements that allow customers to connect earlier or at lower cost by accepting constraints or operational controls, supported by clear rules, monitoring, and customer protections.                                             |
|                                | <b>Proactive enablement of DER and electrification uptake</b>    | Anticipatory actions taken to remove avoidable network barriers to DER and electrification, including forward investment, process improvements, and use of flexibility, consistent with long-term consumer value.                              |
| Flexibility Market Development | <b>Interface with market facilitators</b>                        | The operational and governance arrangements that enable effective coordination between EDB and any flexibility market facilitator or platform, including role clarity, data exchange, and decision rights.                                     |
|                                | <b>Flexibility market design</b>                                 | The specification of flexibility products that are clearly linked to system needs, deliverable by participants, and resilient under different operating conditions, while providing value for consumers.                                       |
|                                | <b>Participant onboarding and pre-qualification</b>              | Processes to register, assess, and approve flexibility providers to ensure technical capability, compliance, and operational reliability prior to participation.                                                                               |
|                                | <b>Market access arrangements / platform participation rules</b> | The rules, standards, and participation requirements governing access to flexibility markets or platforms, ensuring transparency, non-discrimination, and regulatory compliance.                                                               |
|                                | <b>Flex settlement</b>                                           | Arrangements for validating delivery and settling payments for flexibility services in a timely, auditable, and transparent manner.                                                                                                            |

# Definitions

|                            | Function                                                 | Definition                                                                                                                                                                                                         |
|----------------------------|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Dispatch & Operations      | <b>Operational decision-making framework</b>             | A defined framework that sets out how operational decisions are made, prioritised, and escalated, including the role of flexibility, DER coordination, and interactions with system security obligations.          |
|                            | <b>Short-term forecasting for operations</b>             | Near-term forecasts of demand, generation, and network conditions that support real-time and day-ahead operational planning and activation decisions.                                                              |
|                            | <b>Operational planning</b>                              | The translation of planning and market outcomes into operational schedules, constraints, and readiness actions across relevant timeframes.                                                                         |
|                            | <b>Flex activation for real-time dispatch</b>            | The capability to issue, manage, and verify real-time or near-real-time flexibility activations to manage network constraints or operational risks.                                                                |
|                            | <b>DER coordination and system operational alignment</b> | The coordination of DER behaviour with network operational needs, including alignment with upstream system operators where relevant, to maintain secure and efficient system operation.                            |
|                            | <b>Network Capacity Optimisation</b>                     | The use of operational tools, DER capabilities, and control strategies to maintain voltage within limits while maximising network hosting capacity and efficiency for the full High-Voltage to Low-Voltage network |
| Cross-cutting capabilities | <b>Network tariff strategy</b>                           | The design and application of network tariffs to recover costs efficiently while providing signals that support desired customer behaviour, network utilisation, and system outcomes.                              |
|                            | <b>DER customer support</b>                              | Provision of clear, consistent information and support to customers regarding DER connections, operation, obligations, and opportunities to participate in flexibility arrangements.                               |
|                            | <b>Data management, publication and services</b>         | End-to-end governance of data quality, access, publication, and use to support operational needs, market participation, transparency obligations, and innovation.                                                  |
|                            | <b>Stakeholder engagement</b>                            | Structured engagement with customers, market participants, and other stakeholders to inform DSO decision-making and build trust in new roles and services.                                                         |
|                            | <b>Governance, transparency and conflicts management</b> | Governance arrangements that define accountabilities, manage conflicts between regulated and non-regulated roles, and ensure transparent, auditable DSO decision-making.                                           |

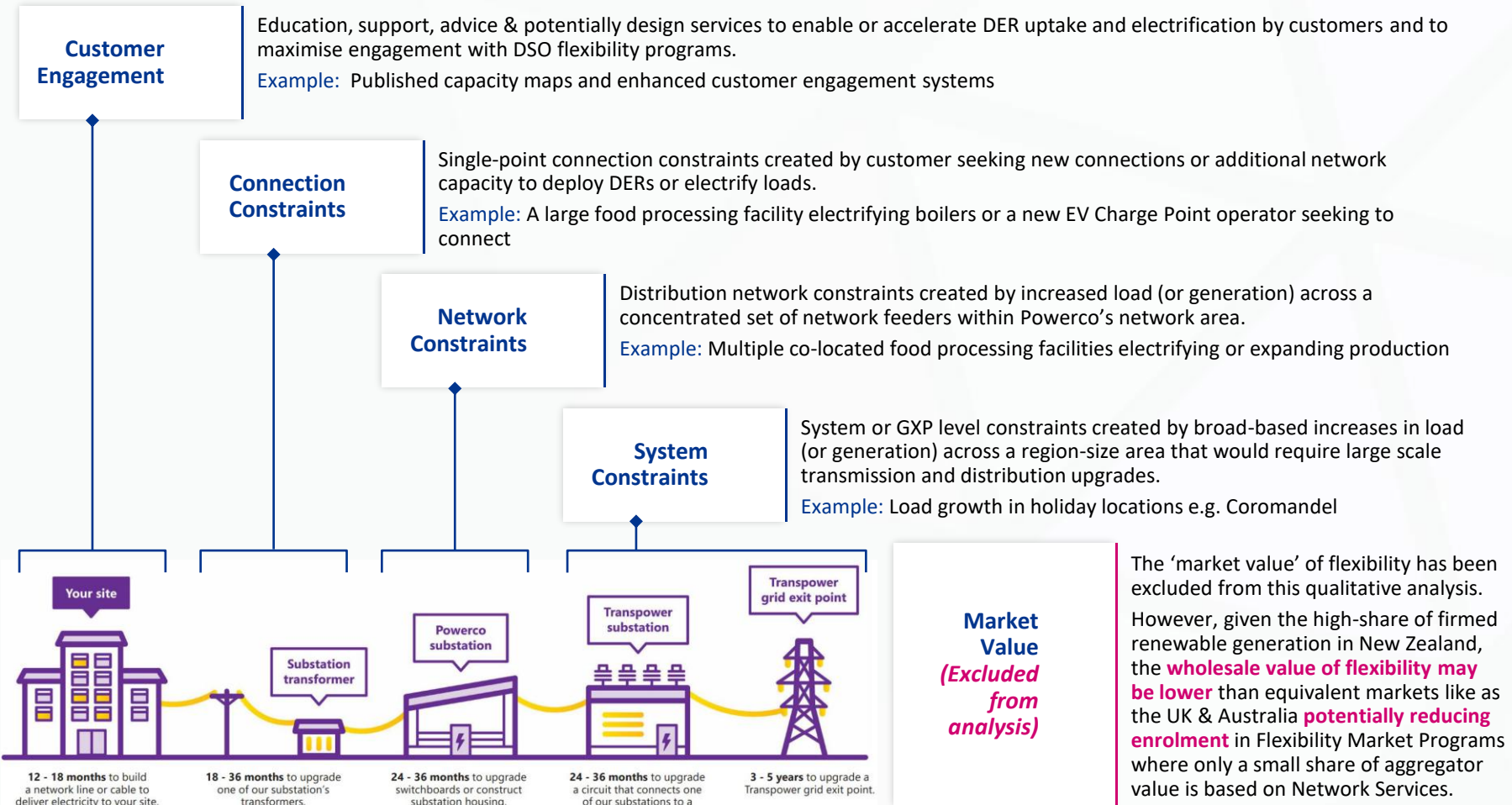
# To demonstrate the value of DSO and effectively shape DPP5 while working within operational constraints, Powerco must prioritise specific DSO initiatives.

## Program Prioritisation

Powerco is making significant progress developing fundamental enabling DSO capabilities such as forecasting, network visibility etc. however to demonstrate tangible value and therefore shape DPP5 regulations, Powerco must focus on scaling & operationalising **DSO Programs** that deliver direct and quantified value. These have been identified as:

- Customer Engagement
- Flexibility Services
- Flexible Connections
- Local Flexibility Markets
- Residential Flexibility
- Network Tariff Strategy

## To prioritise these initiatives and Baringa has considered network and customer value:



Powerco Electricity Asset Management Plan 2026 Timeframes for enabling complex connections

