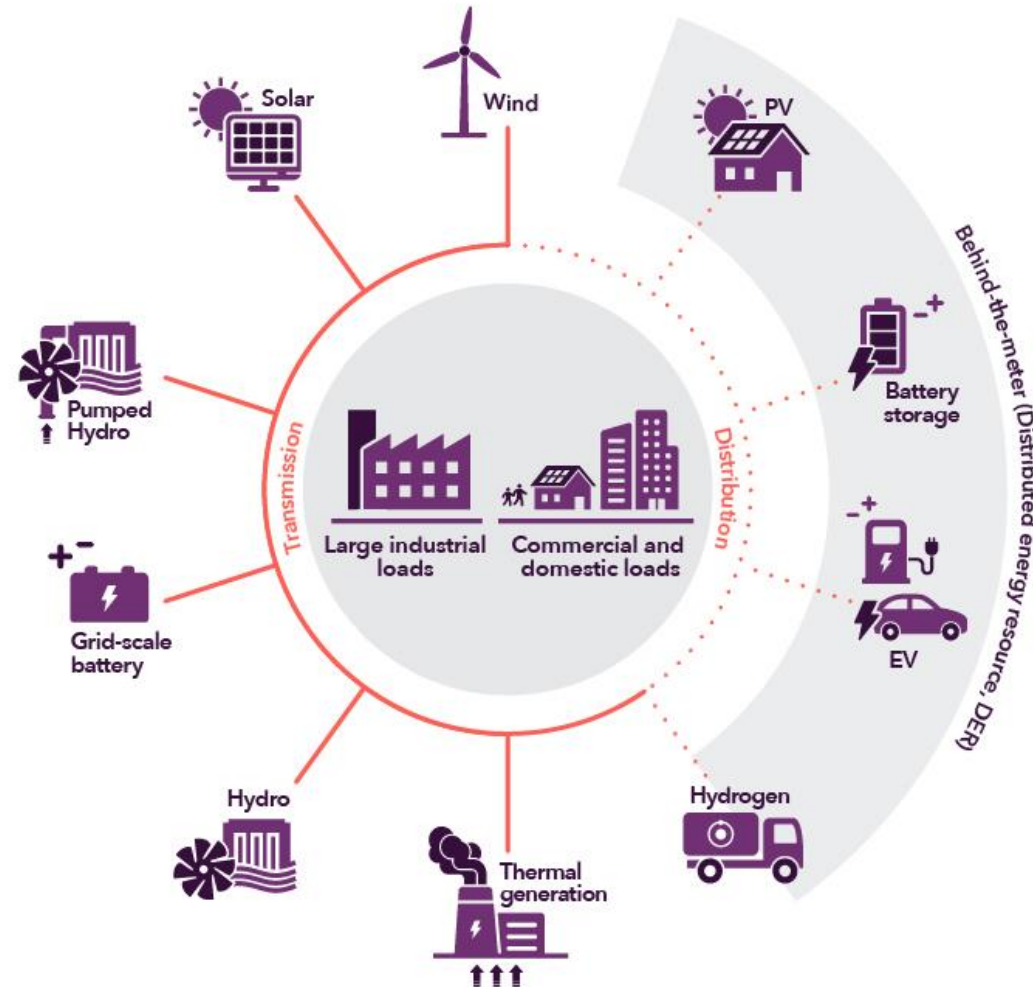


Forecasting and Planning in a broader energy ecosystem

September 2020

The integrated system plan



A whole-of-system plan for the NEM

Helps inform decision makers about future policy, investment and regulatory/market reform

