Transpower's DR Programme

Unlocking EDB Value

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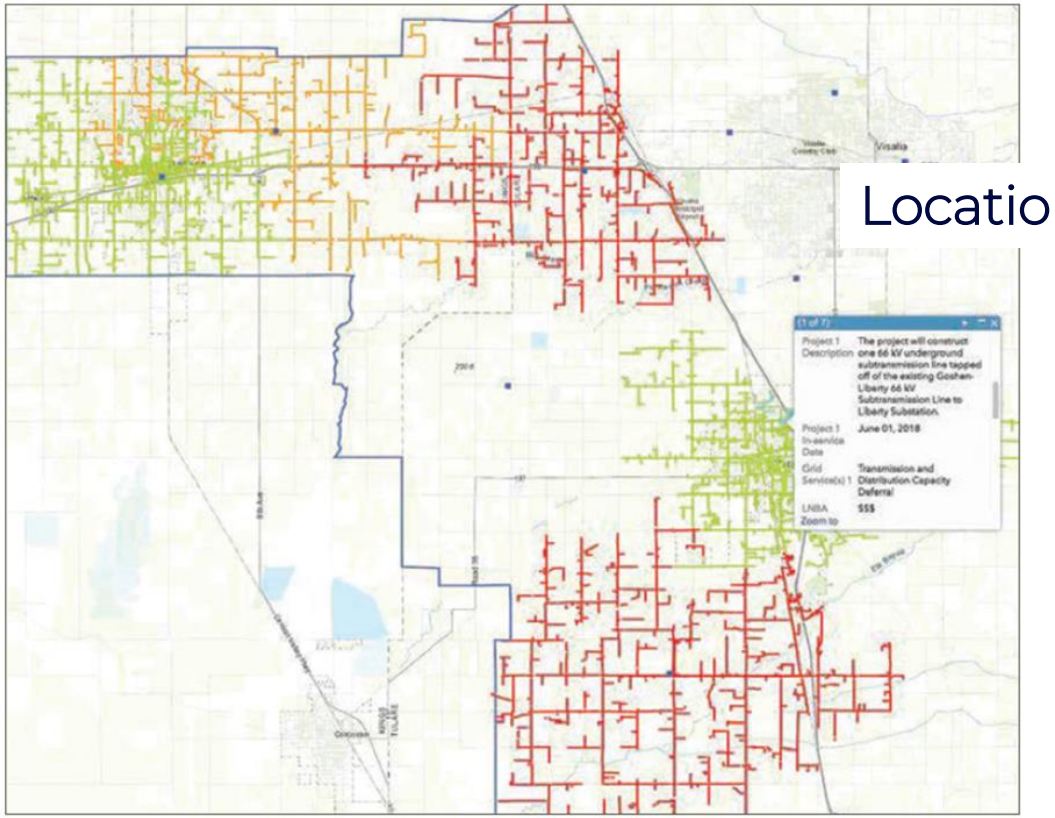
IPAG's Questions

- How do you think Transpower's DR programme has worked so far?
- How could Transpower's DR programme work better in the future?
- Are there any implications and/or learnings from Transpower's DR programme for how EDBs could run flexibility schemes?