## To qualitatively assess the value of DSO to customers, Baringa has used Powerco's core customer segments with some DSO specific additions

|                              |  <b>Solar &amp; BESS</b>                                                                                                                      |  <b>Large C&amp;I Business</b>                                                                |  <b>Small &amp; Medium Business</b>                                     |  <b>EV CPOs &amp; Energy Services</b>                                                                    |  <b>Residential Customers</b>                                                    |  <b>Farms &amp; Remote Customers</b>                                                                                                                          |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Description</b>           | A growing customer segment as solar & BESS costs decline and 'dry year' hydropower risks have emerged as a major system-level concern.                                                                                         | Commercial and industrial customers connected to the MV or HV network seeking to electrify or expand capacity.                                                                 | Commercial customers connected to the LV or MV network, who require low-cost and highly standardised connection products & services.                       | An emerging customer segment delivering 'contestable' energy services such as EV Charge Point Operators who                                                                                 | Residential customers with existing load-controlled hot water who are slowly adopted DERs (primarily EVs and Solar PV)                                              | Customers or communities in remote locations who face additional reliability & resiliency challenges, and which pose higher costs to serve or upgrade for Powerco.                                                                               |
| <b>Key trends</b>            | To reduce connection costs, many projects utilise existing capacity on distribution networks and creating a potential source of flexibility.                                                                                   | These may be concentrated in low-diversity areas of network and have seasonally peaky demand profiles. High electrification costs are a sustainability and business challenge. | These customers are typically dispersed through mixed use areas and are only slowly adopting DERs.                                                         | require new & potentially large (>50kw) network connections but are more price responsive and sophisticated than typical C&I customers.                                                     | This market is primarily engaged through retailers and can be divided between home-owners and renters .                                                             | They may require bespoke solutions & programs e.g. Farmflex                                                                                                                                                                                      |
| <b>Customer Energy Pains</b> | <b>Connection cost</b>                                                                                                                                                                                                         | <b>Cumulative cost to electrify</b><br>(connection & tariffs)                                                                                                                  | <b>Cumulative cost to electrify</b><br>(connection & tariffs)                                                                                              | <b>Cumulative cost to electrify</b><br>(connection & tariffs)                                                                                                                               | <b>Affordability</b>                                                                                                                                                | <b>Affordability &amp; Resilience</b>                                                                                                                                                                                                            |
| <b>Potential Flexibility</b> | <b>High</b>                                                                                                                                                                                                                    | <b>Medium</b> (electrification)                                                                                                                                                | <b>Low</b>                                                                                                                                                 | <b>Medium</b>                                                                                                                                                                               | <b>Low</b> (excl. Hot water)                                                                                                                                        | <b>Low</b> (excl. SAPS)                                                                                                                                                                                                                          |
| <b>Regulatory Changes</b>    | <ul style="list-style-type: none"> <li>• BESS regulatory roadmap (Electricity Authority, 2025)</li> <li>• Electricity Industry Participation Code updates</li> <li>• Relaxation of EDB generation investment limits</li> </ul> | <ul style="list-style-type: none"> <li>• Solar consenting reform (Building Act changes)</li> <li>• Broader energy system reforms (MBIE)</li> </ul>                             | <ul style="list-style-type: none"> <li>• Solar consenting reform (Building Act changes)</li> <li>• Proposed retail export / buy-back frameworks</li> </ul> | <ul style="list-style-type: none"> <li>• Reforms to enable network connections via National EV Charging Strategy (MBIE)</li> <li>• Input Methodology and pricing reform (ComCom)</li> </ul> | <ul style="list-style-type: none"> <li>• Common Load Management Framework (AMI hot water)</li> <li>• 10kW Solar Export &amp; Dynamic Capacity Management</li> </ul> | <ul style="list-style-type: none"> <li>• Solar on Farms package</li> </ul> <p>Note: this is a high-level analysis for discussion only. Powerco is working on a separate customer surveys and VCR studies to further support the DSO strategy</p> |

Based on this analysis of the network and customer value of each DSO Program they have been prioritised based on this scale:

|                   |                                                                                                                                                                                                    |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Accelerate</b> | Standardise, scale and operationalise these programs to demonstrate broad-based value to customers and regulators. These programs must move beyond ad-hoc processes.                               |
| <b>Develop</b>    | Develop these capabilities without building these programs into standard workflows or critical systems to reserve limited capacity for priority programs                                           |
| <b>Pilot</b>      | Develop Powerco driven pilots or engage with those of 3 <sup>rd</sup> parties (e.g. ENA <b>Innovation projects</b> ) to learn & ensure future responsiveness should these capabilities be required |
| <b>Maintain</b>   | Maintain the current strategy related to these programs but continue to monitor market trends and customer expectations                                                                            |

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

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

# Readiness assessment

## Powerco DSO Strategy

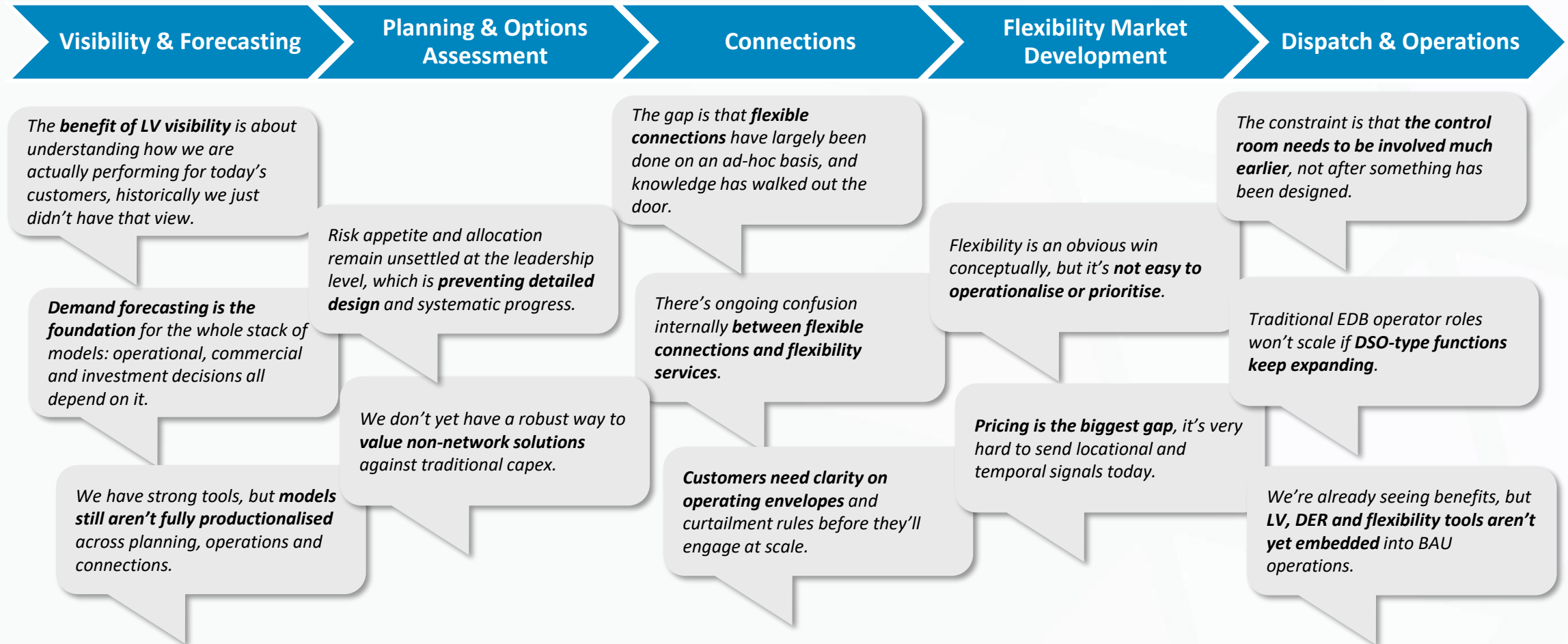
# 11 interviews were conducted with key stakeholders across the engagement.

## Interview approach and process

- We conducted targeted, role-based interviews with senior leaders and subject-matter experts across the operations, regulation, customer, asset management, digital functions and DSO programme to capture a holistic view of overall capability and DSO readiness.
- A common interview framework was applied across all sessions, with tailored prompts aligned to each interviewee's accountabilities (e.g. forecasting, connections, flexibility markets, operations, pricing, regulation) to ensure depth while maintaining consistency.
- Insights were synthesised across interviews to identify convergent themes, areas of misalignment, and systemic enablers or blockers to scaling DSO capabilities – see next slide.

