INDEPENDENT MARKET OPERATOR

2014 Electricity Statement of Opportunities (ESOO) Stakeholder Workshop

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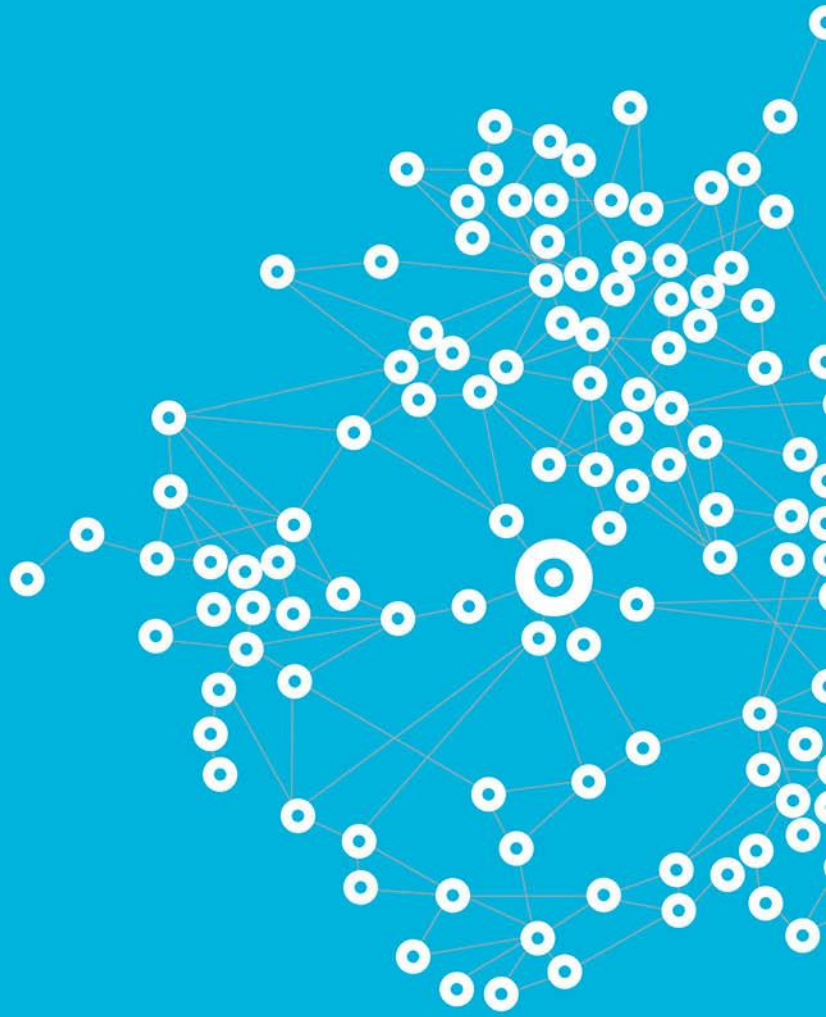
1 July 2015



Agenda

- Background
- Purpose
- Key Findings
  - Peak Demand Forecasts
  - Energy Forecasts
- Interesting Analysis
  - Capacity Credits by Market Participant
  - Individual Reserve Capacity Requirement (IRCR)
  - Solar PV
  - Battery
- Questions

2014 and 2015 ESOO deferrals

Minister for Energy directed IMO on

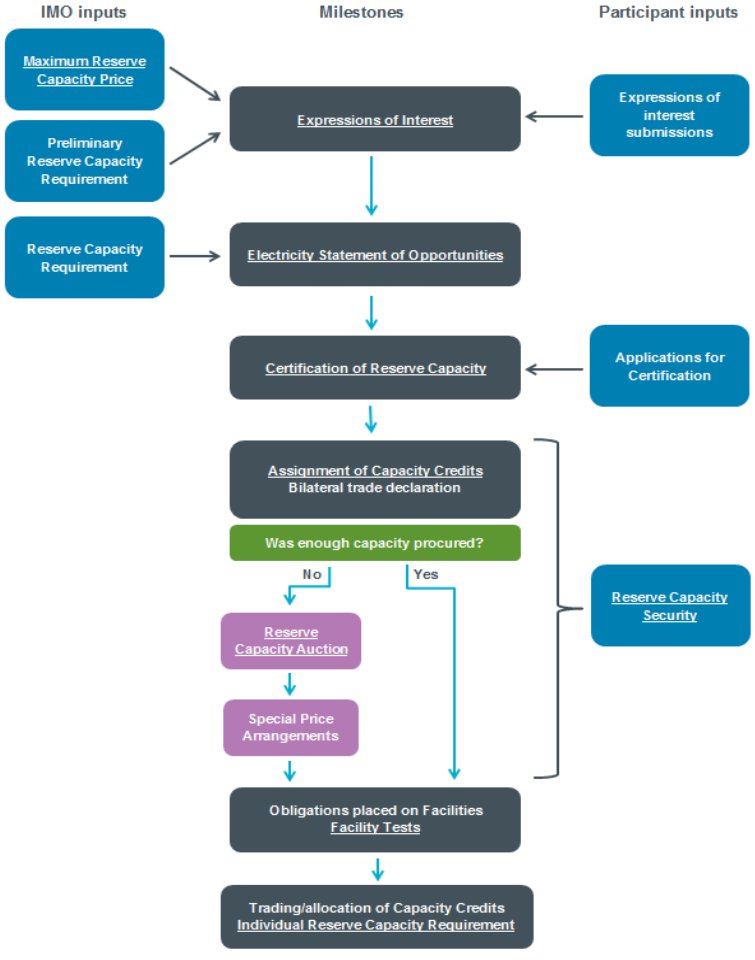
29 April 2014 to defer certain aspects of the 2014 Reserve Capacity Cycle, by a year.