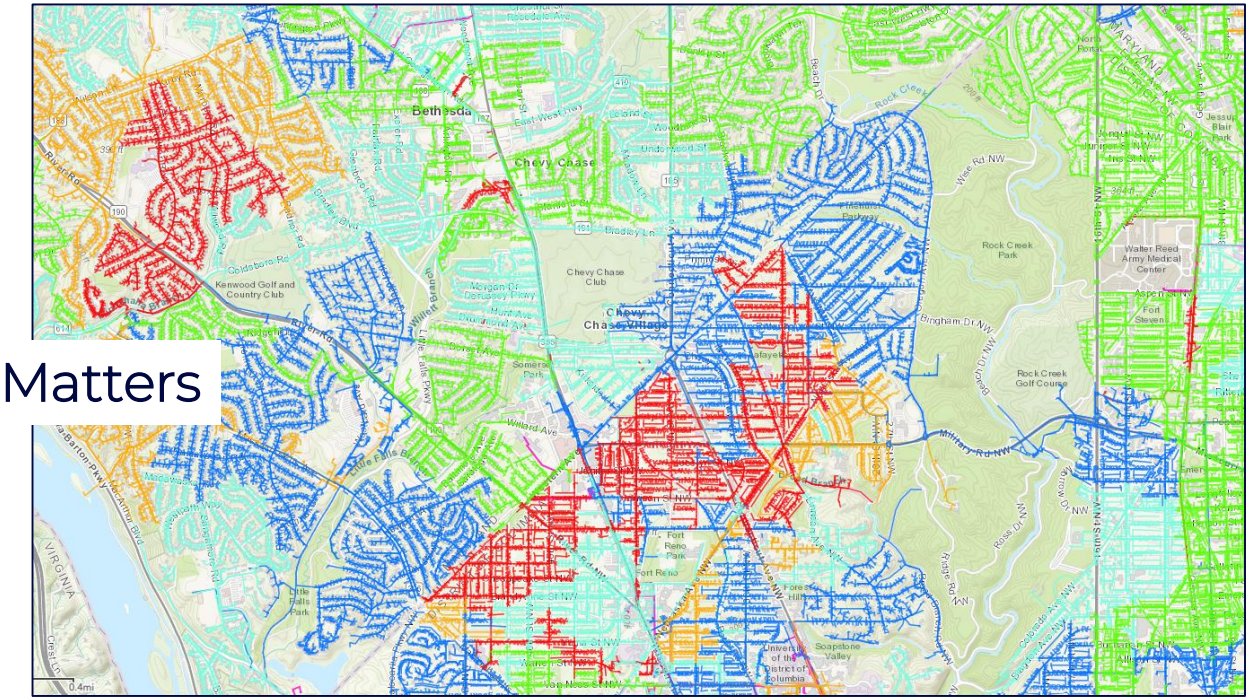
- I am going to focus on the third question

Why does an EDB want DER including flexibility?