| Key stakeholders interviewed |                                                           |                                                                     |                                   |
|------------------------------|-----------------------------------------------------------|---------------------------------------------------------------------|-----------------------------------|
| Name                         | Role                                                      | Topic                                                               | Interview date & time (NZST)      |
| <b>Ryno Verster</b>          | Director DSO Programme                                    | Customer intelligence                                               | Tue 14 <sup>th</sup> Apr, 11:30am |
| <b>Oli Vincent</b>           | DSO Programme Delivery Manager and Customer Insights Lead | Regulatory strategy                                                 |                                   |
| <b>Bernie Coster</b>         | DSO Programme Principal                                   | Demand forecasting                                                  | Tue 14 <sup>th</sup> Apr, 2:00pm  |
| <b>Sam Holliss</b>           | DSO Project Manager                                       | Asset and network modelling<br>Productised network models           |                                   |
| <b>Sam Van Der Sar</b>       | Lead DSO Engineer                                         | LV Visibility and Network<br>Management<br>Operational Capabilities | Tue 14 <sup>th</sup> Apr, 3:30pm  |
| <b>Haden Power</b>           | Network Operations Futures Manager                        | Network Operations Centre                                           | Wed 15 <sup>th</sup> Apr, 2:15pm  |
| <b>Neville Goodwin</b>       | DSO Programme Principal                                   | Flexible Market Development                                         | Wed 15 <sup>th</sup> Apr, 3:00pm  |
| <b>Adrian Lobb</b>           | DSO Retailer and Flexibility Manager                      | Flexible Network Pricing                                            |                                   |
| <b>Marius Botha</b>          | Senior Enterprise Architect                               | Business capability (Data and<br>digital architecture)              | Thu 16 <sup>th</sup> Apr, 4:00pm  |
| <b>Sam Van Der Sar</b>       | Lead DSO Engineer                                         |                                                                     |                                   |
| <b>Dan Robertson</b>         | Flexibility Product Manager                               | Flexible Connection Products                                        | Tue 21 <sup>st</sup> Apr, 2:30pm  |
| <b>Emma Wilson</b>           | Head of Regulatory, Policy and Markets                    | Regulatory Strategy                                                 | Wed 22 <sup>nd</sup> Apr, 1:00pm  |
| <b>Karen Frew</b>            | GM Electricity                                            | Asset Management                                                    | Wed 22 <sup>nd</sup> Apr, 3:30pm  |
| <b>Stuart Dickson</b>        | GM Customer                                               | Customer                                                            | Thu 23 <sup>rd</sup> Apr, 1:00pm  |
| <b>Lanne Torres</b>          | Project and Business Analyst Consultant                   | DSO architecture support                                            | Fri 24 <sup>th</sup> Apr, 12:00pm |

## The interviews highlighted Powerco's technical progress, but overall DSO readiness is currently constrained by commercial, operational and decision-making gaps.



# Powerco has already made good progress on the 'no-regrets actions' which in conjunction with parallel ENA initiatives have established a strong DSO foundation

| ENA Report no-regrets enablers                                                         |                                                                                                                                                                                                                                                                                                                   | Powerco progress                                                                                                                                           |                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                        |                                                                                                                                                                                                                                                                                                                   | Current DSO initiative                                                                                                                                     | Leading organisation                                                                  | Baringa assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 1.    | <b>Continue collaborative development of DSO-like functions</b> , do not delay action while waiting for the exact DSO model, roles & responsibilities to be set                                                                                                                                                   | <ul style="list-style-type: none"> <li>LV Visibility and Network Management</li> <li>Operational Capabilities</li> <li>Flexible Network Pricing</li> </ul> |    | <ul style="list-style-type: none"> <li>Powerco is actively collaborating with other NZ EDBs and the ENA across several DSO-related initiatives, particularly constraint mapping and flexibility standards. The ENA is also playing an active role.</li> <li>Network pricing and regulatory engagement are being used as levers to influence industry DSO evolution, while collaboration is strong, earlier operational involvement would accelerate towards BAU capabilities.</li> </ul>                                                         |
| 2.    | <b>Agree a robust method for valuing costs and benefits</b> of this system-wide transformation                                                                                                                                                                                                                    | <ul style="list-style-type: none"> <li>Regulatory strategy</li> <li>Data and digital architecture</li> </ul>                                               |    | <ul style="list-style-type: none"> <li>Powerco has developed early-stage constraint and flexibility valuation models, which provide a foundational view of system-wide trade-offs and network deferral value.</li> <li>Valuation of DSO benefits is being approached through joint ENA work on flexibility valuation</li> </ul>                                                                                                                                                                                                                  |
| 3.    | Develop a <b>preliminary plan that maps milestones</b> and persist/exit decision points to avoid overspending                                                                                                                                                                                                     | <ul style="list-style-type: none"> <li>LV Visibility and Network Management</li> <li>DSO Strategy Review</li> </ul>                                        |    | <ul style="list-style-type: none"> <li>A clear milestone-based delivery plan has been established for LV network visibility. Powerco recognises the need for a more robust, integrated DSO roadmap with external support being sought to refine sequencing and governance.</li> </ul>                                                                                                                                                                                                                                                            |
| 4.    | Develop <b>good practice principles to improve data availability</b> across the network                                                                                                                                                                                                                           | <ul style="list-style-type: none"> <li>Asset and Network modelling</li> <li>LV Visibility and Network Management</li> </ul>                                |    | <ul style="list-style-type: none"> <li>Congestion and capacity mapping initiatives have materially improved network data visibility, particularly at LV. LV visibility initiatives, supported by Gridsight and enterprise architecture principles, represent a significant step forward in network situational awareness.</li> </ul>                                                                                                                                                                                                             |
| 5.   | Develop <b>shared standards for:</b> <ul style="list-style-type: none"> <li><b>DER control and management</b>, including the protocols for control signals</li> <li>Passing <b>dynamic and static operating envelope</b> information</li> <li><b>Bid and offer structures for flexibility services</b></li> </ul> | <ul style="list-style-type: none"> <li>Customer intelligence</li> <li>Operational Capabilities</li> <li>Flexible Connection Products</li> </ul>            |    | <ul style="list-style-type: none"> <li>Powerco recognises DER control and management as foundational to flexible connections, with strong conceptual linkage to DOEs and SOEs.</li> <li>Operational capabilities support early development of control signals and envelope concepts, but implementation remains at a pilot or bespoke level.</li> <li>Powerco is contributing to industry standards for large-scale DG connections, with more limited involvement to date in standardising DOEs and mass-market flexibility products.</li> </ul> |
| 6.  | <b>Explore technology partners and solutions</b> for DSO functions/capabilities                                                                                                                                                                                                                                   | <ul style="list-style-type: none"> <li>Demand forecasting</li> <li>Data and digital architecture</li> </ul>                                                |  | <ul style="list-style-type: none"> <li>Powerco is actively pursuing bespoke AI build &amp; off the shelf load forecasting projects, engaging leading technology partners across demand forecasting, LV analytics and emerging DSO tools.</li> <li>The preferred approach favours modular, interoperable platforms over bespoke or monolithic builds, providing flexibility as DSO use cases mature.</li> </ul>                                                                                                                                   |
| 7.  | <b>Consider opportunities for joint DSOs/shared services</b>                                                                                                                                                                                                                                                      | <ul style="list-style-type: none"> <li>Asset and Network modelling</li> <li>Operational Capabilities</li> </ul>                                            |  | <ul style="list-style-type: none"> <li>Powerco is working with the ENA and EDBs on NZ-wide constraint mapping and data sharing initiatives. There is a clear strategic intent to position Powerco's platforms and capabilities to potentially offer DSO services to others over time.</li> </ul>                                                                                                                                                                                                                                                 |

# Our assessment of Powerco's DSO readiness activities provides an output to determining the DSO Roadmap sequencing and priorities.

## Assessment approach and process

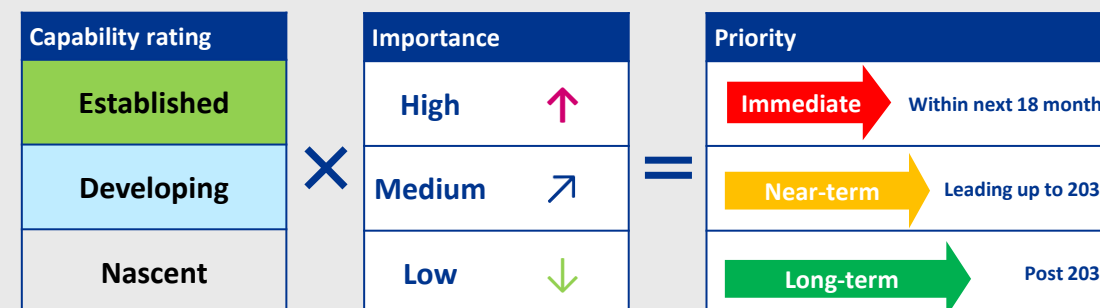
Each capability function was assessed on:

- **Current capability maturity** (Established, Developing, or Nascent), based on evidence from existing processes, documentation, and stakeholder discussions; and
- **Importance to the DSO strategy** (High, Medium, or Low), reflecting its criticality to delivering Powerco's strategic objectives and anticipated regulatory outcomes.

These two dimensions were combined to determine roadmap priority:

- **Immediate** where high-importance capabilities are nascent or developing to be delivered within the next 18 months,
- **Near-term** where sequencing is required but risks are manageable and should be completed by 2030, and
- **Long-term** where capabilities are lower priority or already embedded, which do not need to be fully developed by the 2030 DPP5 period.

