2021 WEM Electricity Statement of Opportunities (ESOO) Draft Demand Forecast

Presented to WA Electricity Consultative Forum
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Agenda

1. Purpose
2. 2021 WEM ESOO Delivery timeline
3. ESOO Demand scenarios

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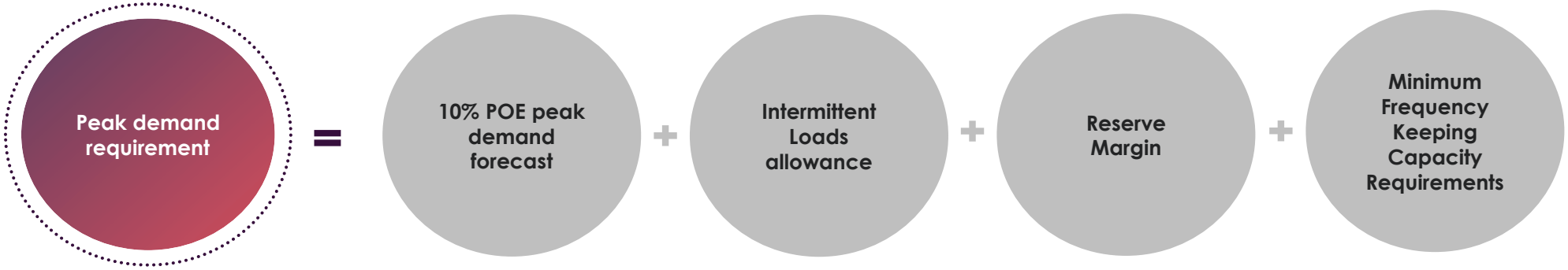
Background

- The 2021 WEM ESOO sets the Reserve Capacity Requirement (RCR) for the 2021 Reserve Capacity Cycle based on the Long Term Projected Assessment of System Adequacy (PASA) (2021-22 to 2030-31).
- The Long Term PASA study ensures sufficient capacity is available in the South West interconnected system (SWIS) to meet:
  - Peak demand requirement:



  - Expected unserved energy (EUE) requirement: annual EUE ≤ 0.002% of annual energy consumption.

ESOO Demand Scenarios

- 3 scenarios are considered in the WEM ESOO, consistent with WEM Rules
- Scenarios reflect demand changes from different levels of economic growth
- The table explains the relationship between modelled draft demand and the rule requirements.

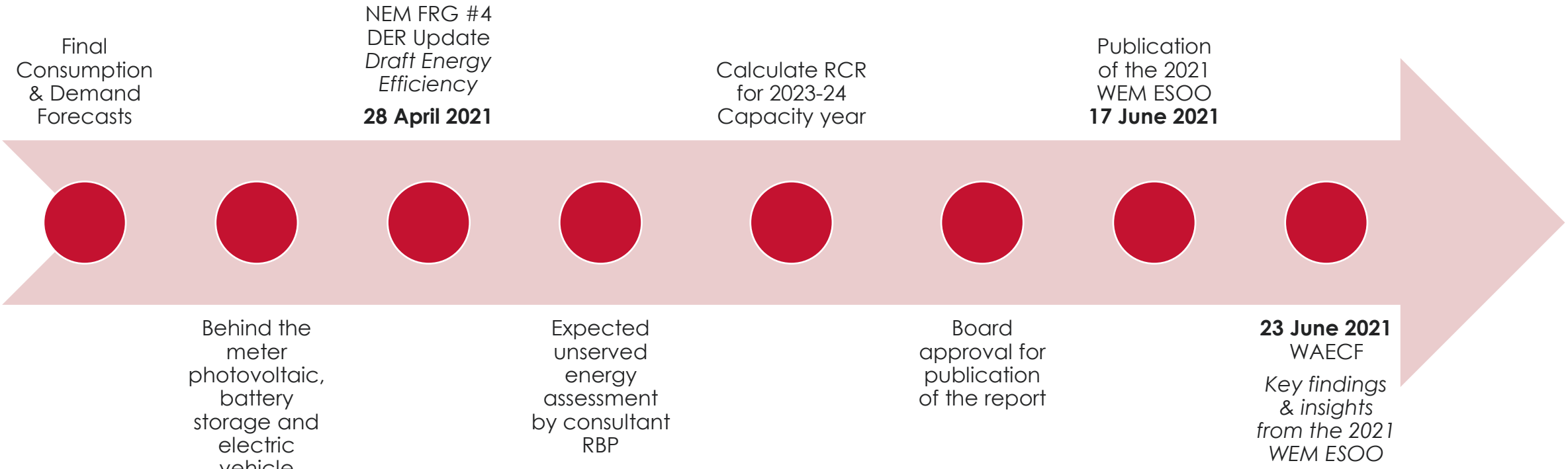
Sets the 2023-24 Reserve Capacity Target