High Deferral Value
Medium Deferral Value
Little or No Deferral Value



Location Matters



PEPCO – Hosting capacity - PV

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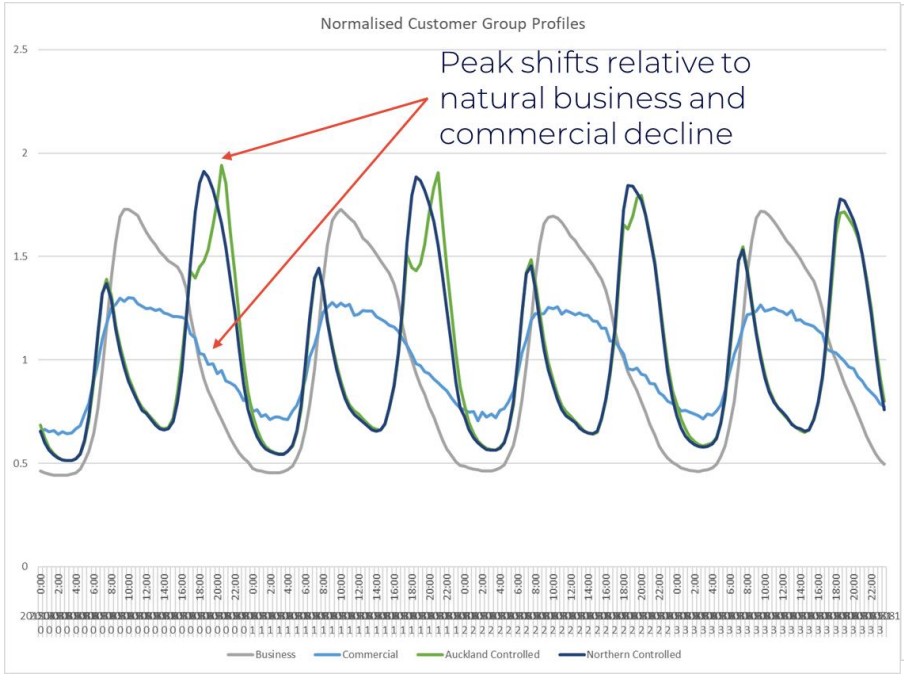
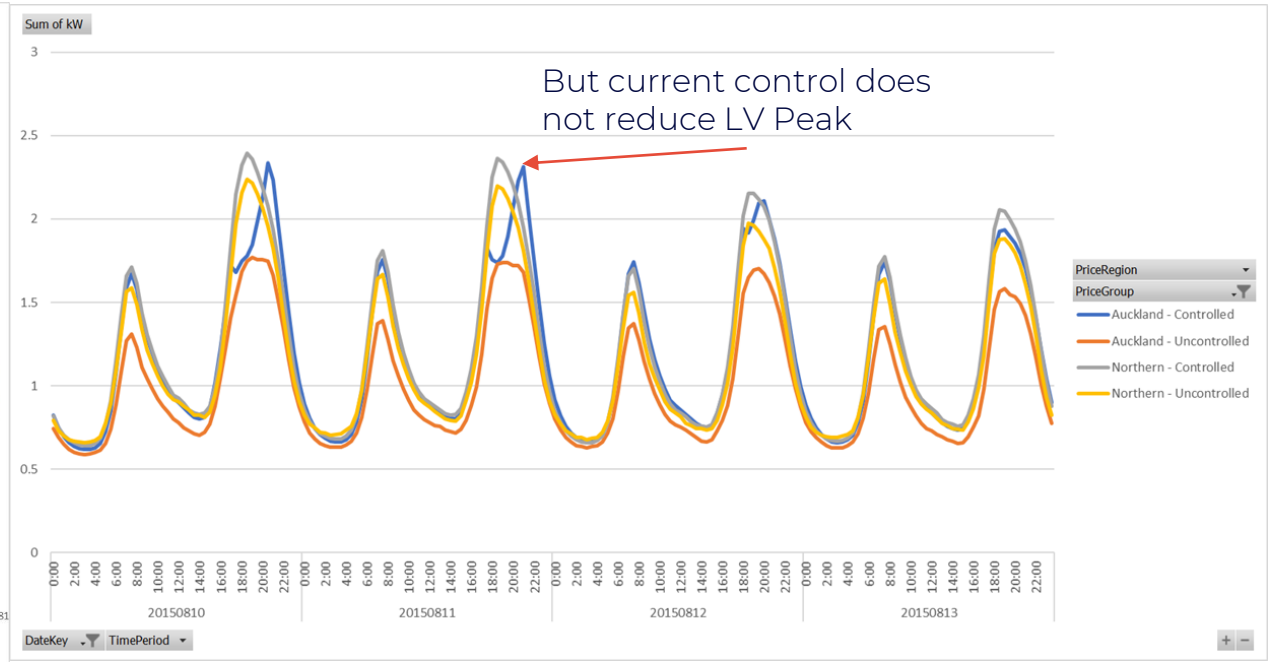
"Show me the ~~money~~ data" – Jerry Maguire