## DSO readiness assessment and roadmap priority



| DSO Roadmap priority matrix |                                                                                                                                                | Importance to DSO strategy                                                                                                              |                                                                                                                                   |                                                                                                                                                     |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Capability maturity rating  |                                                                                                                                                | Low ↓                                                                                                                                   | Medium ↗                                                                                                                          | High ↑                                                                                                                                              |
| Scale                       | Definition                                                                                                                                     | <ul style="list-style-type: none"> <li>Limited impact on near-term DSO objectives and outcomes, and can be progressed later.</li> </ul> | <ul style="list-style-type: none"> <li>Important to delivering the DSO strategy but can be flexible in prioritisation.</li> </ul> | <ul style="list-style-type: none"> <li>Critical to delivering DSO strategy outcomes, with gaps posing risks to customers and performance</li> </ul> |
| Established                 | <ul style="list-style-type: none"> <li>Embedded in business-as-usual processes and demonstrably delivering outcomes today</li> </ul>           | Long-term →                                                                                                                             | Long-term →                                                                                                                       | Near-term →                                                                                                                                         |
| Developing                  | <ul style="list-style-type: none"> <li>Partially in place, with defined processes or pilots underway, but is not yet fully embedded</li> </ul> | Long-term →                                                                                                                             | Near-term →                                                                                                                       | Immediate →                                                                                                                                         |
| Nascent                     | <ul style="list-style-type: none"> <li>Early stage with activity exploratory, ad-hoc, or limited to initial planning.</li> </ul>               | Long-term →                                                                                                                             | Near-term →                                                                                                                       | Immediate →                                                                                                                                         |

# There is strong visibility and forecasting progress, the key opportunity is to shift to operational and market-ready applications, to fully support a more active DSO role.

| Function                                            | Existing Powerco initiatives                                                                                                | Strategy importance | Capability maturity rating and commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Priority for Powerco DSO roadmap |
|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| <b>Network visibility</b>                           | <ul style="list-style-type: none"> <li>LV visibility and network management</li> </ul>                                      | ↗                   | <ul style="list-style-type: none"> <li>LV visibility via Gridsight has delivered a step-change from historically patchy maximum demand and LV performance data, with clear early value identified for utilisation assessment, voltage issues and fault identification, though visibility is uneven across the network and additional MV network monitoring may be required to identify and managed constraints. Overall, initial deployment has been described as phenomenal at the ELT level.</li> <li>Operational use constrained by daily batch uploads to short-term planning due to AMI latency and OT constraints, with use by specialists rather than integrated into BAU planning, operations and connections workflows</li> </ul> | Long-term →                      |
| <b>Smart meter and third-party data integration</b> | <ul style="list-style-type: none"> <li>Asset and Network modelling</li> <li>LV Visibility and network management</li> </ul> | ↗                   | <ul style="list-style-type: none"> <li>Powerco has strong underlying data foundations, with smart meter data, network models and multiple datasets already ingested into the Powerco Analytics Data Lake, and an explicit preference for scalable commercial off-the-shelf (COTS) solutions to uplift future analytic and operational capability.</li> <li>Data architecture could be better structured for easier integration however, as resourcing constraints, and reliance on manual hand-offs between GIS, electrical models and systems may limit scalability and more dynamically updated workflows and data model management.</li> </ul>                                                                                          | Near-term →                      |
| <b>Future energy and DER uptake scenarios</b>       | <ul style="list-style-type: none"> <li>Demand forecasting</li> </ul>                                                        | ↗                   | <ul style="list-style-type: none"> <li>Demand forecasting is treated as the foundation of the modelling stack, with established short-term (operational), medium-term and long-term forecast horizons in place. Powerco are pursuing multiple avenues (AI and COTS) to further bolster the forecasting capabilities.</li> <li>DER uptake and two-way system scenarios are not yet formalised as a standardised, governed scenario product, with forecasts produced via parallel tools and no single consolidated “view of the future” used consistently across the business.</li> </ul>                                                                                                                                                    | Near-term →                      |
| <b>System needs and constraint forecasting</b>      | <ul style="list-style-type: none"> <li>DSO operational capabilities</li> </ul>                                              | ↑                   | <ul style="list-style-type: none"> <li>Powerco is viewed as an industry leader in congestion and capacity mapping, with LV insights and internal constraint models already informing utilisation discussions and early investment prioritisation decisions. Constraint forecasting is stronger in the long term than the short term.</li> <li>To improve, Powerco could automate the constraint and capacity models, and engage further with the control room to unlock stronger short-term insights.</li> </ul>                                                                                                                                                                                                                           | Near-term →                      |
| <b>Integrated network modelling</b>                 | <ul style="list-style-type: none"> <li>Asset and network modelling</li> </ul>                                               | ↗                   | <ul style="list-style-type: none"> <li>Core components are in place, including an in-house electrical network model, improving LV model accuracy, and an active GIS migration intended to better align connectivity and asset attributes.</li> <li>Model management and validation remain immature, particularly for MV assets and monitoring coverage, and key architecture and sequencing decisions are still unresolved.</li> </ul>                                                                                                                                                                                                                                                                                                     | Near-term →                      |

# Improved asset management practices should help future planning decisions deliver DSO-enabled least-cost customer-centred outcomes as complexity increases.

| Function                                                        | Existing Powerco initiatives                                                                                                | Strategy importance | Capability rating and commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Priority for Powerco DSO roadmap |
|-----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| <b>Integrated asset management planning</b>                     | <ul style="list-style-type: none"> <li>Asset and network modelling</li> <li>Investment efficiencies</li> </ul>              | ↑                   | <ul style="list-style-type: none"> <li>Powerco has an established asset management planning process and a clear strategic intent to embed DSO principles into core system planning, with acknowledgement that growth investment should consider non-network or deferral options and stronger utilisation of existing assets.</li> <li>However, this is not yet systematically embedded into BAU asset management processes, with a current reliance on individual judgement and local knowledge rather than a consistent, repeatable and quantified planning frameworks</li> </ul>                                                                  | <b>Immediate</b>                 |
| <b>Network options assessment</b>                               | <ul style="list-style-type: none"> <li>Productionised network models</li> <li>Investment efficiencies</li> </ul>            | ↗                   | <ul style="list-style-type: none"> <li>Currently being improved by constraint insights, demand forecasting and various flexibility product options, there is strong executive support for treating flexibility as alternative options to traditional network augmentation.</li> <li>Process is largely bespoke, with evaluation of non-network and flexibility-based options still variable and case-specific. Although parallel industry work (via the ENA) is planned to value flexibility which will accelerate Powerco's capability in this area and further support the regulatory push for DSO supporting incentives / regulations</li> </ul> | <b>Near-term</b>                 |
| <b>Flexibility service procurement</b>                          | <ul style="list-style-type: none"> <li>Flexible product development</li> </ul>                                              | ↑                   | <ul style="list-style-type: none"> <li>Powerco has practical experience procuring flexibility through tenders and bespoke arrangements (e.g. large C&amp;I customers, charge point operators), and benefits are well understood in terms of deferring augmentation and improving utilisation at specific constrained locations.</li> <li>Flex procurement remains at an early design stage and small-scale, with prioritisation required between flex services and other flexibility products (such as connections and pricing).</li> </ul>                                                                                                         | <b>Immediate</b>                 |
| <b>Transparent planning outputs and constraints publication</b> | <ul style="list-style-type: none"> <li>LV visibility and network management</li> <li>Flexible network pricing</li> </ul>    | ↗                   | <ul style="list-style-type: none"> <li>Powerco publishes a range of planning information that supports customer and stakeholder understanding of the network, and we consider their Asset Management Plans to be sufficiently detailed and transparent. Broadly, they are an industry leader in congestion / capacity mapping supporting informed customer and market decision-making.</li> <li>Published outputs could be more granular and made more accessible to their targeted customer base for flexibility products.</li> </ul>                                                                                                              | <b>Near-term</b>                 |
| <b>Losses and efficiency optimisation</b>                       | <ul style="list-style-type: none"> <li>LV visibility and network management</li> <li>Asset and network modelling</li> </ul> | ↓                   | <ul style="list-style-type: none"> <li>Powerco has established practices for managing network losses and efficiency through asset design and operational standards and considers losses and efficiency as part of standard asset management practice.</li> <li>Additional control room system updates (e.g. ADMS) will improve this capability</li> <li>While not considered a primary DSO driver, developing this capability further will increasingly support whole-of-system efficiency objectives and stronger linkage to flexibility, DER and dynamic planning decisions.</li> </ul>                                                           | <b>Long-term</b>                 |

# Moving from reactive connection processes to proactive approaches, using better visibility, flexible access products, and anticipatory planning will unlock benefits.