13 March 2015 to defer certain aspects of the 2015 Reserve Capacity Cycle, by a year.

On **17 June 2015**, the IMO published

- 2014 ESOO and sets the Reserve Capacity Target for the 2016-17 Capacity Year
- Reserve Capacity Information Pack

RCM Process



http://www.imowa.com.au/home/electricity/reserve-capacity

Purpose of the 2014 ESOO

- Provides market data and information of interest to current and potential WEM participants and stakeholders

- Sets the Reserve Capacity Target (RCT) for the 2016-17 Capacity Year

  - RCT for 2016-17 is 4,557 MW

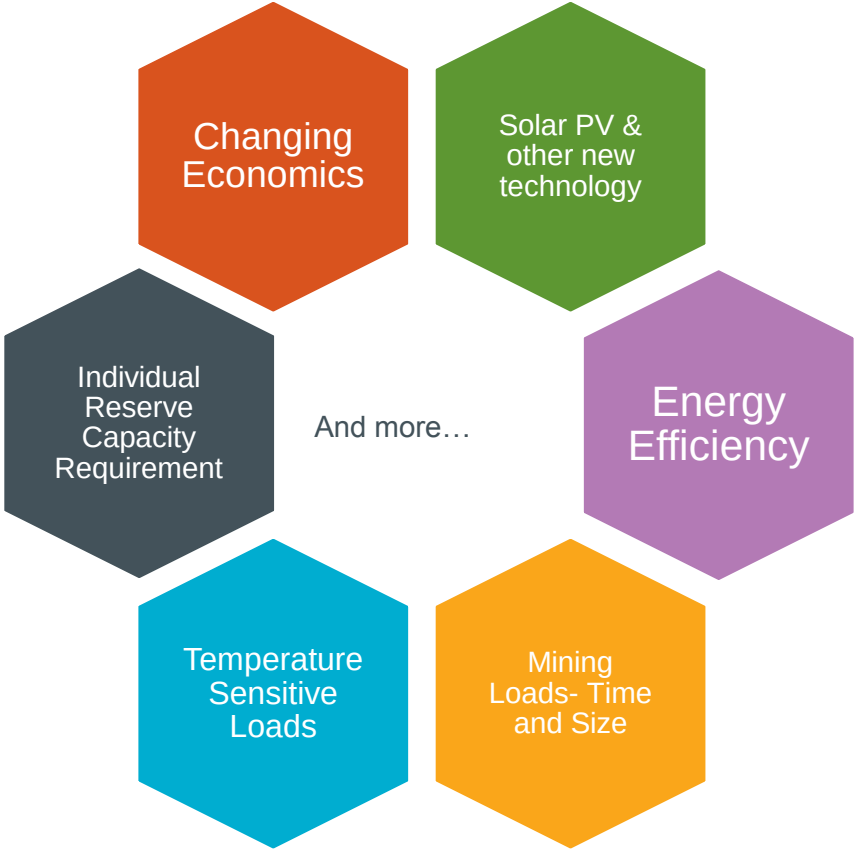
  - Based on the 10 per cent probability of exceedance (PoE) forecast plus a reserve margin

Key Findings

- Unusual **Early Peak**
  - **5 January** 2015
  - **15:30- 16:00** TI
  - Demand of **3744 MW**
- SWIS **demand** growth **flattening**
- **IRCR** mechanism continues to be **effective**
- **Customer behaviour changing rapidly**
- **Healthy mix** and **diversity** of generation capacity and DSM **continues**
- **No new generation or** Demand Side Management (**DSM**) capacity will be **required for the** 2015 to 2025 **forecast period**