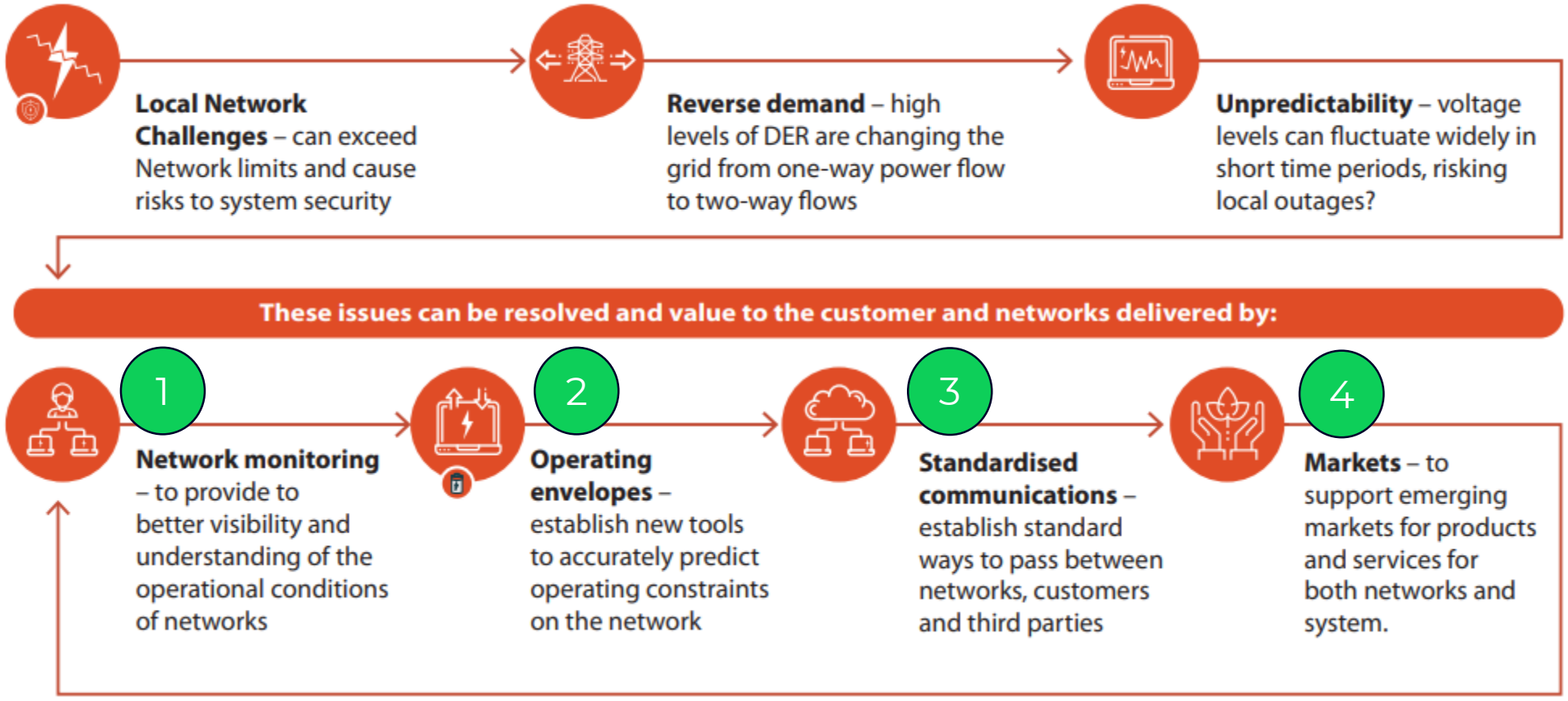
Why does this matter?

- What are the EDB constraints?
  - Limited/no visibility at LV level – but coming….
  - The network is not homogeneous
- Where are the opportunities for deferral?
  - Where will EV, PV batteries etc initially “cluster”
- GXP demand management is not the same as LV