ISP consultation, considerations and expected changes to 2040

Consultation

Considerations

Changes to 2040



Grid technologies and services



Consumer investment in DER



Emissions reductions



Market reforms




Economic growth




Government policies



Coal generation retirements
15 GW
or 63% of coal-fired generators



DER
+200%
supplying from 7% to 13-22% of total consumption

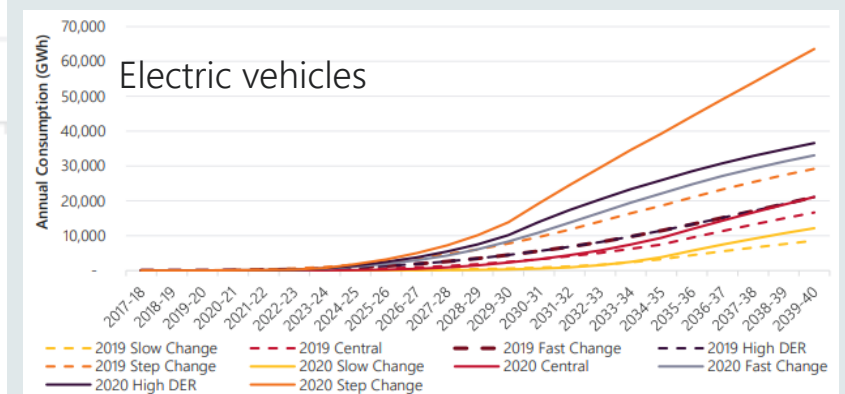
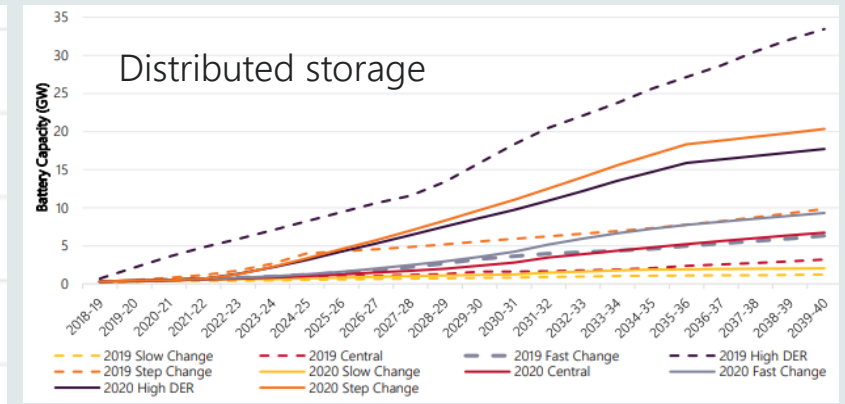
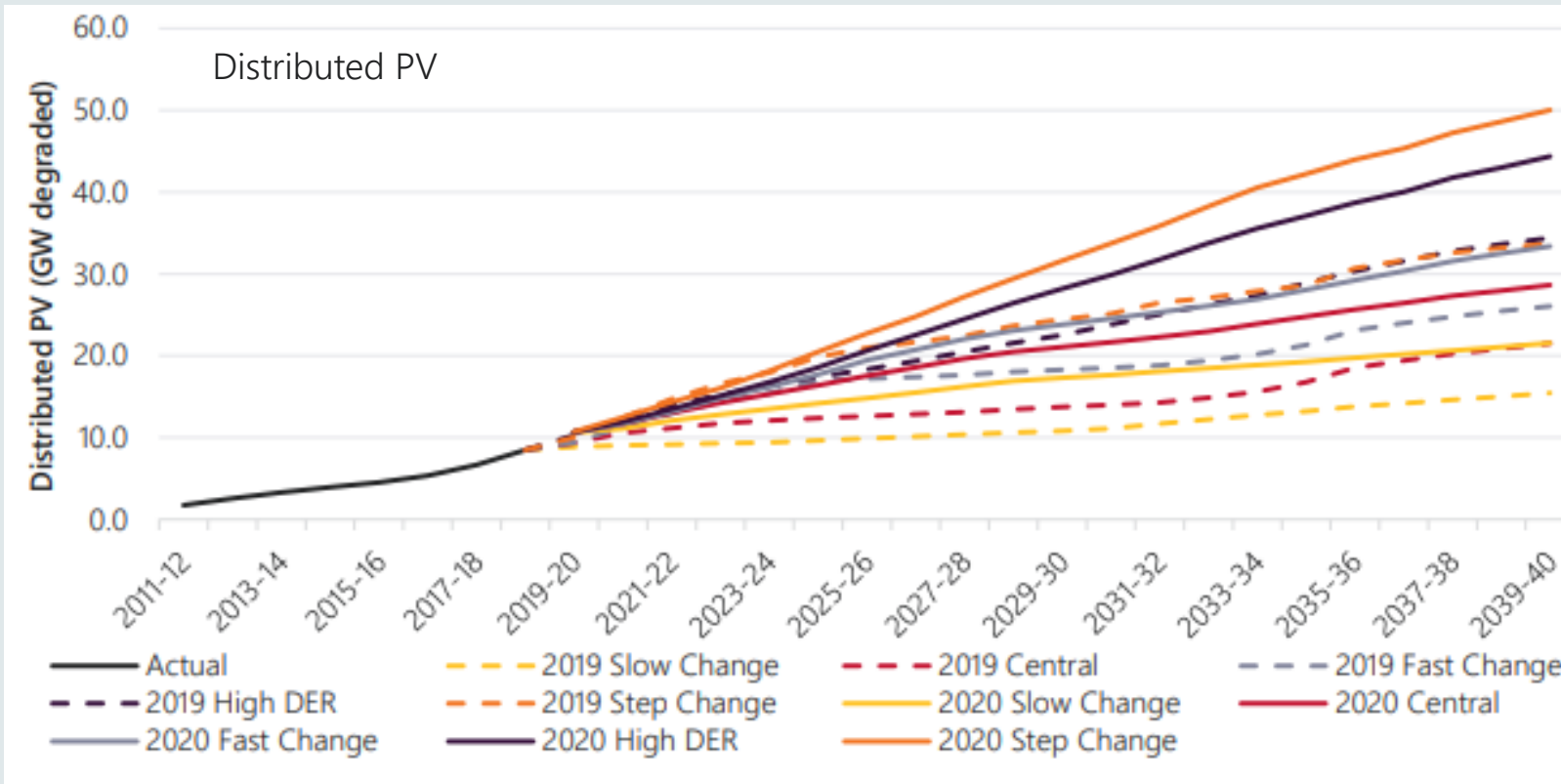


