



Department of
Energy and Economic
Diversification

Introduction to the Future Energy System Outlook (FESO) 2027

15 July 2026



Department of
Energy and Economic
Diversification

Acknowledgement of Country

The Government of Western Australia acknowledges the traditional custodians throughout Western Australia and their continuing connection to the land, waters and community.

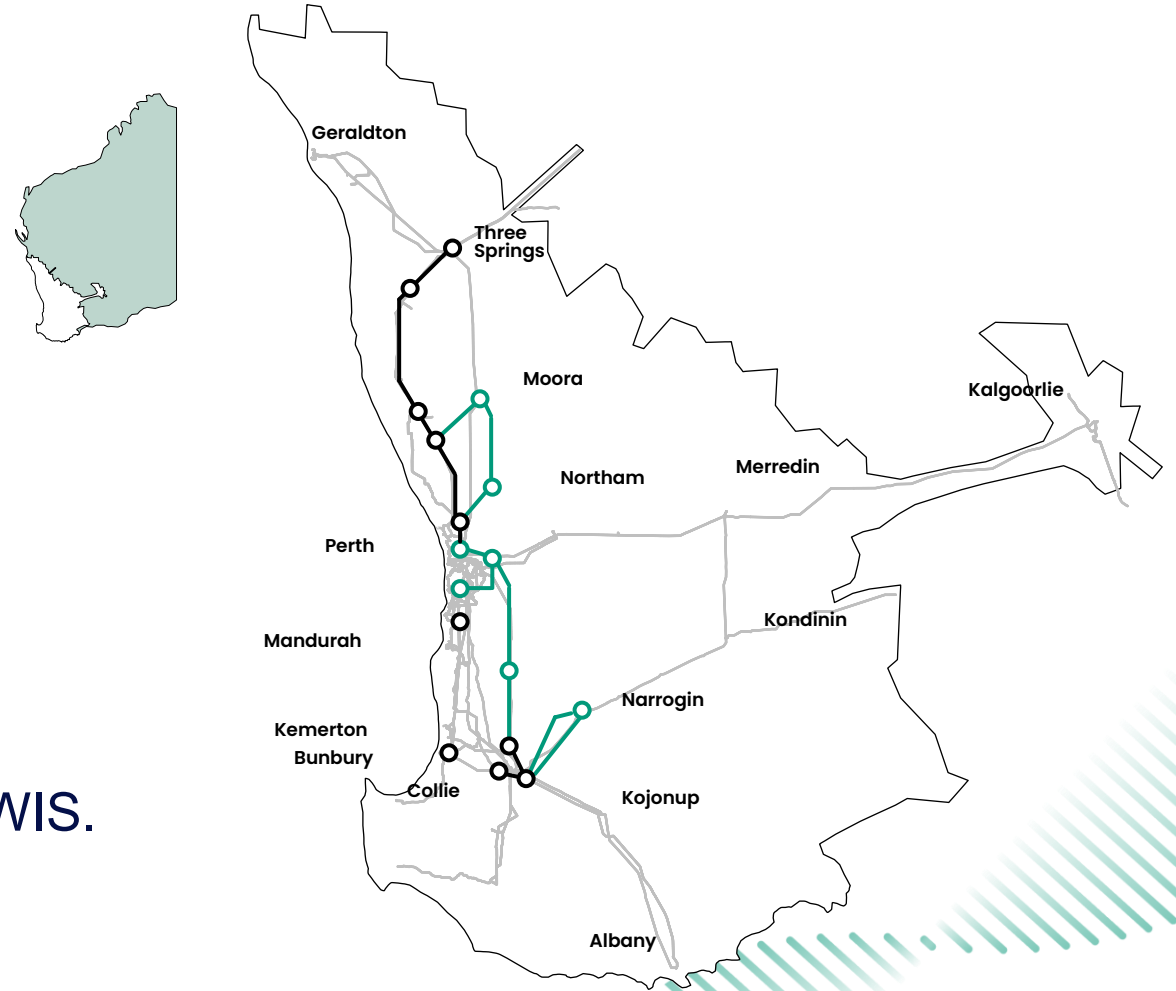
We pay our respects to all members of the Aboriginal and Torres Strait Islander communities and their cultures, and to Elders past and present.