| Function                                                      | Existing Powerco initiatives                                                                                                                    | Strategy importance | Capability rating and commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Priority for Powerco DSO roadmap |
|---------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| <b>Network access products and connections policy</b>         | <ul style="list-style-type: none"> <li>Customer intelligence</li> <li>Flexible connection products</li> </ul>                                   | ↑                   | <ul style="list-style-type: none"> <li>Existing arrangements are defined and support a wide range of customer types but are primarily designed around firm access, with limited use of more flexible or conditional access products.</li> <li>Development of access products towards using flexibility, utilisation uplift and alternative terms to enable efficient access for large loads and generation is seen as an area for improvement as there is no single framework linking access products, pricing, reliability and flexibility being applied.</li> </ul>                                                                                                                                                                                                                                                       | Immediate →                      |
| <b>Connection application journey</b>                         | <ul style="list-style-type: none"> <li>Customer intelligence</li> <li>Flexible connection products</li> <li>Flexible network pricing</li> </ul> | ↑                   | <ul style="list-style-type: none"> <li>Actively improving the customer interface, with Salesforce-based tools, a growing customer hub (particularly for C&amp;I), and increased early engagement between operations, engineering and customers for complex DER and large load connections.</li> <li>The end-to-end journey remains reactive and resource-intensive, with limited standardisation towards optimal solutions and reliance on existing relationships and manual processes.</li> <li>If Powerco is to scale Flexibility Services and Flexible Connections then continued improvement in the customer engagement function through defined 'customer journeys / onboarding' processes is key.</li> <li>There is an existing 'Connections Transformation' project underway (falls out-side DSO program)</li> </ul> | Immediate →                      |
| <b>Connection pipeline and capacity management</b>            | <ul style="list-style-type: none"> <li>Demand forecasting</li> <li>LV visibility and network management</li> </ul>                              | ↓                   | <ul style="list-style-type: none"> <li>Powerco has improving visibility of utilisation and constraints through LV and congestion mapping initiatives, which provides a stronger foundation for understanding where capacity exists or is constrained.</li> <li>This process is not as developed for the MV and HV levels. Improvements could be considered to dynamically manage competing connection requests based on network needs and customer value however Powerco does not suffer from a huge connection backlog at this stage.</li> </ul>                                                                                                                                                                                                                                                                           | Long-term →                      |
| <b>Flexible connection products</b>                           | <ul style="list-style-type: none"> <li>Flexible connection products</li> </ul>                                                                  | ↑                   | <ul style="list-style-type: none"> <li>There are opportunities for flexible connections to unlock capacity and accelerate customer connections at the large C&amp;I customer level (as well as charge-point operators) and a subset of these customers are currently being offered flexible connections</li> <li>However, this process is bespoke and still at an early stage, with limited knowledge transfer, unclear boundaries between flex services and flex connections, and no standardised commercial framework for scaling.</li> </ul>                                                                                                                                                                                                                                                                             | Immediate →                      |
| <b>Proactive enablement of DER and electrification uptake</b> | <ul style="list-style-type: none"> <li>Customer intelligence</li> </ul>                                                                         | ↗                   | <ul style="list-style-type: none"> <li>Powerco is increasingly engaging with customers earlier, particularly large industrial, agricultural and C&amp;I customers where flexibility and utilisation benefits are highest.</li> <li>Not yet considered a defined resourced capability, with activity largely reactive to customer-initiated connection requests, rather than anticipatory at a local or regional level.</li> <li>This additional advisory capability could incentivise additional loads to connect in the long-term</li> </ul>                                                                                                                                                                                                                                                                               | Long-term →                      |

## Powerco's long-term flexibility market focus should be on understanding viability for credible mechanisms, if it is needed as a genuine planning tool for customers.

| Function                                                         | Existing Powerco initiatives                                                                                                                          | Strategy importance | Capability rating and commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Priority for Powerco DSO roadmap |
|------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| <b>Interface with market facilitator</b>                         | <ul style="list-style-type: none"> <li>Regulatory strategy</li> <li>Flexible market development</li> </ul>                                            | ↓                   | <ul style="list-style-type: none"> <li>Powerco has actively engaged with regulators, industry bodies and other EDBs on flexibility and future system operation, with a strong preference for collaborative, market-led evolution for the hybrid DSO model</li> <li>While engagement is strong, there is limited clarity on the enduring operating model and division of roles between Powerco, the market facilitator and third parties but this is an ongoing area of development.</li> </ul>                                                                                                                                                                     | Long-term →                      |
| <b>Flexibility market design</b>                                 | <ul style="list-style-type: none"> <li>Flexible product development</li> <li>Flexible market development</li> <li>Flexible network pricing</li> </ul> | ↑                   | <ul style="list-style-type: none"> <li>Powerco has accurately defined flexibility products using practical experience and provider input, with increasing clarity on deliverability, reliability and resilience requirements, particularly for large C&amp;I customers and network-specific use cases.</li> <li>Currently no clear prioritised design principles or standardised product definitions have yet been implemented.</li> <li>Additional early-stage engagement with control room operators is required to ensure that Flexibility contracts are designed to facility near real-time dispatch by control room systems (e.g. DERMS) in future</li> </ul> | Near-term →                      |
| <b>Participant onboarding and pre-qualification</b>              | <ul style="list-style-type: none"> <li>Flexible market development</li> <li>Customer intelligence</li> </ul>                                          | ↓                   | <ul style="list-style-type: none"> <li>Powerco has successfully piloted and worked directly with a small number of flexibility providers and large customers, demonstrating that the technical and commercial fundamentals of participation are viable.</li> <li>Onboarding is manual and resource-intensive limiting ability to expand participation beyond a small, known provider base. Pre-qualification standards for operational and commercial participation are not yet defined.</li> <li>Depending on the wholesale value of flexibility markets this responsibility may be shifted to retailers / aggregators</li> </ul>                                 | Long-term →                      |
| <b>Market access arrangements / platform participation rules</b> | <ul style="list-style-type: none"> <li>Regulatory strategy</li> <li>Flexible market development</li> </ul>                                            | ↓                   | <ul style="list-style-type: none"> <li>There is no defined market access model or platform strategy, meaning participation rules, transparency and interoperability remain unclear for scaling flexibility to a wider set of participants over time.</li> <li>While not immediately critical, this capability underpins long-term DSO functions. Overall, this is an area for industry (ENA) in conjunction with the EA to lead.</li> </ul>                                                                                                                                                                                                                        | Long-term →                      |
| <b>Flex settlement</b>                                           | <ul style="list-style-type: none"> <li>DSO operational capabilities</li> </ul>                                                                        | ↓                   | <ul style="list-style-type: none"> <li>Able to manage settlement through bespoke contractual arrangements where required, which is sufficient to support early pilots and small-scale flexibility procurement.</li> <li>Powerco has limited experience settling operational flexibility services overall and processes are not automated and are not designed to support higher transaction volumes, repeat dispatch or performance reconciliation at scale. We consider this capability can be developed iteratively should market volumes increase.</li> </ul>                                                                                                   | Long-term →                      |

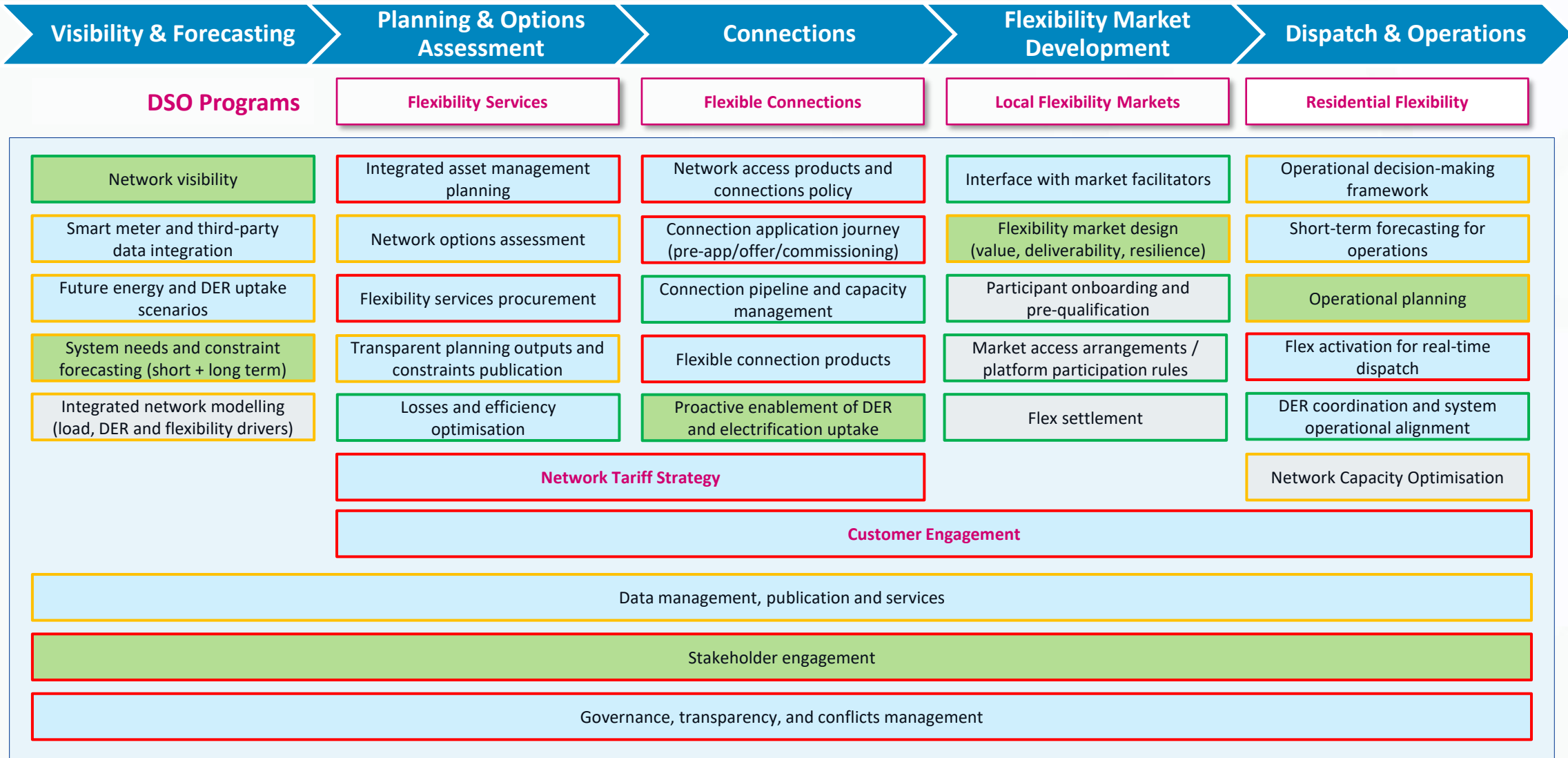
## Powerco has strong control room foundations, but must invest in a more dynamic, DSO-style operations environment as network and system complexity grows.