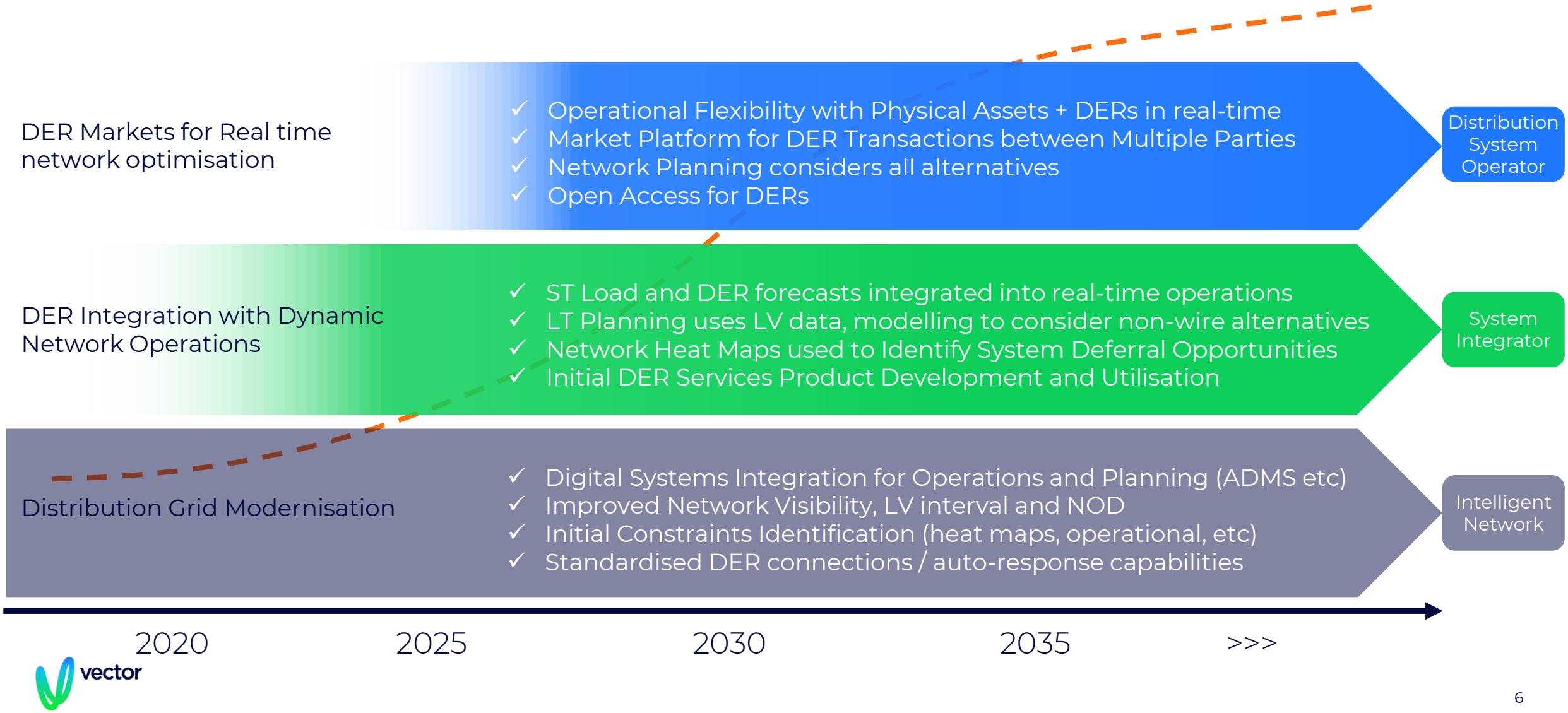
DER/Flexibility Roadmap



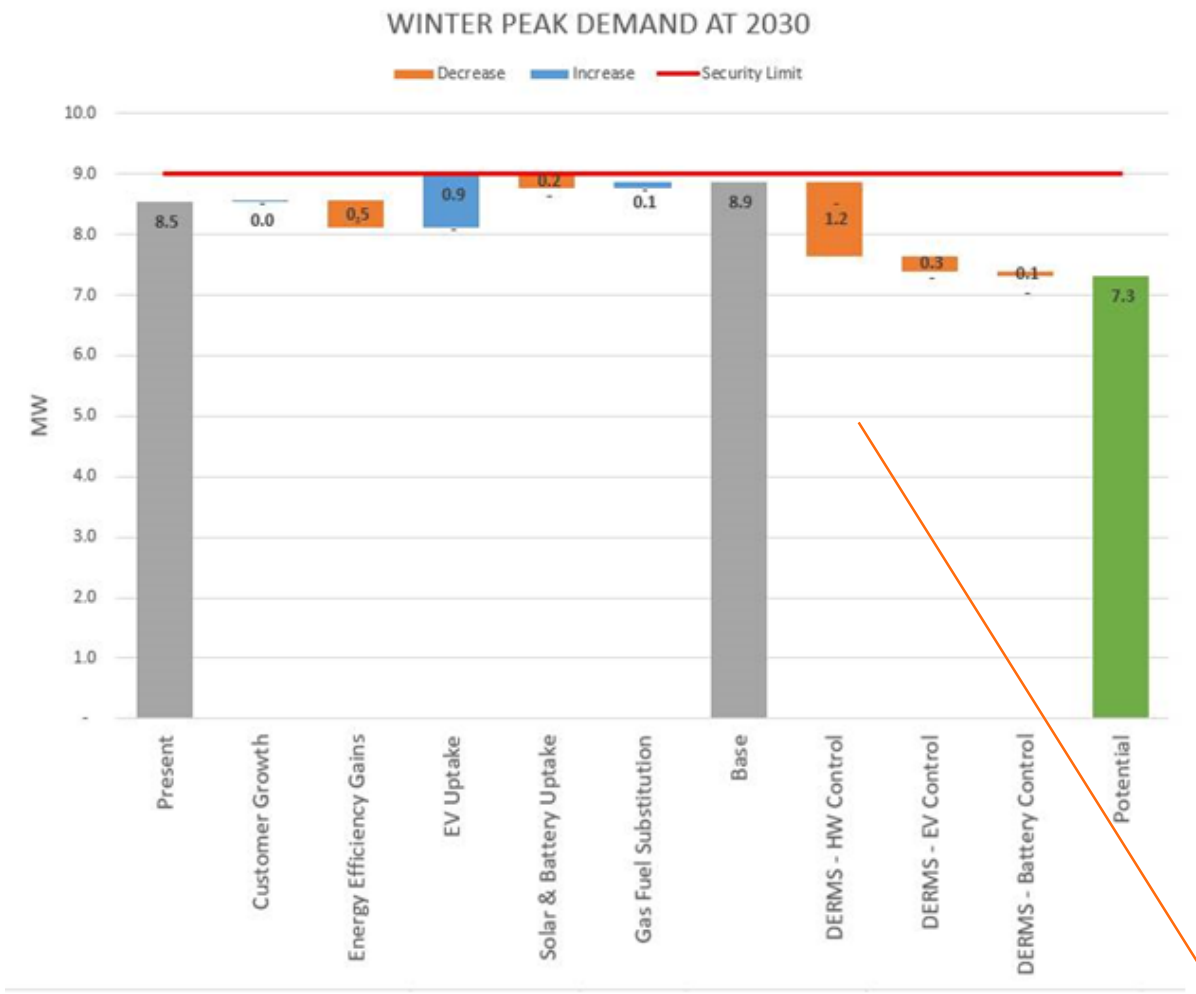
Network Monitoring is required to understand operating conditions, which leads to identifying beneficial network services and economic value.