Agenda

Time	Item	Speaker
2:00pm	Welcome and Acknowledgement of country	Jai Thomas
2:05pm – 2:30pm	Energy transition context Future Energy System Outlook (FESO) overview Modelling and methodology Approach to determining scenarios Next steps	Jai Thomas and Wenona Hadingham
2:30pm – 3:00pm	Q&A Panel	Jai Thomas Kirsten Rose Ben Bristow Wenona Hadingham Jay Williams

The SWIS is transitioning towards a low emissions electricity system

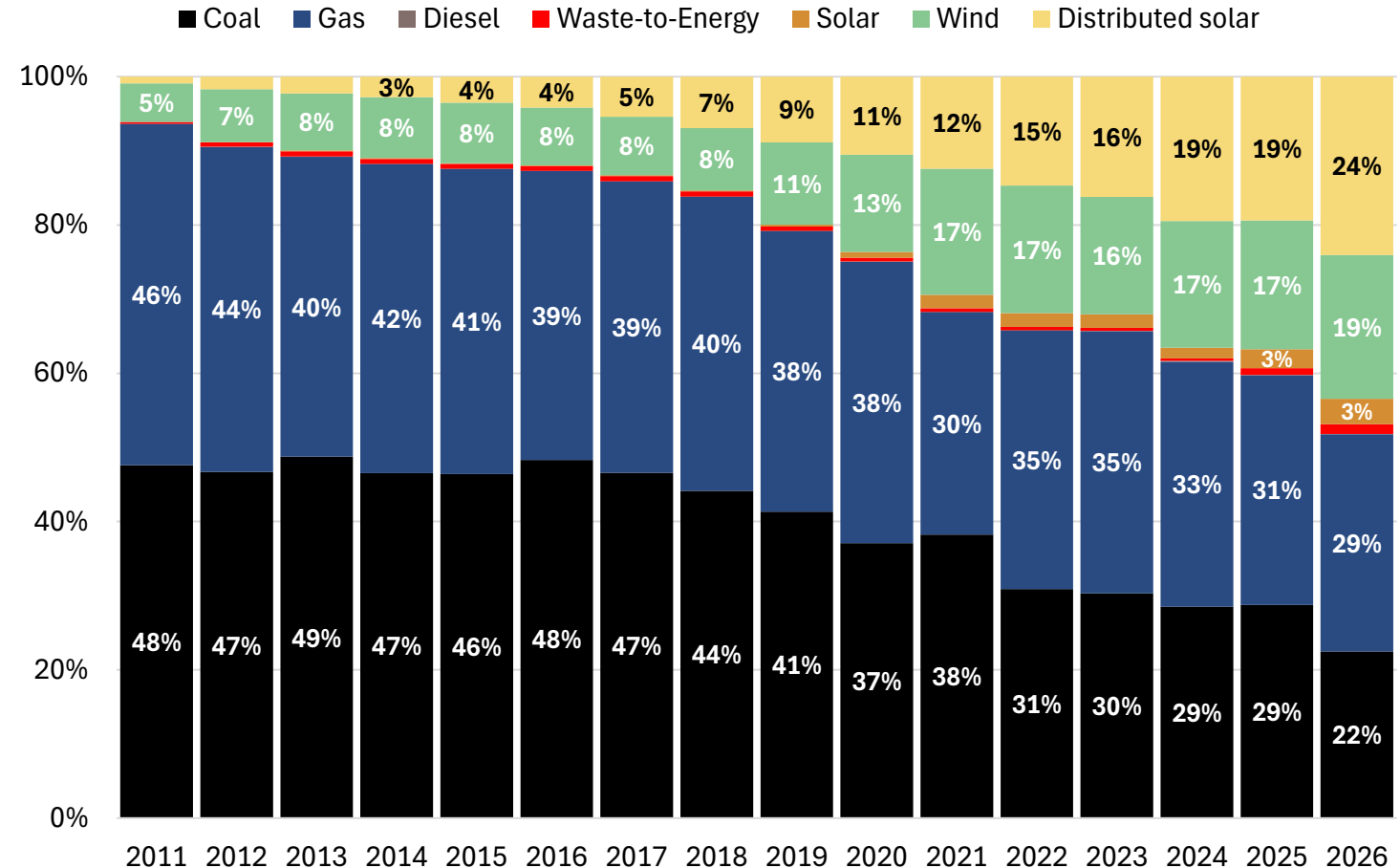
- The SWIS is an isolated grid undergoing a significant transition toward a low-emissions electricity system.
- The energy transition is accelerating with a renewable contribution of around 41%.
- Peak demand in the SWIS continues to rise.
- Increasing renewable intermittency is driving a greater need for flexible capacity across the SWIS.