| Function                                                 | Existing Powerco initiatives                                                                               | Strategy importance | Capability maturity rating and commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Priority for Powerco DSO roadmap |
|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| <b>Operational decision-making framework</b>             | <ul style="list-style-type: none"> <li>DSO operation capabilities</li> </ul>                               | ↗                   | <ul style="list-style-type: none"> <li>Powerco has a well-established and safety-focused operational decision-making framework, with strong control-room discipline, clear escalation processes and growing involvement of operational teams early in DER and large connection projects</li> <li>Decision frameworks do not yet fully integrate DSO-specific decision rights, or triggers for when and how flexibility, DER or non-network options should be actively used in operations.</li> </ul>                                                                                                                                                                                                                                          | Near-term →                      |
| <b>Short-term forecasting for operations</b>             | <ul style="list-style-type: none"> <li>Demand forecasting</li> <li>DSO operation capabilities</li> </ul>   | ↗                   | <ul style="list-style-type: none"> <li>Short-term demand forecasting is under development and is considered critical to operations, with forecasts produced at 30-minute ICP resolution through to GXP to be used for operational planning, outage management etc.</li> <li>Forecasts are generated through multiple tools and pathways but are not yet fully consolidated into a single, trusted operational view integrated with control-room systems and processes. A COTS vs AI assessment is underway.</li> </ul>                                                                                                                                                                                                                        | Near-term →                      |
| <b>Operational planning</b>                              | <ul style="list-style-type: none"> <li>Flexible market dev.</li> <li>DSO operation capabilities</li> </ul> | ↑                   | <ul style="list-style-type: none"> <li>Operational planning processes (including outage planning, switching and system readiness) are proven and embedded, with increasing consideration of DER and system impacts informed by improved visibility.</li> <li>Reliant on expert judgement, with limited automation and integration between forecasting, network models and real-time operational tools and flexibility activation capabilities still emerging.</li> </ul>                                                                                                                                                                                                                                                                      | Near-term →                      |
| <b>Flex activation for real-time dispatch</b>            | <ul style="list-style-type: none"> <li>DSO operation capabilities</li> </ul>                               | ↑                   | <ul style="list-style-type: none"> <li>Powerco has demonstrated the ability to activate flexibility in specific contexts (e.g. solar farm curtailment, bespoke resilience initiatives), showing that targeted operational use of flexibility is feasible.</li> <li>Operational systems and processes are bespoke and not yet configured to support routine flexibility dispatch.</li> <li>Without operational 'ADMS/DERMS' systems, flexibility programs and dispatch strategies must be carefully designed</li> </ul>                                                                                                                                                                                                                        | Immediate →                      |
| <b>DER coordination and system operational alignment</b> | <ul style="list-style-type: none"> <li>DSO operation capabilities</li> <li>Regulatory strategy</li> </ul>  | ↓                   | <ul style="list-style-type: none"> <li>Powerco is actively coordinating with Transpower on hierarchy-of-control arrangements, and has established a small dedicated operational capability to integrate DERs into control-room thinking.</li> <li>Coordination remains arrangement-specific rather than systematic, with no clearly defined long-term model for DER coordination, role separation or shared system operation across DSO–TSO boundaries – however this capability development is being led by industry via the ENA and EA.</li> <li>This limited and paper-based coordination of services also applies to retailers for hot water dispatch and is being slowly improved through the Common Load Management Protocol</li> </ul> | Long-term →                      |
| <b>Network Capacity Optimisation</b>                     | <ul style="list-style-type: none"> <li>DSO operation capabilities</li> </ul>                               | ↗                   | <ul style="list-style-type: none"> <li>Voltage management is a core operational concern, but increased LV visibility has already improved detection and correction of over-voltage and PQ problems and early steps taken to improve fault identification and response.</li> <li>End-to-end voltage control strategy spanning planning, operations and customer solutions is currently limited.</li> </ul>                                                                                                                                                                                                                                                                                                                                     | Near-term →                      |

## There are opportunities to further formalise, and integrate underlying enablers to support greater transparency, market participation, and customer trust.

| Function                                                  | Existing Powerco initiatives                                                                                     | Strategy importance | Capability maturity rating and commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Priority for Powerco DSO roadmap |
|-----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| <b>Network tariff strategy</b>                            | <ul style="list-style-type: none"> <li>Flexible network pricing</li> </ul>                                       | ↑                   | <ul style="list-style-type: none"> <li>In a DSO context, network tariff strategy complements operational and market approaches by encouraging efficient use of network capacity, supporting electrification and DER uptake, and reducing or deferring network investment where possible, while remaining fair, transparent, and consistent with regulatory requirements. Powerco has progressed with industry engagement and has a pricing reform roadmap but this is yet to be implemented.</li> <li>Tariffs are not yet used as an active DSO lever to influence locational, temporal, or behavioural outcomes in a highly dynamic way. Further evolution of Powerco's tariff strategy could strengthen long-term alignment between pricing signals, flexibility use, and efficient network utilisation, particularly as DER and electrification increase.</li> </ul> | Immediate →                      |
| <b>Customer Engagement</b>                                | <ul style="list-style-type: none"> <li>Customer intelligence</li> </ul>                                          | ↑                   | <ul style="list-style-type: none"> <li>Powerco is making a clear shift toward earlier and more direct engagement with DER and large-load customers, supported by key account managers, closer collaboration between electricity and gas customer teams, and growing involvement of DSO teams in complex customer discussions.</li> <li>DER customer support remains fragmented, with no end-to-end customer journeys, and unclear ownership between customer, commercial and DSO teams, making the experience difficult to scale</li> </ul>                                                                                                                                                                                                                                                                                                                             | Immediate →                      |
| <b>Data management, publication and services</b>          | <ul style="list-style-type: none"> <li>Regulatory strategy</li> <li>DSO data and digital architecture</li> </ul> | ↗                   | <ul style="list-style-type: none"> <li>Powerco has invested in core digital foundations, including a central analytics data lake, enterprise architecture capability and a clear preference for modular, interoperable platforms to enable future DSO use cases.</li> <li>Data governance, structure and integration require improvement with architecture and resourcing constraints limiting Powerco's ability to publish reliable, customer-ready data products and support consistent decision-making across the business</li> </ul>                                                                                                                                                                                                                                                                                                                                | Near-term →                      |
| <b>Stakeholder engagement</b>                             | <ul style="list-style-type: none"> <li>Regulatory strategy</li> <li>Customer intelligence</li> </ul>             | ↑                   | <ul style="list-style-type: none"> <li>Powerco has strong and open relationships with regulators, industry bodies and peer EDBs, and is viewed as a constructive, trusted participant in discussions on DSO models, flexibility and future system operation.</li> <li>Engagement is often initiative-specific rather than driven by a clear, shared business narrative.</li> <li><b>Note:</b> while Powerco has established regulatory engagements, this is critical to shaping future DSO policy and so has been emphasised as an ongoing 'immediate priority'</li> </ul>                                                                                                                                                                                                                                                                                              | Immediate →                      |
| <b>Governance, transparency, and conflicts management</b> | <ul style="list-style-type: none"> <li>DSO operational capabilities</li> </ul>                                   | ↑                   | <ul style="list-style-type: none"> <li>Powerco has a strong governance mindset with high awareness of conflicts, ring-fencing obligations and the desire to demonstrate decisions are in customers' best interests.</li> <li>Governance arrangements for DSO decisions are not yet formalised, with limited transparency over decision rights, prioritisation and trade-offs. By developing advanced governance &amp; transparency processes, Powerco can demonstrate and prove the value of DSO to regulators.</li> </ul>                                                                                                                                                                                                                                                                                                                                              | Immediate →                      |

# Powerco DSO Readiness Assessment summary



# Immediate priorities focus on developing priority DSO programs, whilst near-term priorities operationalised programs and enablers allowing Powerco to scale flexibility.