New VRE
26 GW
(grid-scale wind and solar)



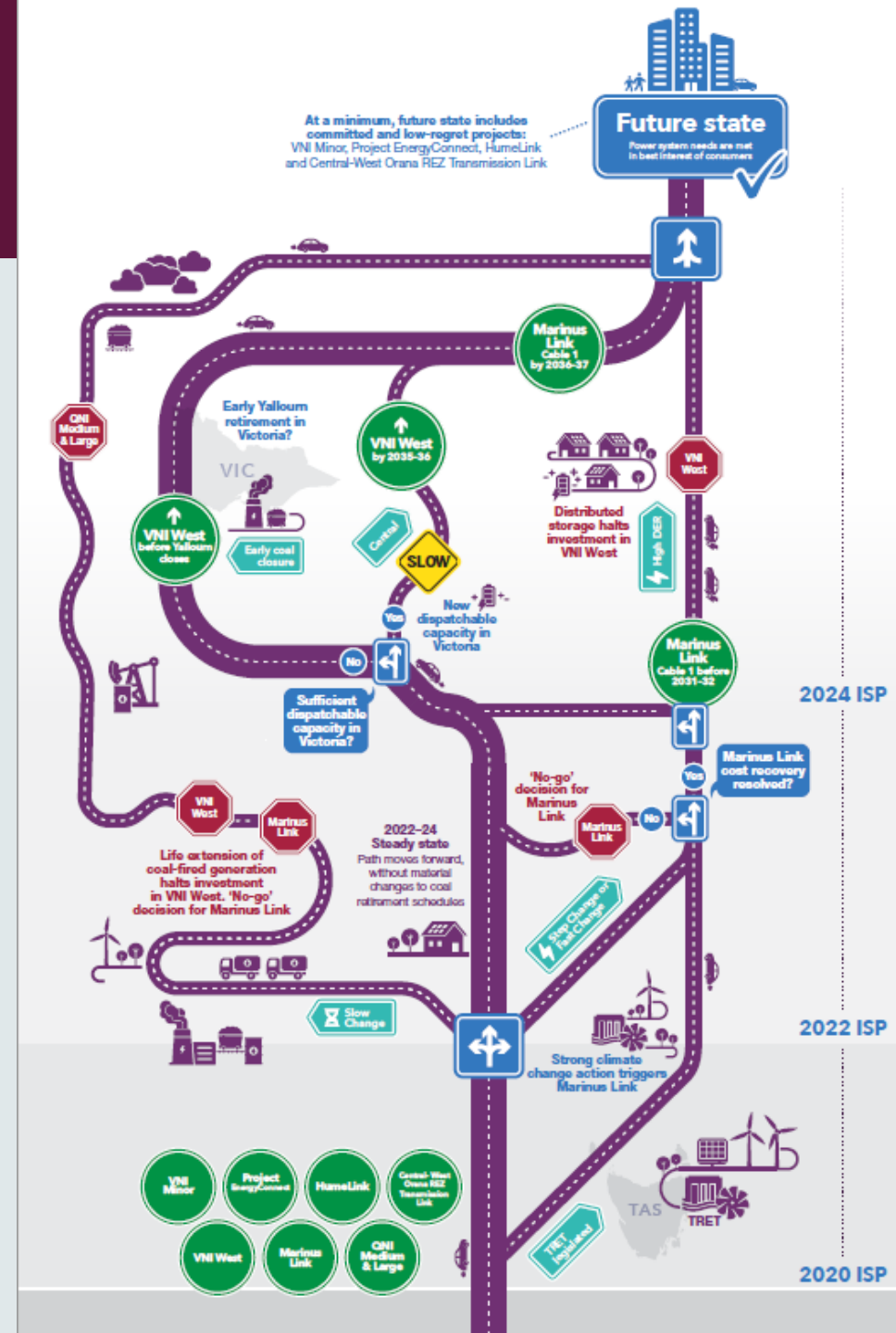