Renewables now provide 41% of total generation in the SWIS

SWIS Generation Mix (GWh) - Calendar Year

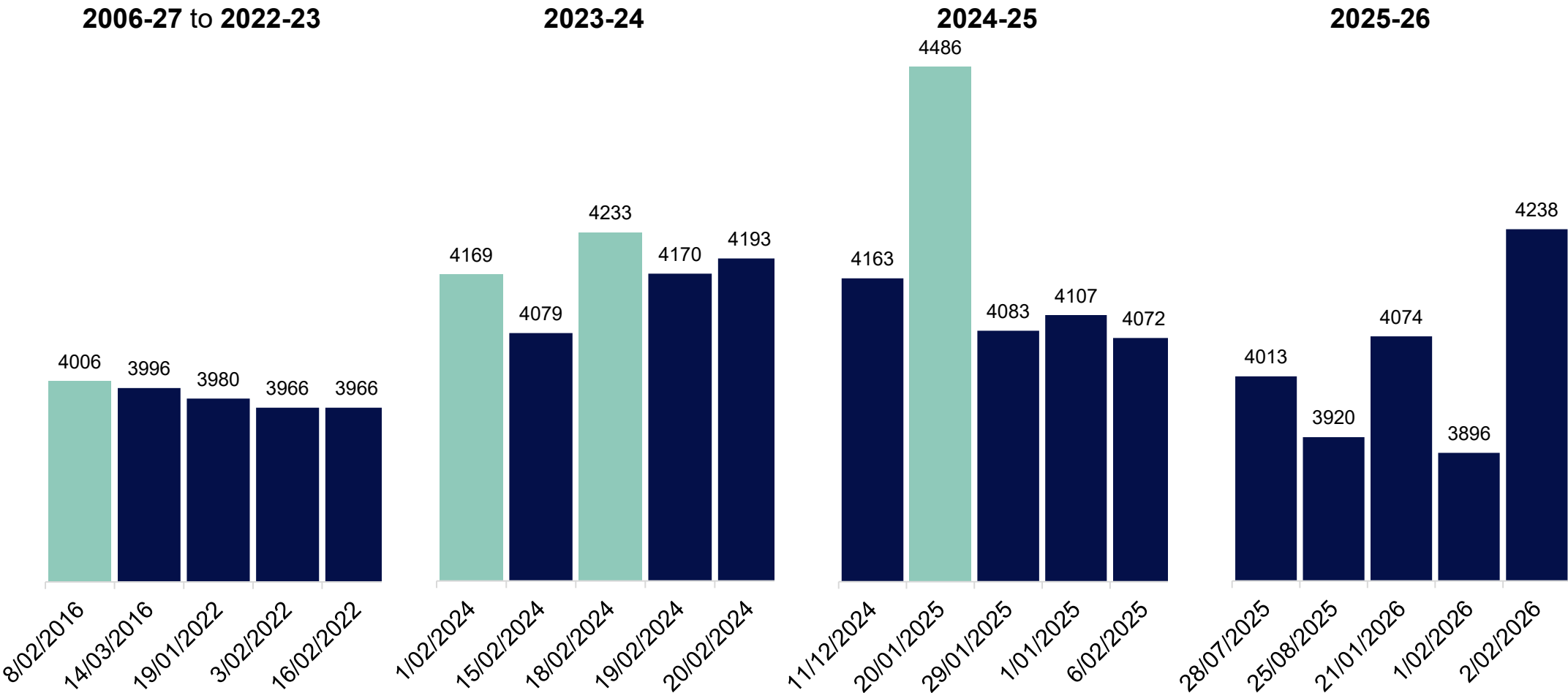
- Household solar is now the largest renewable source of generation in the SWIS, with around 2.2GW of installed capacity.
- Gas remains the single largest source of generation but is steadily declining.