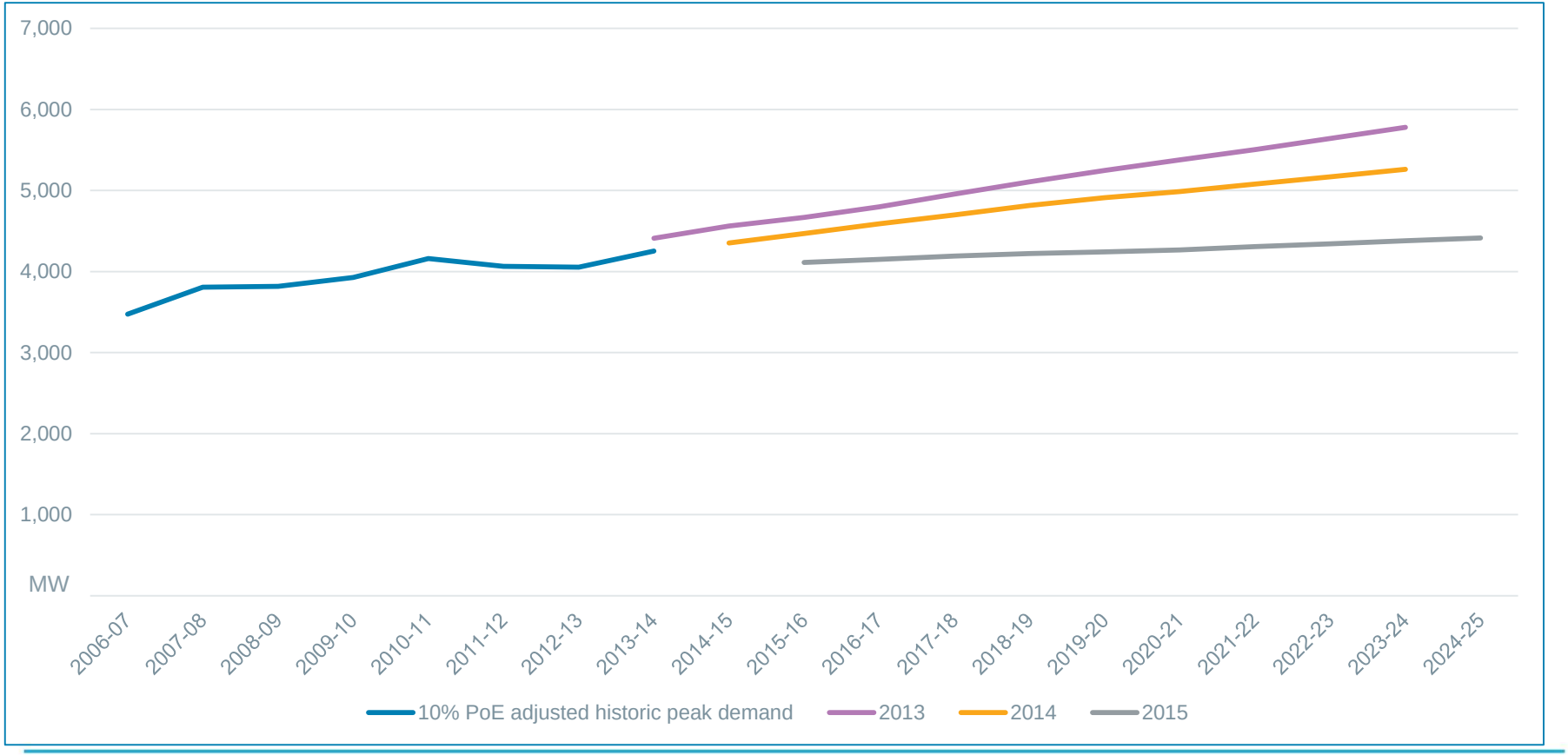
Forecasting presents Challenges

Lots of moving parts



Peak demand forecasts

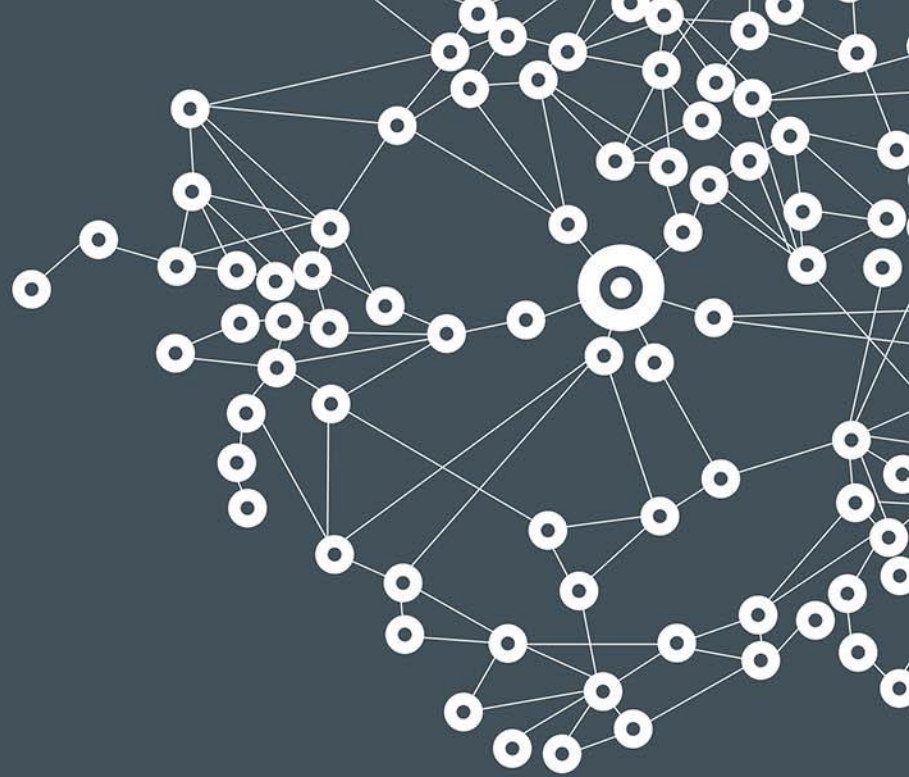
Growing at approximately 0.8% pa



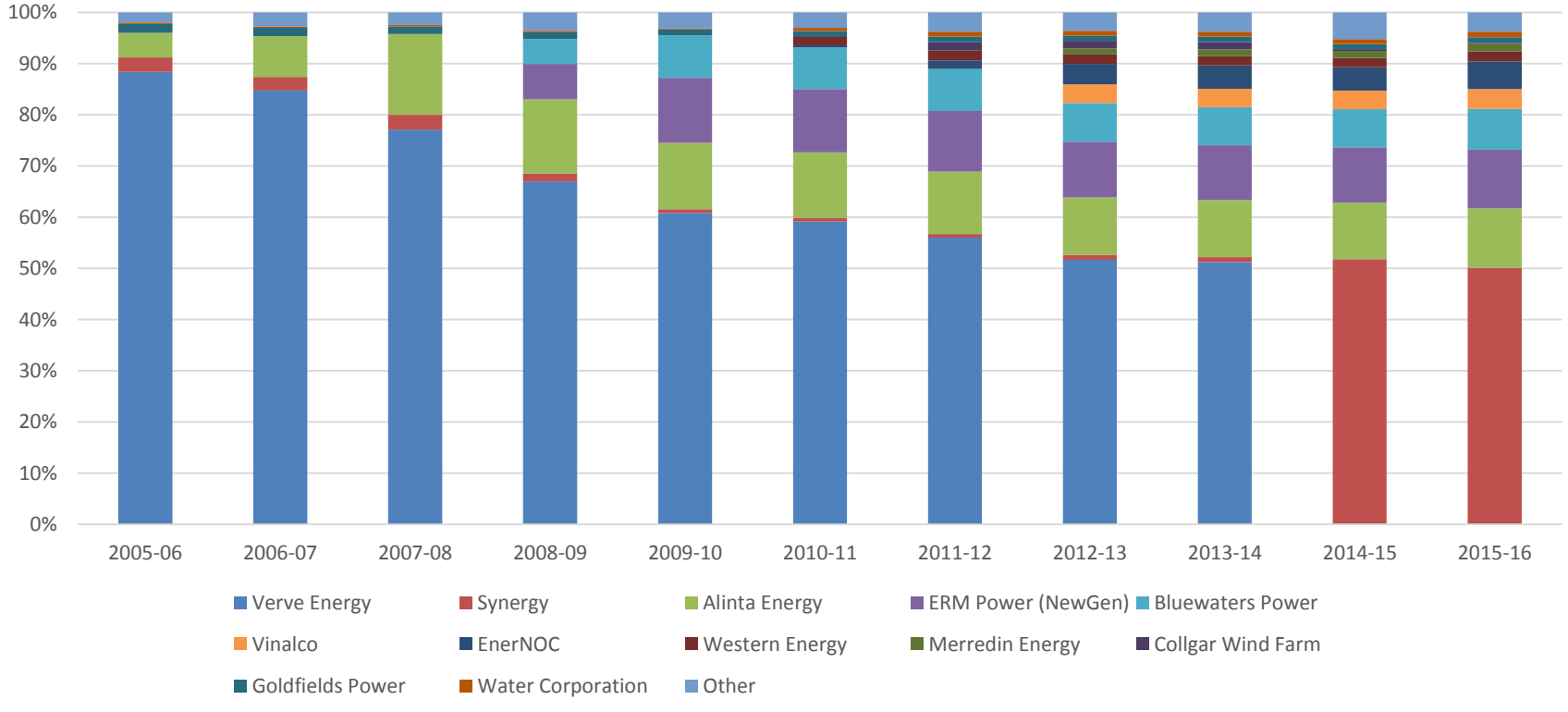
Energy forecasts

Growing at approximately 1.3% pa

And now to some INTERESTING ESOO analysis

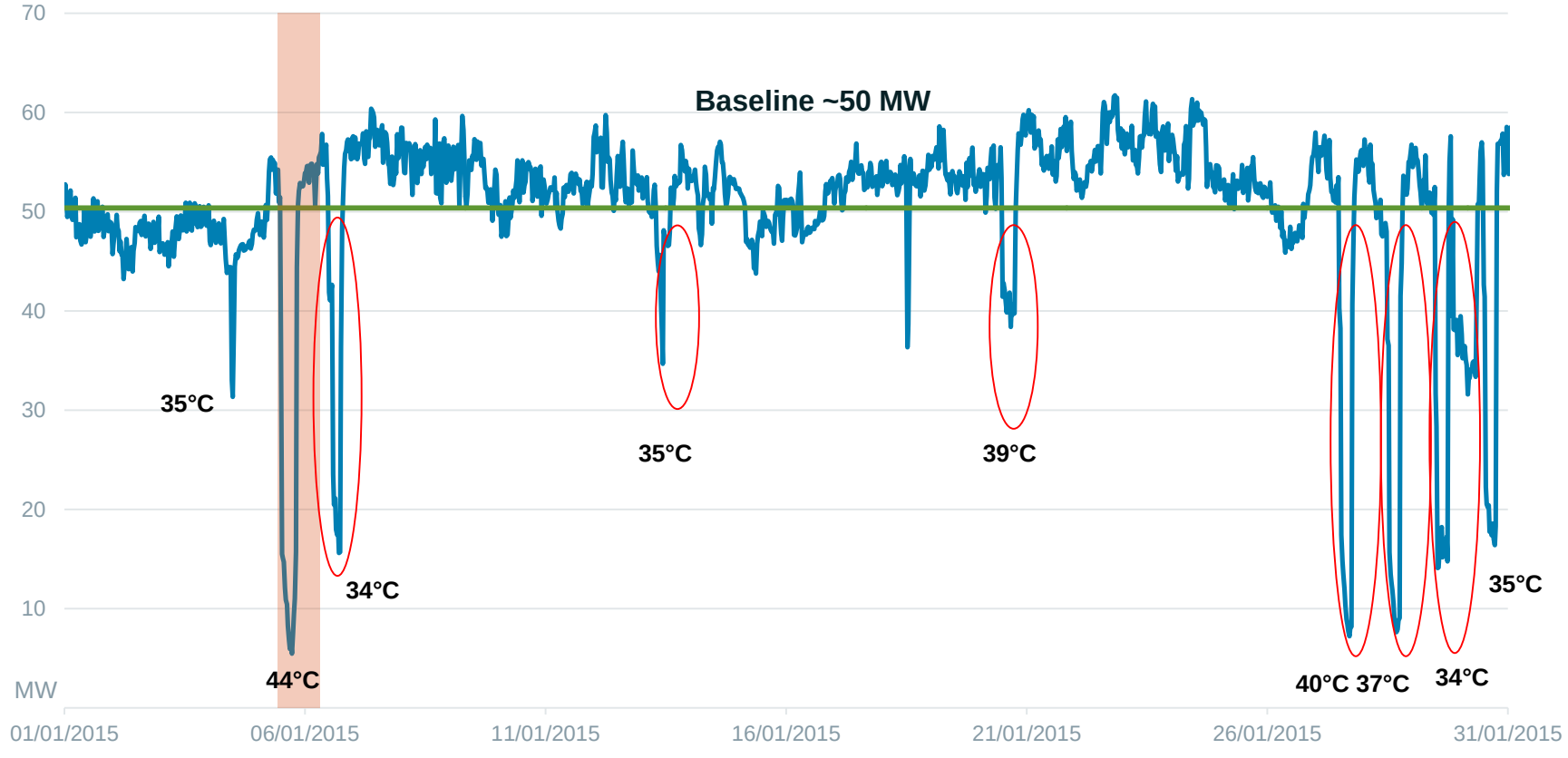


Capacity Credits by Market Participant

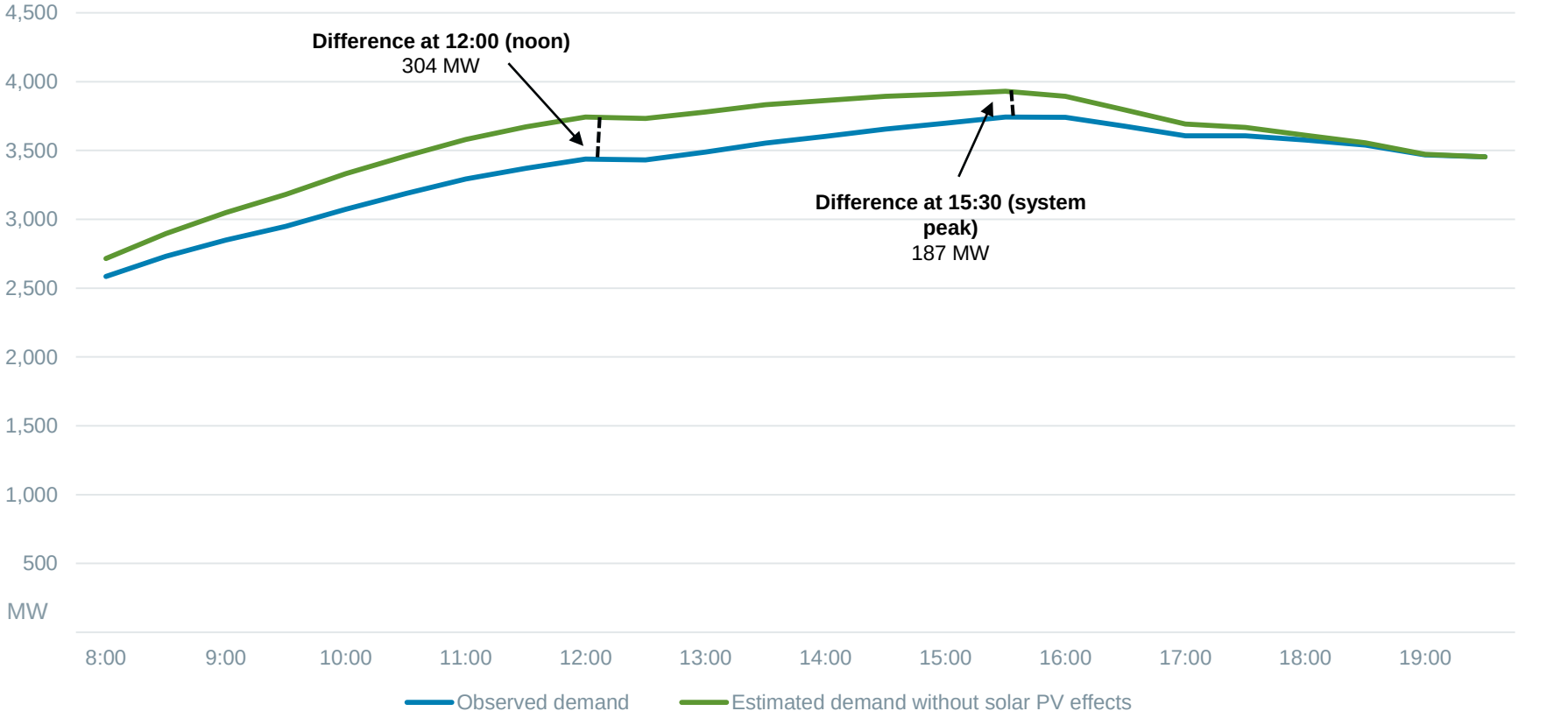



Kalbarri wind farm
Nameplate Capacity: 1.6 MW