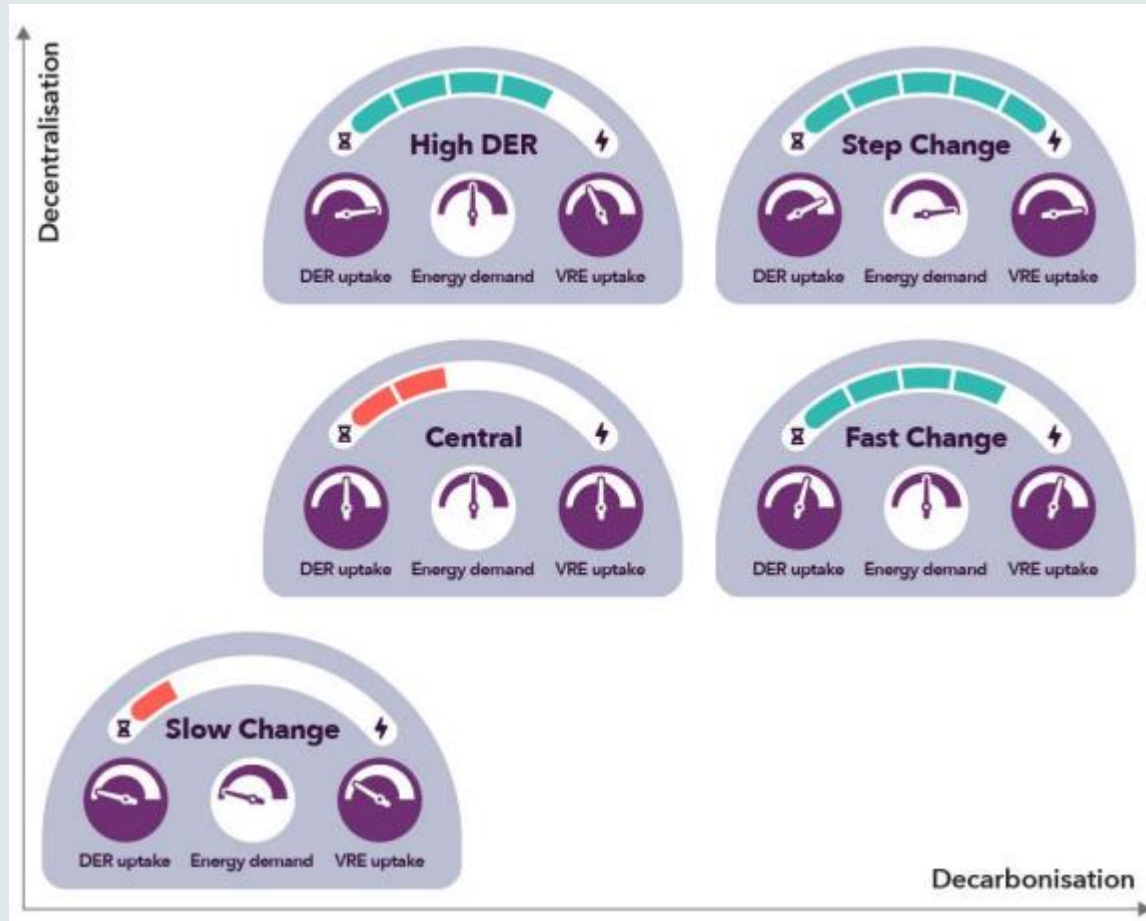
New dispatchable resources
6-19 GW
(pumped hydro, batteries, gas)