Peak electricity demand on the SWIS has been growing over the last 3 years

■ New peak record day

Top 5 SWIS Peak Operational Demand (MW)



Several factors are driving near-term change in the SWIS, requiring forward-looking strategic planning



All government owned coal-fired generation in WA is scheduled to retire by 2030.



Rooftop distributed PV now supplies over 20% of total generation, with rapidly rising battery uptake.



Net-zero ambitions and industrial electrification will drive sustained growth in electricity demand.



CEL-N marks the start of major transmission investment to unlock renewable generation, with further development required.

The FESO 2027 will explore network, storage and generation infrastructure needs through to 2050

Future Energy System Outlook 2027 objectives:

- 1 Plan for the efficient development of the SWIS.
- 2 Assist in the transition to a lower-emissions power system.
- 3 Identify low regret network investments.
- 4 Identify power system investment opportunities.
- 5 Inform policy makers on the future needs of the power system.

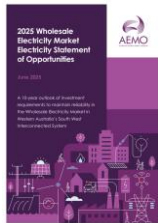
The FESO will assess a range of future focus areas to inform optimal long-term planning within the SWIS

Planning processes utilised in collaboration with the FESO

The FESO will align with and build upon the following WA Government agency reports:



SWIS Transmission Plan



WEM ESOO



WA's GSOO



Transmission System Plan

Key focus areas for the FESO



Coal retirement



Decarbonisation



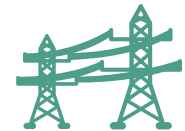
Net zero by 2050



Distributed Energy Resources



Large loads



Transmission augmentation



Energy cost & reliability



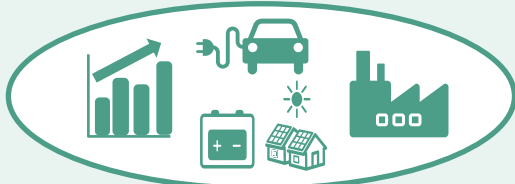
Gas infrastructure



New technologies

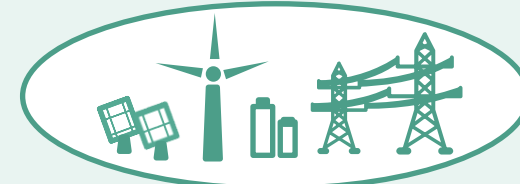
Several models will be used to forecast demand, and assess infrastructure and system needs

Further information on modelling and draft methodology will be presented in the next Webinar (details to follow).



Demand

Determine an electricity demand trace for each scenario



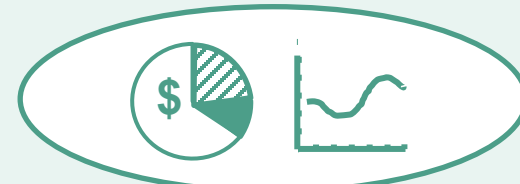
Resource planning

Least cost optimisation to minimise total system costs



Distribution network

Dx network model to test impacts and opportunities, population and demand growth



Market dispatch

Testing for operability and reliability, and quantifying market outcomes

Three scenarios will be analysed in FESO, each will represent a credible development pathway for the SWIS

- The three scenarios to be represented in FESO will be:



- The inputs and assumptions for the parameters that make up these scenarios are currently in draft and will be refined through the MISA process over the coming months.
- Engagement will focus on ensuring these parameters are robust and feedback will directly inform refinement.