Capacity Credits: 0.289 MW
Mumbida wind farm
Nameplate Capacity: 55 MW
Capacity Credits: 15.69 MW
Alinta Walkaway wind farm
Nameplate Capacity: 89.1 MW
Capacity Credits: 23.934 MW
Emu Downs wind farm
Nameplate Capacity: 80 MW
Capacity Credits: 16.954 MW
Blair Fox Karakin wind farm
Nameplate Capacity: 5 MW
Capacity Credits: 1.075 MW
Tamala Park landfill gas
Nameplate Capacity: 5 MW
Capacity Credits: 4 MW
Henderson landfill gas
Nameplate Capacity: 3.195 MW
Capacity Credits: 2.287 MW
Rockingham landfill gas
Nameplate Capacity: 4 MW
Capacity Credits: 2.558 MW
South Cardup landfill gas
Nameplate Capacity: 3.369 MW
Capacity Credits: 2.393 MW
Mt. Barker community wind farm
Nameplate Capacity: 2.43 MW
Capacity Credits: 0.892 MW
Greenough River solar farm
Nameplate Capacity: 10MW
Capacity Credits: 4MW
SWIS – Total solar PV
336 MW of installed solar PV in the SWIS region
Atlas landfill gas
Nameplate Capacity: 1.123 MW
Capacity Credits: 0.671 MW
Collgar wind farm
Nameplate Capacity: 206 MW
Capacity Credits: 14.598 MW
Red Hill landfill gas
Nameplate Capacity: 4 MW
Capacity Credits: 2.875 MW
Canning Melville landfill gas
Nameplate Capacity: 1.2 MW
Capacity Credits: Nil
Bremer Bay wind farm
Nameplate Capacity: 0.6 MW
Capacity Credits: 0.037 MW
Albany wind farm
Nameplate Capacity: 21.6 MW
Capacity Credits: 8.457 MW
Grasmere wind farm
Nameplate Capacity: 13.8 MW
Capacity Credits: 5.602 MW
Denmark community wind farm
Nameplate Capacity: 1.6 MW
Capacity Credits: 1.286 MW
KALBARRI
GERALDTON
LANCELIN
MERREDIN
PERTH
BUNBURY
ALBANY