DER contribution significant, but highly uncertain



ISP - A dynamic roadmap with decision rules

Using scenario analysis



Continued uptake of distributed PV driving lower minimum demands



Opportunities for providers/aggregators of DER to offer new services:

- Increased PV controllability
- Load flexibility
- Storage
- Load shifting

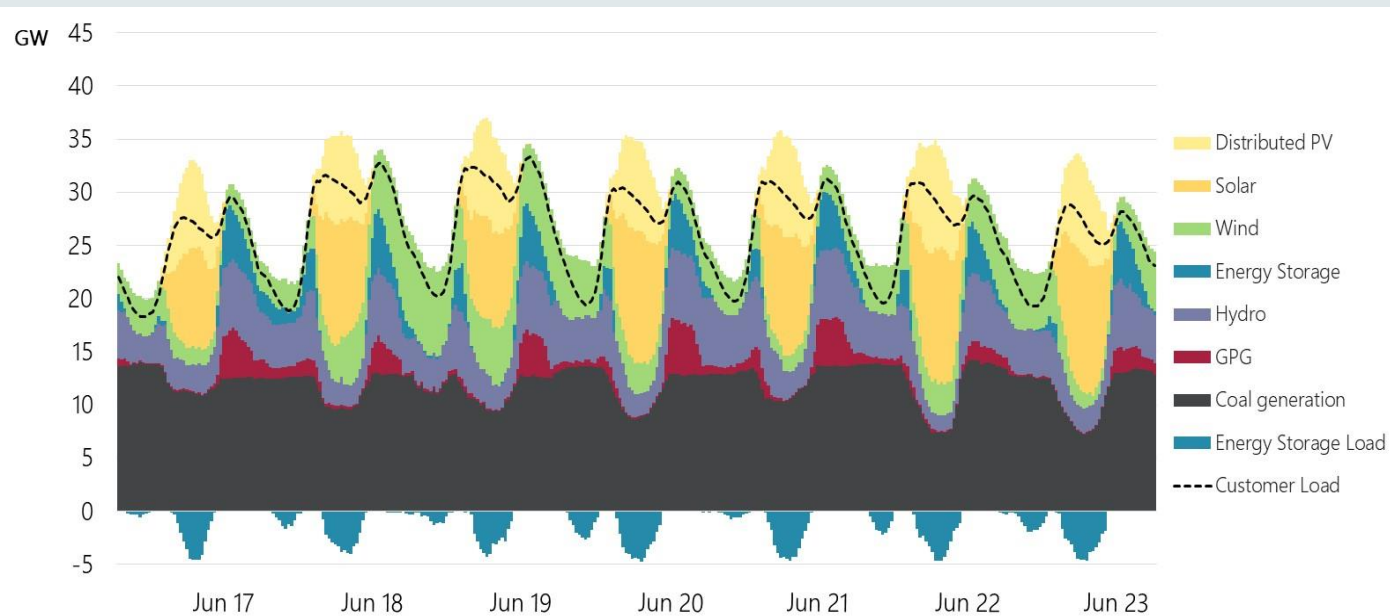
Plus, need for new distributed PV to have:

- suitable disturbance ride-through capabilities
- emergency PV shedding capabilities

...to be enabled under rare circumstances as a last resort to maintain system security

Sector coupling with gas and transport

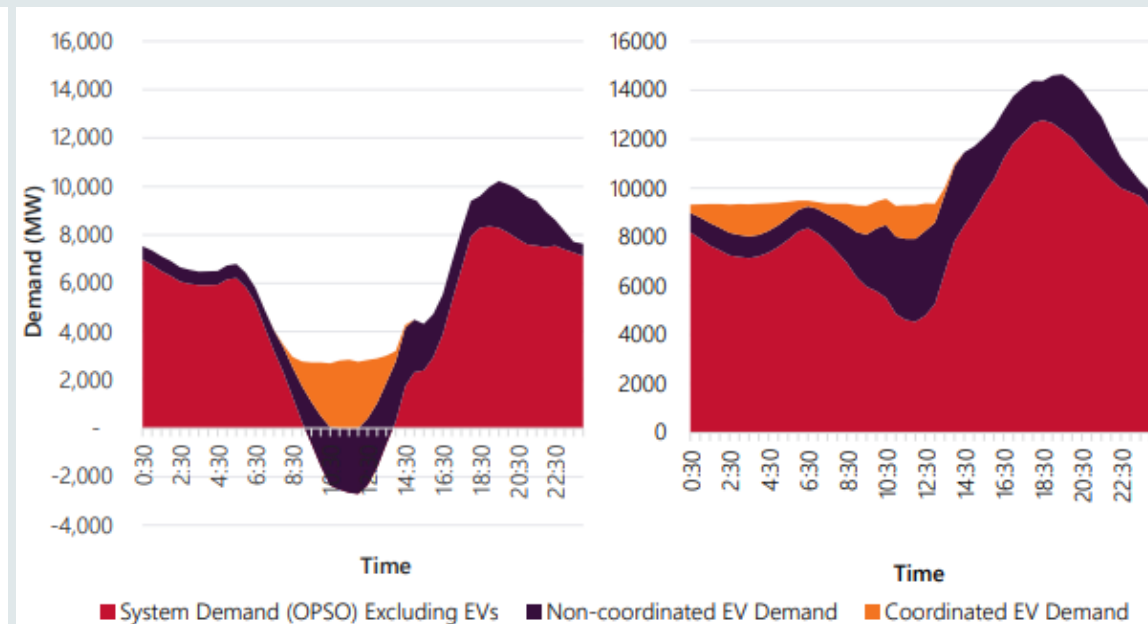
Role for gas/hydrogen to complement solar?