Central Scenario



Central

Central reflects current policies and trends with some alignment to the WEM ESOO 2026 for at least 5 years



Expected economic growth (WA)



Expected population growth (WA)



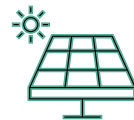
Net Zero by 2050



Electrification progresses steadily



Gradual growth of nascent industries & emergence of some new industries



DER uptake continues; coordinated DER opportunities grow



Prices rise for a period, with some gas demand reduction and some additional supply



Rapid Change Scenario



Rapid Change

Rapid Change is driven by faster decarbonisation, strong economic growth and high commodity demand, accelerating economic, population and industrial growth



Higher economic growth (WA)



Higher population growth (WA)



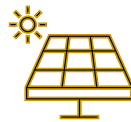
Net Zero by 2050



Electrification in the SWIS occurs more rapidly



Growth of nascent industries & emergence of some new industries



DER uptake continues; coordinated DER opportunities grow



Prices rise for a period and gas demand falls

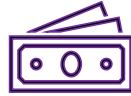


Constrained Scenario



Constrained

Constrained assumes weaker economic conditions and softer climate ambition, resulting in slower population growth and limited new industry development



Slower economic growth (WA)



Slower population growth (WA)



May not meet Net Zero by 2050



Electrification in the SWIS occurs slowly



Development of new industries stagnates

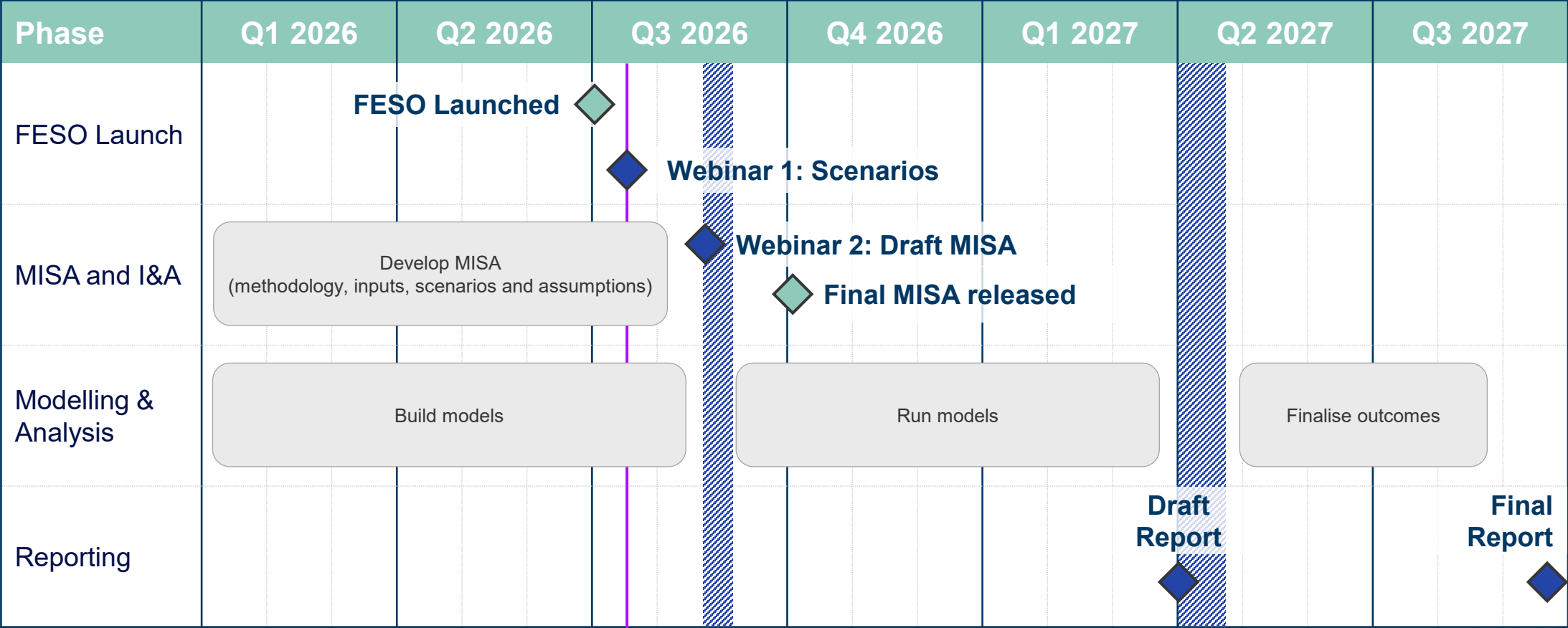


DER uptake plateaus; coordinated DER not taken up at scale



Prices rise for a period and supply shortfalls addressed

Draft scenarios are now published, and feedback is invited to collaboratively shape FESO 2027