## Immediate priority actions

1. **Network tariff strategy:** Develop an implementable pathway toward more cost-reflective locational and temporal signals, in coordination with retailers and consistent with regulatory settings.
2. **DER customer support:** Make customer intelligence to support efficient DER participation and reduce avoidable network costs over time.
3. **Integrated asset management planning:** Embed flexibility-aware decision logic into BAU asset planning to improve investment timing and prioritisation, supported by enhanced demand forecasting and production-grade network models.
4. **Flex services:** Transition flexibility procurement from pilots to repeatable BAU processes, enabling consistent assessment of non-network and deferral options alongside traditional investment.
5. **Network access products and connections policy:** Align policy with flexible connection options and emerging pricing signals, enabling customers to make informed trade-offs between cost, capacity, reliability, while maintaining non-discrimination & transparency.
6. **Connection application journey:** Standardise end-to-end connection journeys so customer intelligence and network needs lead to faster, more consistent offers.
7. **Flex connections:** Convert ad-hoc arrangements into scalable flexible connection products, with clear commercial terms, documentation and operational triggers.
8. **Flex activation for real-time dispatch:** Embed repeatable operational capabilities, so flexibility can be activated safely and consistently when constraints emerge.
9. **Stakeholder engagement:** Continue strong engagement with regulators and industry.
10. **Governance, transparency, and conflicts management:** Strengthen arrangements, clarifying decision rights and safeguards as flexibility scales.



## Near-term priority actions

1. **Data management, publication and services:** De-risk the DSO data and digital architecture initiative so Powerco Analytics Data Lake and supporting platforms become structured, integrated and usable for end-to-end DSO decision-making.
2. **Smart meter and third-party data integration:** Integrate data into the DSO data and digital architecture, to develop a single structured data foundation.
3. **Future energy and DER uptake scenarios:** Build out a scenario using customer intelligence, DER uptake studies and demand forecasting.
4. **System needs and constraint forecasting:** Outputs from LV visibility & network management and congestion/capacity maps into prioritised, needs statements for planning, connections and operations.
5. **Integrated network modelling:** Progress asset and network modelling toward production-grade use, resolving data quality and validation issues to support repeatable, defensible planning decisions.
6. **Network options assessment:** Formalise options assessment to reliably deliver investment efficiencies, against credible non-network and deferral alternatives in line with the Commission's expectations on prudent investment.
7. **Transparent planning outputs and constraints publication:** Publish clear, accessible planning outputs and constraint information to support informed customer and market participant decision-making.
8. **Flex product design:** Standardise performance requirements, and commercial terms to reduce transaction costs and improve market participation.
9. **Operational decision-making framework:** Define clear operational decision rights, triggers, and playbooks for the use of flexibility, DER, and non-network responses, ensuring consistent and auditable operational outcomes.
10. **Short-term forecasting for operations:** Consolidate into a single operational truth that the control room can consistently rely on to support safe and reliable real-time operation under increasing DER penetration.
11. **Network capacity optimisation:** Shift from reducing reliance on reactive interventions and avoiding unnecessary network augmentation.
12. **Operational planning:** Integrate forecasting and DER visibility so planned outages, switching, and constraint periods explicitly consider flexibility options.

# Roadmap planning

## Powerco DSO Strategy

# Powerco’s DSO roadmap must support both long-term and short-term strategic priorities without closing potential growth paths

1

Market insights & strategy overview

| Long-term Strategy                                                                                                                                                                                                                                                                                      |                                | Consequences                                                                                                                 | Next Steps                                                                                                                                                                                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Powerco will seek to ‘lead the pack’ in becoming an <b>Advanced Network Operator</b> pioneering new capabilities to accelerate and shape the role of DSOs in NZ. This ‘no regrets’ path allows Powerco to explore additional DSO Service Provider and Corporate Consolidation growth pathways in future | <b>DSO Service Provider</b>    | Certain DSO capabilities should be developed separately to core operations until a decision is made                          | 1. Study the economics of ‘DSO Service Provider’ business models and assess regulatory appetite for this model.                                                                                                                          |
|                                                                                                                                                                                                                                                                                                         | <b>Corporate Consolidation</b> | Powerco should progress a wide range of DSO programs providing future optionality but only focus on operationalising a few   | 2. Perform an analysis on the ‘economics of DSO’ to the core business and potential acquisition targets<br>3. Continue strong regulatory engagement                                                                                      |
| Short-term Strategy                                                                                                                                                                                                                                                                                     |                                | Findings                                                                                                                     | Conclusion                                                                                                                                                                                                                               |
| To become an ‘Advanced Network Operator’, <b>Powerco must prove the value of DSO to shape the DPP5 regulatory period</b> by delivering quantified network and customer value in the short-term.                                                                                                         | <b>Network Value</b>           | To deliver maximum value, Powerco should use DSO capabilities to resolve system & connection constraints                     | Powerco should focus on the <b>Flexibility Services</b> and <b>Flexible Connection Programs</b> as these address short-term customer and network challenges and therefore demonstrate the value of DSO to regulators in advance of DPP5. |
|                                                                                                                                                                                                                                                                                                         | <b>Customer Value</b>          | Powerco can provide the most value to larger Solar & BESS and C&I customers who experience network cost impacts most acutely |                                                                                                                                                                                                                                          |

**Powerco's DSO roadmap must support both long-term and short-term strategic priorities without closing potential growth paths**

## 2

# Readiness Assessment

After conducting the DSO readiness assessment, we consider Powerco is well-positioned to progress toward an Advanced Network Operator model.

[illegible]

## Summary

## Strengths

- Strong progress has been made on developing broad-based DSO enablers
- Powerco is developing many different DSO Programs in parallel to address almost any customer & network challenge

## Weaknesses

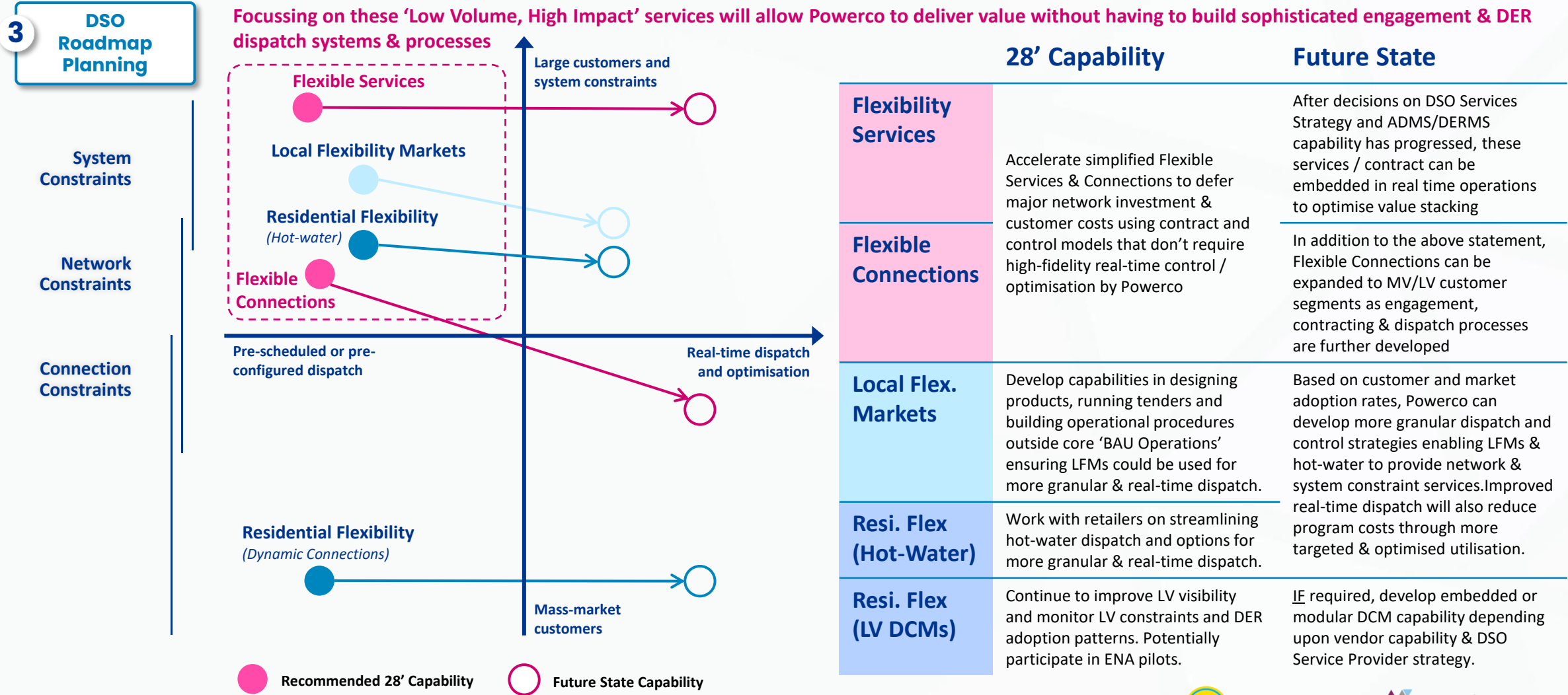
- There is limited organisational capability to develop scaled and systematised flexibility services with real-time dispatch
- Several DSO initiatives are still bespoke, manually executed or reliant on individual expertise, constraining repeatability and BAU transition.