Scenarios	POE 10 Peak demand	POE 50 Peak demand	POE 90 Peak demand
Low demand growth	(ii)	(i)	N/A
Expected demand growth	(iv)	(iii)	N/A
High demand growth	(vi)	(v)	N/A

Not required under WEM Rules

Table references WEM Rules for example (i) refers to 4.5.10(a)**(i)**

2021 WEM ESOO Delivery timeline



Draft 2021WEM ESOO Peak and Minimum Demand forecasts

14 April 2021

Summary of Draft Demand Forecasts for 2021 WEM ESOO

Agenda

1. Forecasting approach
2. Peak Demand Operational (Summer)
3. Minimum Demand Operational (Shoulder)

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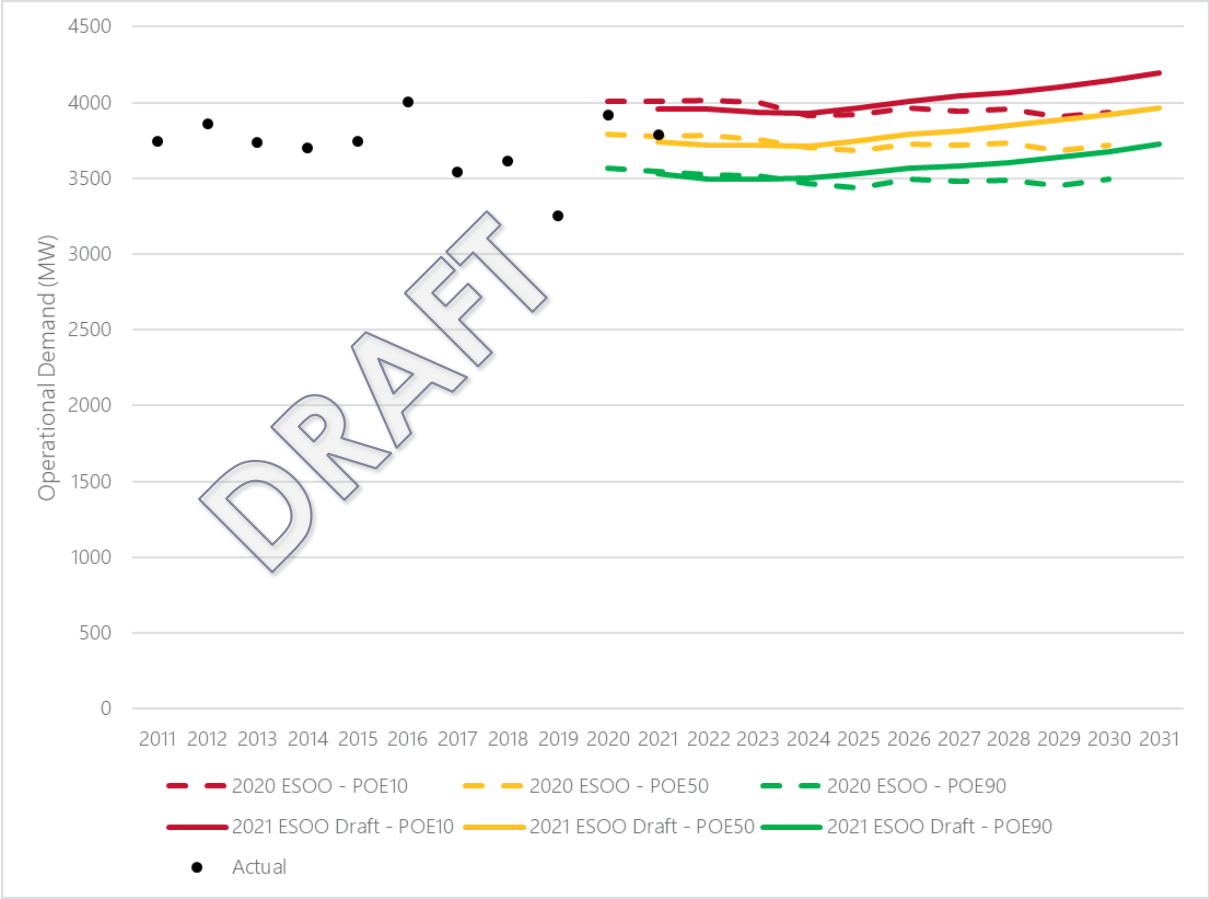
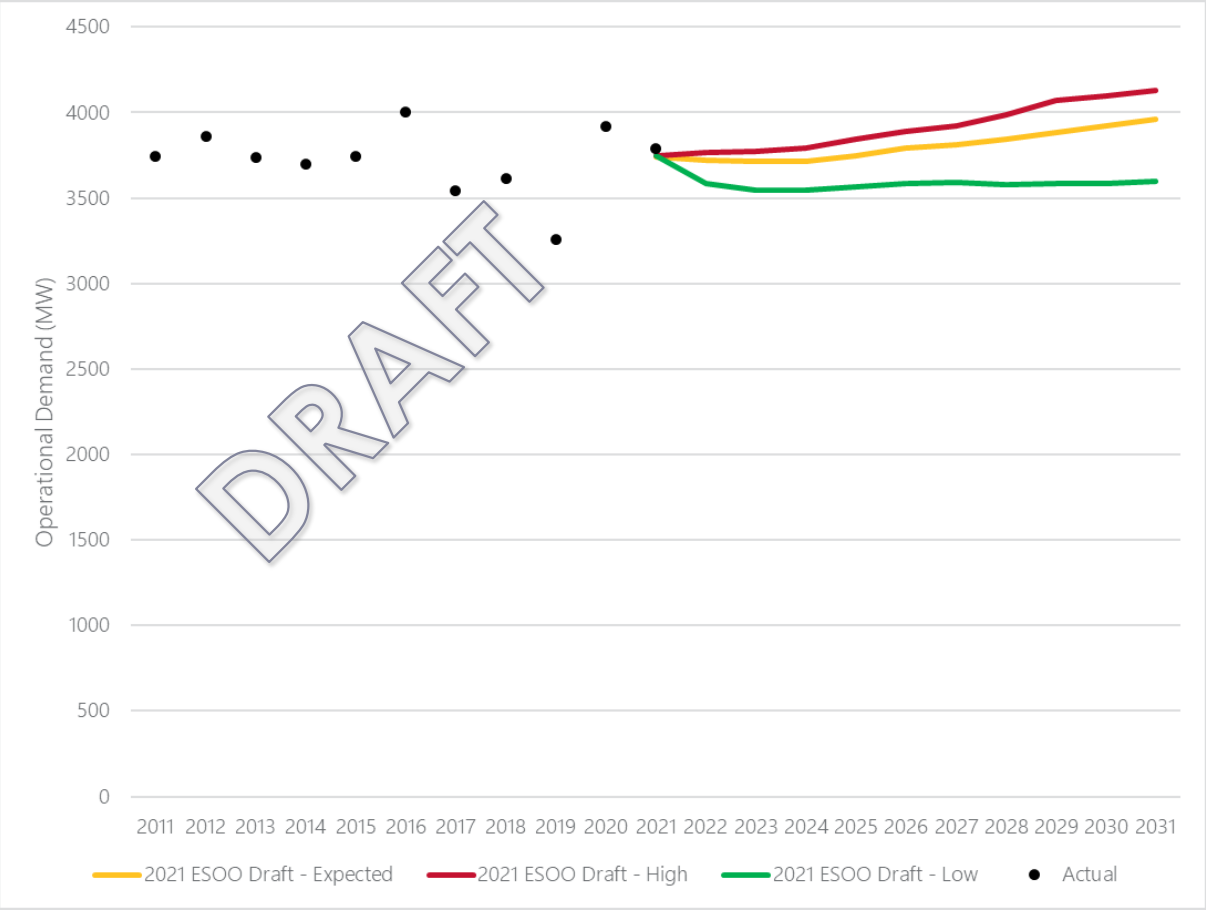
Forecasting approach