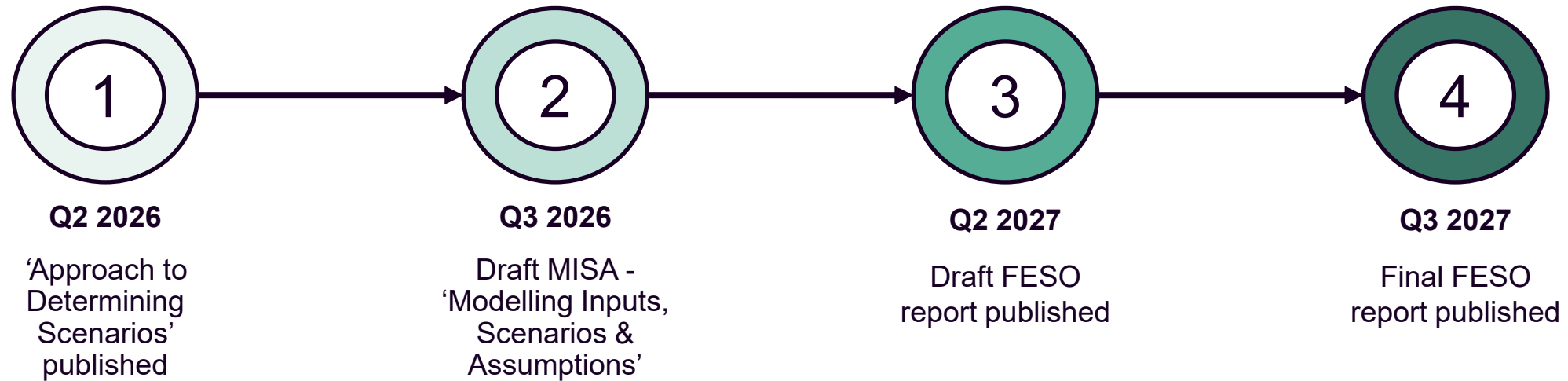


Key:

- Milestone
- Public Event
- Public Consultation

Sign up to the FESO mailing list to stay informed

- The second FESO webinar is planned for Q3 2026, with further details to be available at the EPWA FESO website
- You can contact the project team at epwa-info@deed.wa.gov.au



We're seeking feedback

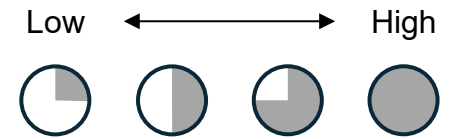
- Input into the draft Modelling, Inputs, Scenarios & Assumptions (MISA) document
- What sensitivities or case studies are of most value
- Market participant's generation developments and large industry's decarbonisation plans



Department of
**Energy and Economic
Diversification**

Q&A

A visual comparison of the parameter settings



Category	Parameters	 Central	 Rapid Change	 Constrained
Global decarbonisation and climate impact	IEA World Energy Outlook scenario alignment			
Economic growth, and demographic changes	- WA Economic growth - WA Population growth			
Decarbonisation policy and electrification in the SWIS	- Net Zero by 2050 - Consumer decarbonisation - Electrification of existing industry			
New industries (data centres, green iron or hydrogen)	- Connected to the SWIS - Hydrogen availability			
Industrial load flexibility	Industrial load flexibility			
Distributed Energy Resources (DER)	DER uptake and operation (i.e. batteries, PV and EVs)			
Coordinated DER	Coordinated DER (VPP uptake)			
Energy efficiency	Consumer Energy Efficiency			
Natural gas cost and supply*	Gas powered generation			
Supply chain constraints	Delayed delivery of new industry and energy infrastructure due to logistics and human resources			