## Constraints

- Decision-making frameworks, governance and ownership across planning, operations and commercial functions are not yet fully aligned to support scaled DSO delivery
- Until a decision on 'DSO Services Provider' is made, Powerco should not deeply embed DSO functions in the business

**Conclusion:** Powerco should focus on 'low volume, high value' DSO Services that deliver immediate customer and network value. Work should continue on key programs and foundational initiatives as identified in the INTSA application. These initiatives will support the multi-phased evolution to deliver more advanced real-time services over time. In parallel, longer-term initiatives such as Network Tariff Strategy and operating model clarity must be progressed to not close future growth paths.

# Based on Powerco’s DSO strategy, an evaluation of ‘high value’ DSO services and an assessment of current readiness Baringa recommends this high-level DSO Roadmap



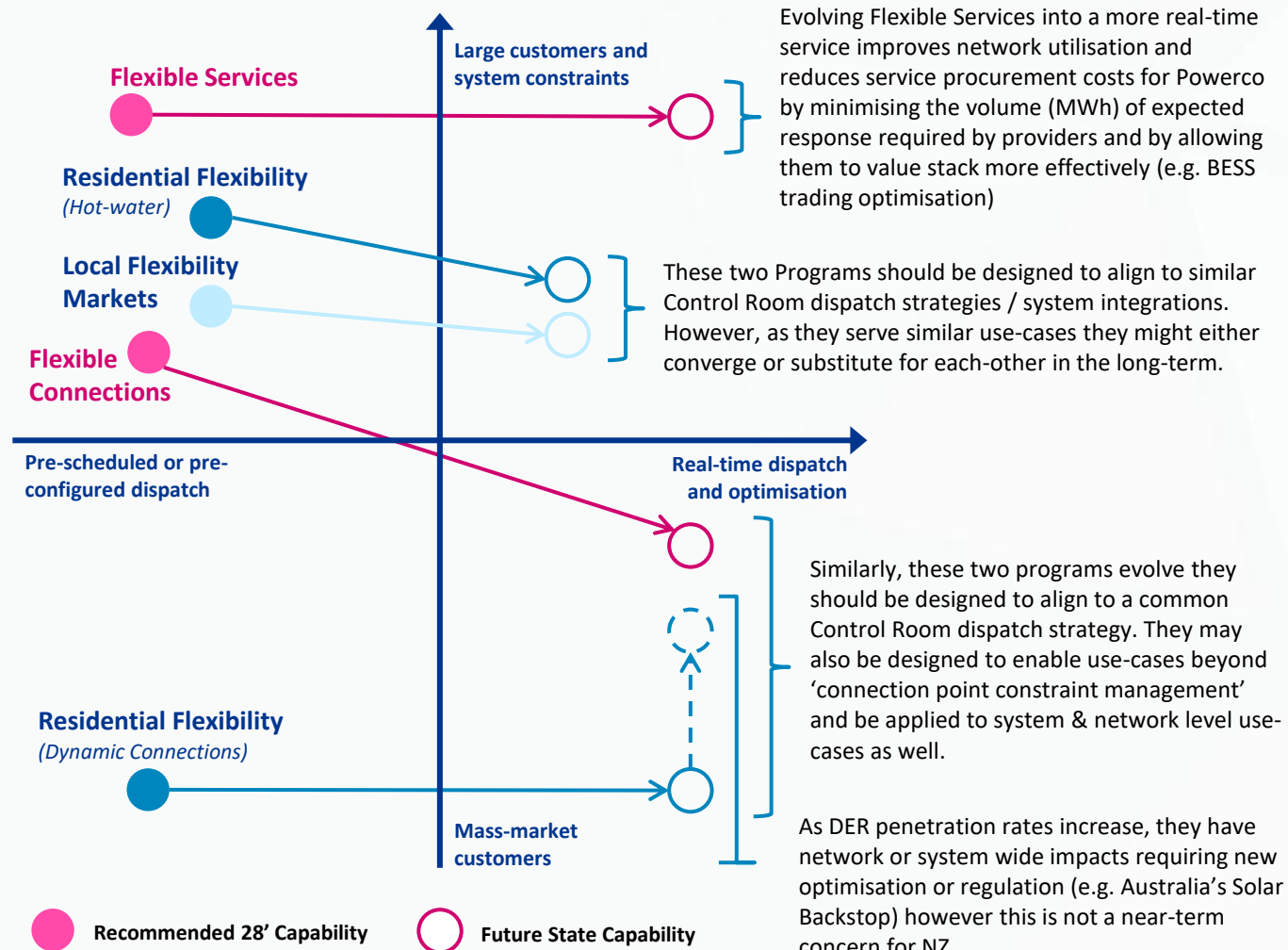
# As the NZ market & regulatory structure evolves the prioritisation and use-cases applied to each of Powercos DSO Programs may change over time.

3

## DSO Roadmap Planning

Powerco already has good visibility of the HV network and can monitor, control and automate dispatch using existing SCADA capability before a DERMS is deployed

Powerco is building LV visibility but with low DER-penetration and high ADMDs LV constraints are not a significant concern but LV DER dispatch will eventually need new capability



## DSO Program Evolution

This report recommends a focus on a few high-priority DSO Programs based on current network and customer priorities. However, Powerco should continue developing foundational capabilities across all DSO Programs because:

- 1. Risk Reduction:** It ensures Powerco is highly adaptable and can protect both Powerco's business and customers from sudden & unforeseen changes. E.g. a fuel crisis that accelerates EV adoption.
- 2. Corporate Consolidation:** If Powerco acquires a new network, different DSO Programs may provide greater value than those developed for Powerco's current service territory.
- 3. Program Cost Optimisation:** As the system evolves Powerco may shift how much of each service is procured / utilised based on the network economics and the potentially for substitution between services. For example, Flexible Connection contracts could be extended to provide system level constraint services as needs arise.
- 4. Knowledge Sharing / Regulatory Influence:** As a leading Advanced Network Operator, Powerco can develop new capabilities that help other EDBs and inform how regulation is shaped.

# Annexure

## Powerco DSO Strategy

## Glossary of terms

| Term                | Description                                                                                                                                                                                                                                            |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CLMP                | Common Load Management Protocol, an industry framework governing the coordination and control of managed loads (e.g. hot water), supporting system and network operations through standardised interfaces and roles.                                   |
| Commerce Commission | New Zealand's economic regulator responsible for regulating electricity networks, including setting price-quality paths, approving Asset Management Plans, and assessing whether network investment is prudent and efficient.                          |
| DCM                 | Dynamic Capacity Management are when EDBs offer dynamic or flexible export limits as an alternative to the static connection limits.                                                                                                                   |
| DER                 | Distributed Energy Resources are typically smaller, decentralised generation units distributed across an energy system (such as rooftop solar PV), as opposed to large, centralised generation such as coal or nuclear power plants.                   |
| DERMS               | Distributed Energy Resource Management System, systems that enable monitoring, coordination and control of DER to support network operations, including the calculation and enforcement of operating envelopes and activation of flexibility services. |
| DSO                 | A Distribution System Operator securely operates and develops an active distribution system comprising networks, demand, generation and other flexible distributed energy resources (DER).                                                             |
| EA                  | Electricity Authority, New Zealand's electricity market regulator responsible for overseeing the wholesale and retail electricity markets, market rules, and system operation arrangements.                                                            |
| EDB                 | Electricity Distribution Business, an organisation responsible for owning, operating and maintaining the electricity distribution network and delivering regulated network services to customers.                                                      |
| ENA                 | Electricity Networks Aotearoa, the national industry body representing New Zealand's electricity distribution businesses and transmission interests.                                                                                                   |
| GXP                 | A point at which electricity is transferred from the transmission network to a distribution network                                                                                                                                                    |
| LFM                 | Local flexibility market, a mechanism through which flexibility services may be competitively procured at a local or regional level to address network constraints, subject to regulatory and market design decisions in New Zealand.                  |
| Market operator     | An entity responsible for operating and administering electricity markets, including system operation, dispatch and settlement (e.g. wholesale market functions), distinct from the distribution-level DSO role.                                       |
| SAPS                | Stand Alone Power Systems, an electricity supply arrangement where a customer or community is supplied independently from the interconnected distribution network, typically using local generation and storage                                        |
| TSO                 | Transmission System Operator, responsible for owning and operating the transmission network and maintaining system security at the transmission level.                                                                                                 |