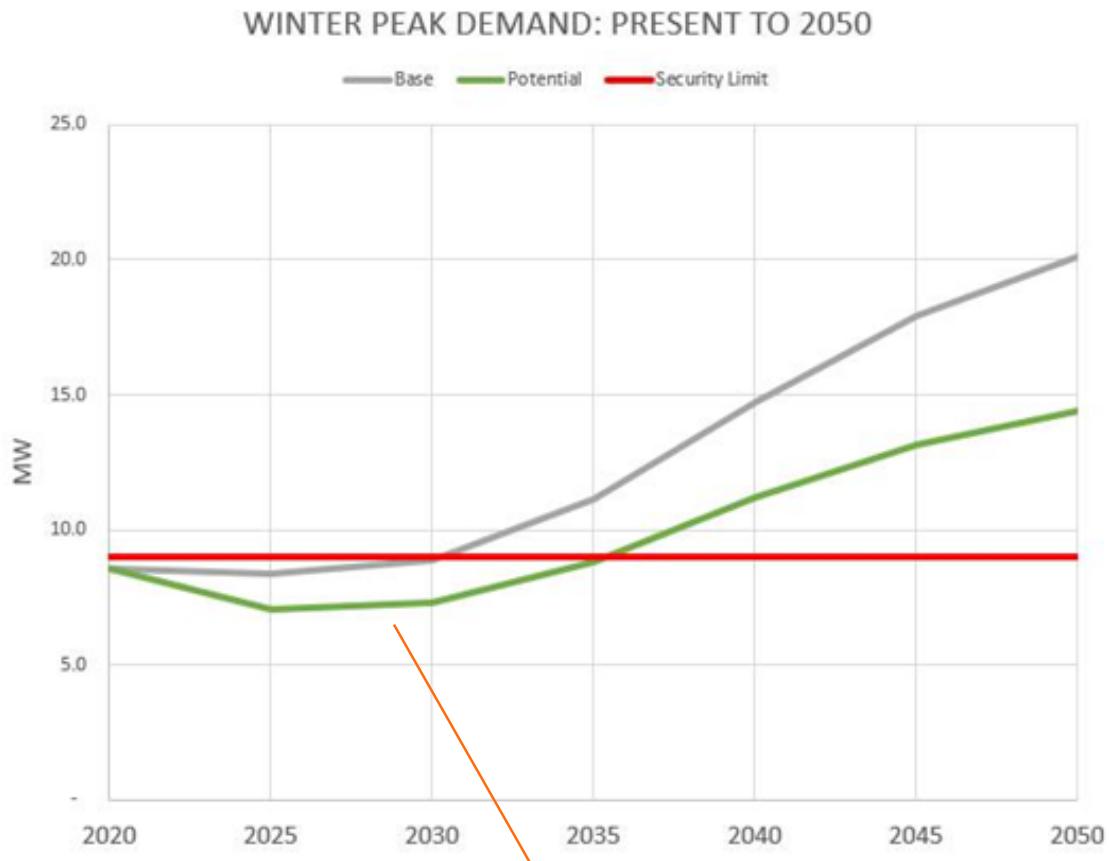
Source: AEMO / ENA Open Energy Networks Required Capabilities and Recommended Actions

What are the steps to a DSO?



Symphony Approach – Medium Growth





Targeted Demand Side Management / Load Control 'non-wired' solution – a credible option for deferring network capacity/reinforcement investment

Option Value – an example of the value inherent in deferring investment in network capacity until we are more certain of the underlying consumer behaviour and growth assumptions.

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What can EDBs learn?

- The transmission system is:
  - Highly monitored for demand – voltage, frequency, etc.
  - Highly monitored and controlled for generation - strict connection and performance requirements
  - Designed for two way power flows
  - Market integrated – security constrained economic dispatch, real time prices

- Vector's distribution system is:
  - Monitored for high/medium voltage
  - Information matters with ~560,000 ICPS / ~22,000 Dist Transformers / 110 Zone Substations
  - Manage via connection standards to limit cost of connection etc
  - Consumption at LV level is limited to aggregate monthly values but moving to ICP half-hourly data
  - Managing distributed generation by evolving connection standards
  - Adapting design to two way power flows
    - Must link system characteristics to network topography etc.
  - Distribution not directly linked to energy markets

- Prices versus payments – how does this fit in EDB revenue regulation?
- Lack of alternative options at edges of EDB networks creates opportunities for high DER services value (but also high variability for when / where / how long that value persists)
  - Getting it right is hard (see EU, Australia, UK, USA) -> Building Intelligent Networks is the no regrets first step

Sapere - DLMP

	Potential Nodes	Average ICPs/Node
GXP	179	11,167
Zone Sub	1,261	1,658
Distribution Sub	186,813	11
ICP	2,090,113	1

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Final Picture

This is not the future