Peak Demand Operational – Expected Scenario



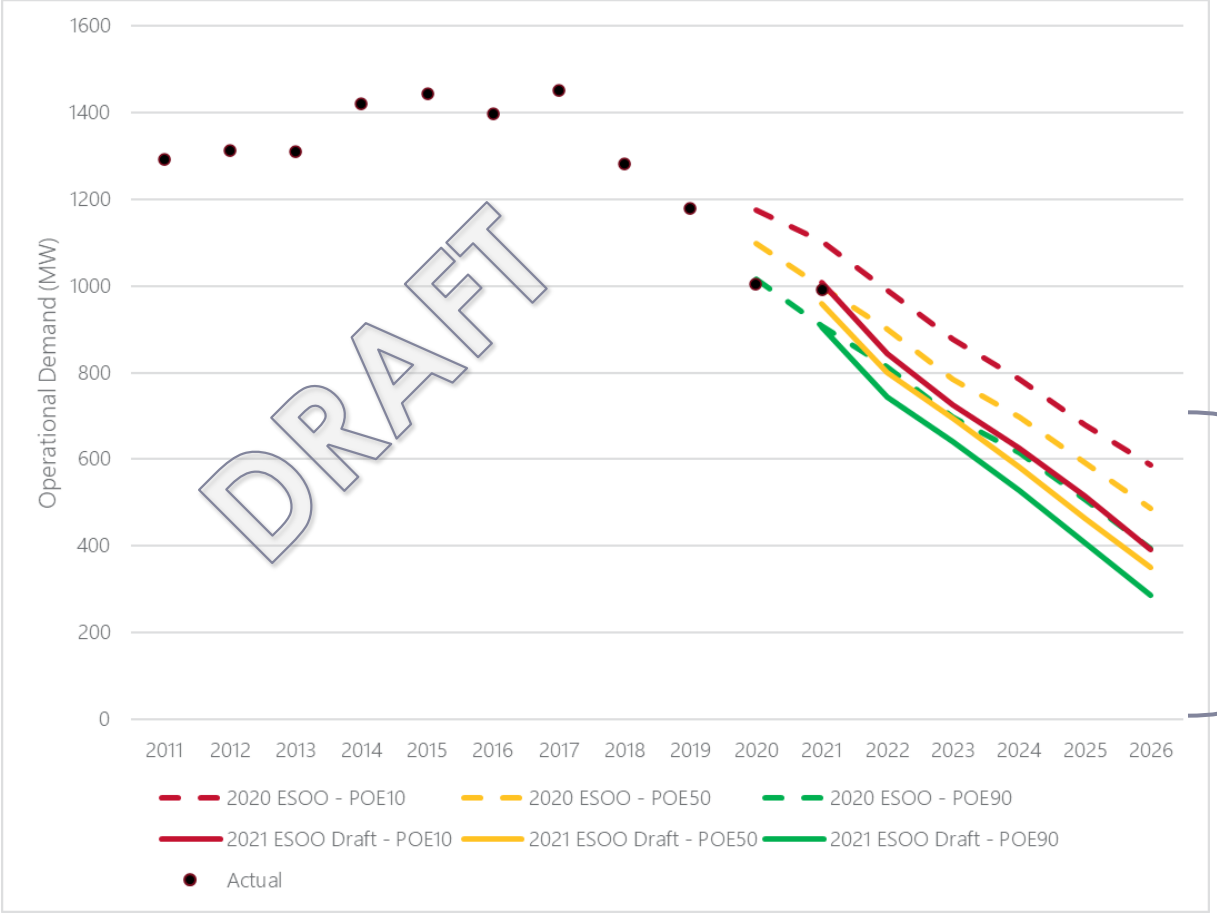
- Short-term forecast similar to 2020 ESOO:
  - First forecast year 2020-21about 35 MW (~0.9%) lower.
  - Forecast year to 2023-24 is similar, to within 18 MW (~0.4%).
  - Spread between the 90% POE and 10% POE ~210 MW.
- Long-term forecast higher (~200 MW), mainly due to increased business and large industrial loads.
  - EV, battery and PV growth largely offset each other.
  - A small amount of PV generation continues to occur at time of peak due to remaining solar irradiance at 6.30 – 7.00 pm.

Peak Demand Operational - Scenarios



- Short-term differences mainly driven by PV uptake:
  - The high scenario transitions to a 7.30 pm peak much earlier than the other scenarios, consistent with recent observations of maximum demand already occurring near sunset at 6.30 pm.
  - The low scenario declines rapidly in first forecast year due to higher PV uptake and low residential and business consumption growth.
- Long-term differences mainly driven by battery activity and business/industrial growth.
  - All scenarios peak between 6.30 and 7.30 pm due to high PV generation pushing peak later in the day.
  - The low scenario has lower battery activity at time of peak, about 80 MW, compared to the high scenario at 140 MW.
  - Business and industrial consumption growth drive the remaining spread between the scenarios.

Minimum Demand – Expected Scenario



- ESOO 2021 lower compared with 2020 ESOO:
  - Narrower distribution to better reflect distribution in historical minimum demand.
  - Faster decline in minimum demand due to higher PV capacity forecast.
  - Increasing amount of Rooftop PV generation will push system demand to lower levels as we move into the outlook period. These new low levels will be reached more and more frequently.
  - The 50% POE expected minimum demand forecasts that the system will be operating in envelopes not previously managed before.
  - As these low demand levels continue, management of the SWIS will become increasingly challenging and highlights the need for market and operational intervention to ensure the system stays secure and stable.
  - AEMO is actively exploring issues and solutions in relation to operational management of minimum demand.

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Questions?

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