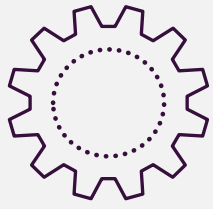


Co-ordinated EV charging profiles (Step change)

Mild demand conditions

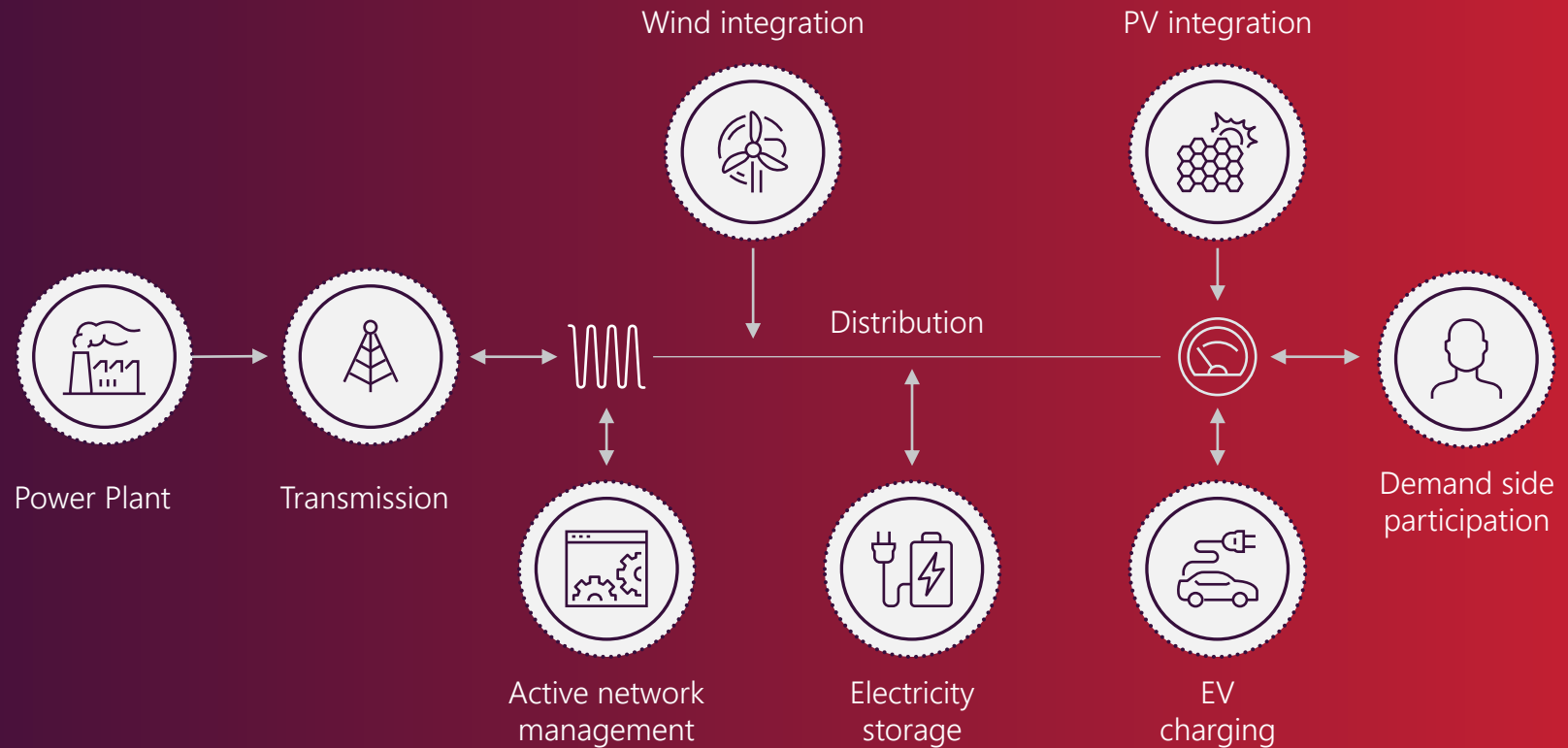
High demand conditions





Forecasting Implications

- Huge computational models for forecasting
- Multiple data inputs from more sources
- Digitalisation allows value to be determined at more granular level
- Optimisation of entire supply chain
- Visibility to maximise efficiency





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AUSTRALIAN ENERGY MARKET OPERATOR