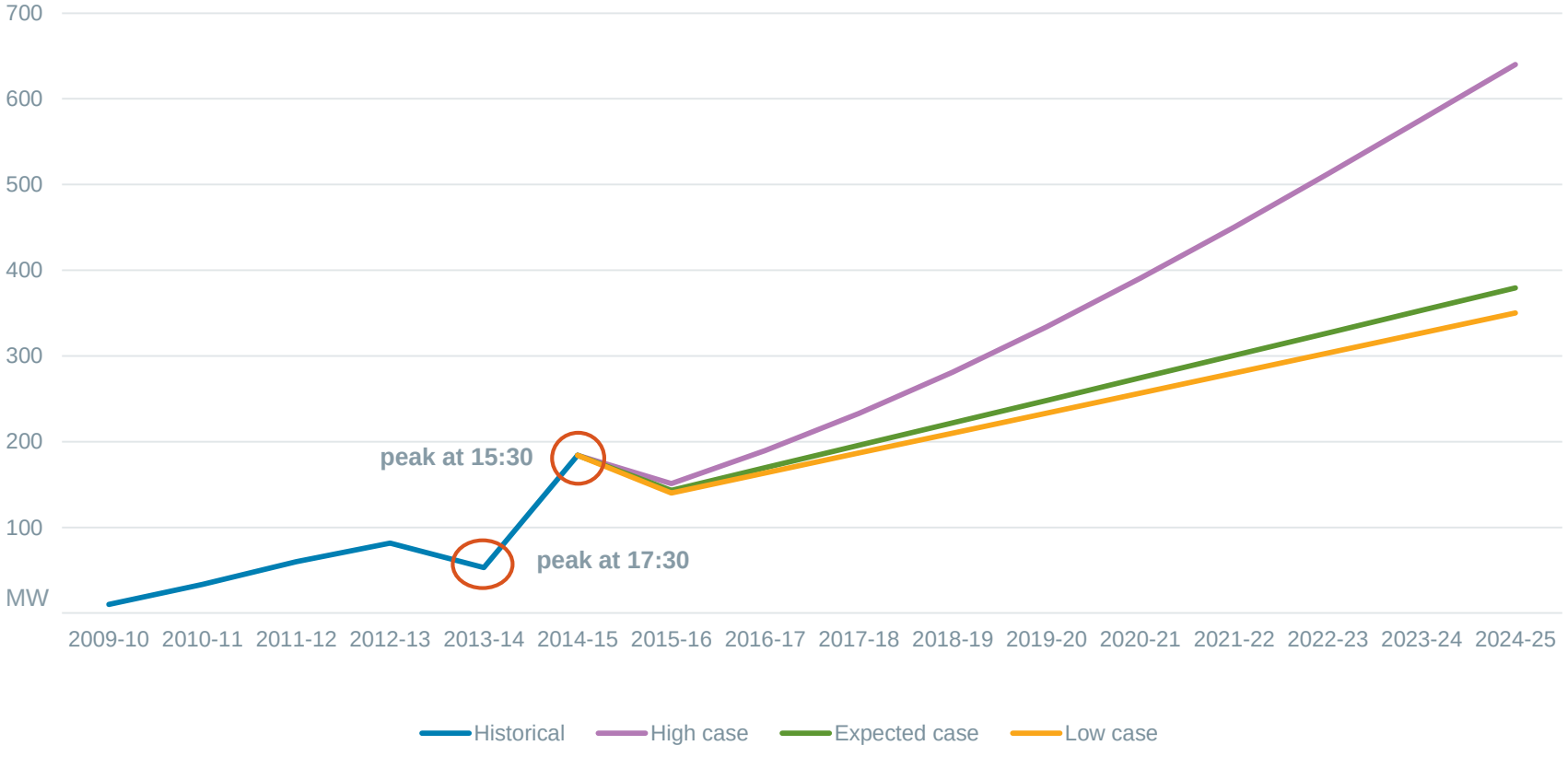
IRCR response – January 2015



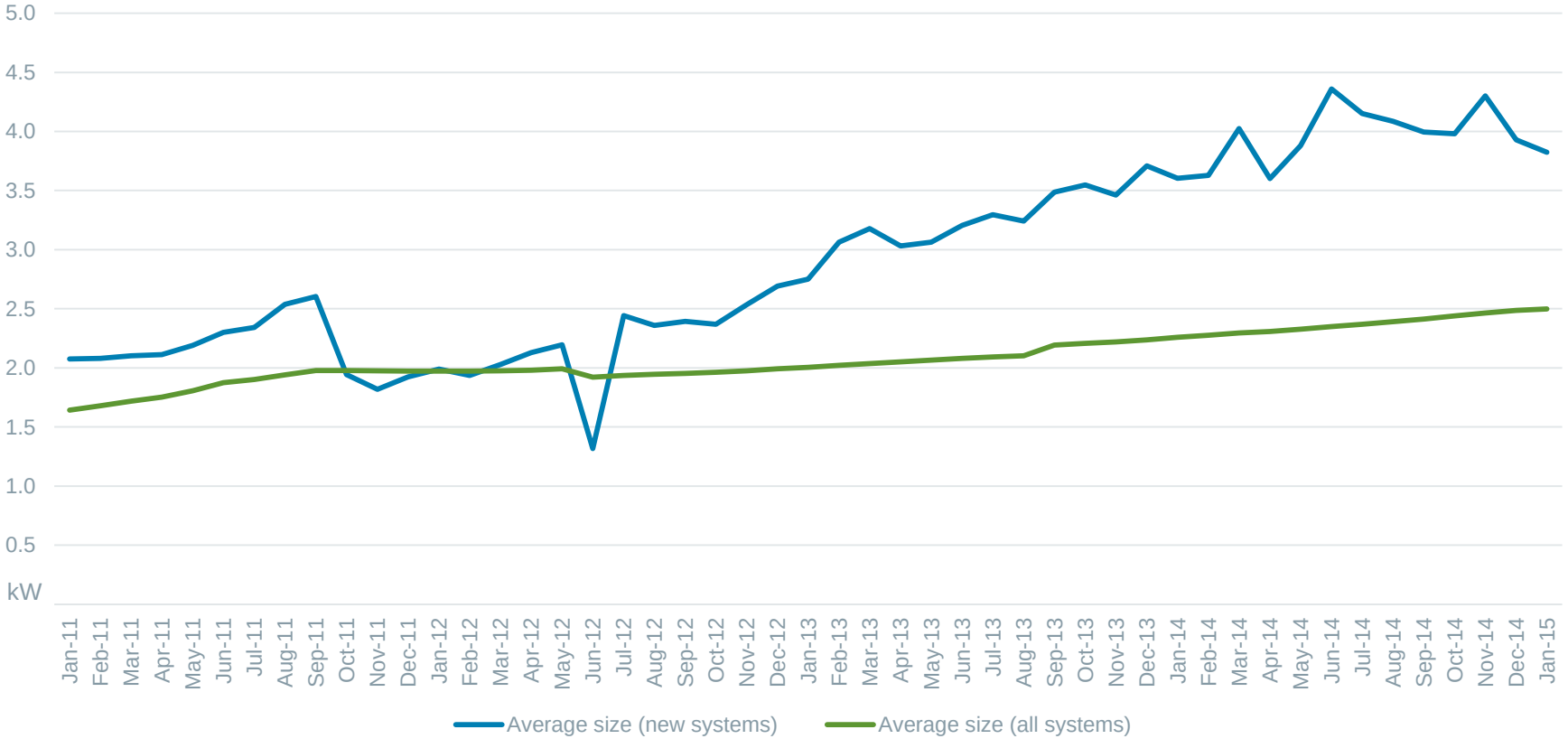
Daily demand profile – observed and estimated



PV contribution to peak demand



Monthly PV installations



Key statistics for solar PV systems

	2010-11	2011-12	2012-13	2013-14	2014-15	Average annual growth
Number of systems	63,384	97,722	132,621	146,890	164,483	26.9%
Proportion of customers with PV installed	7.3%	10.9%	14.7%	16.1%	17.6%	24.6%
Average system size (kW)	1.9	2.0	2.1	2.4	2.5	7.1%
Average new installation system size (kW)	2.3	1.3	3.2	4.4	3.9	14.1%

Battery assumptions and forecast

Battery storage has been incorporated in the forecast for the first time this year. The following table shows the peak demand reduction associated with battery storage.

Scenario	2019-20 (MW)	2020-21 (MW)	2021-22 (MW)	2022-23 (MW)	2023-24 (MW)	2024-25 (MW)
High	0.8	1.5	2.7	4.9	9.2	16.7
Expected	0.7	1.3	2.3	3.9	6.6	10.7
Low	0.7	1.2	2.1	3.4	5.2	7.9

In addition, we assume the following numbers of systems are expected to be installed over the forecast period:

- 1,309 systems in 2019-20 in the high case, growing to 26,268 systems in 2024-25;
- 1,157 systems in 2019-20 in the expected case, growing to 16,863 systems in 2024-25; and
- 1,081 systems in 2019-20 in the low case, growing to 12,444 systems in 2024-25.

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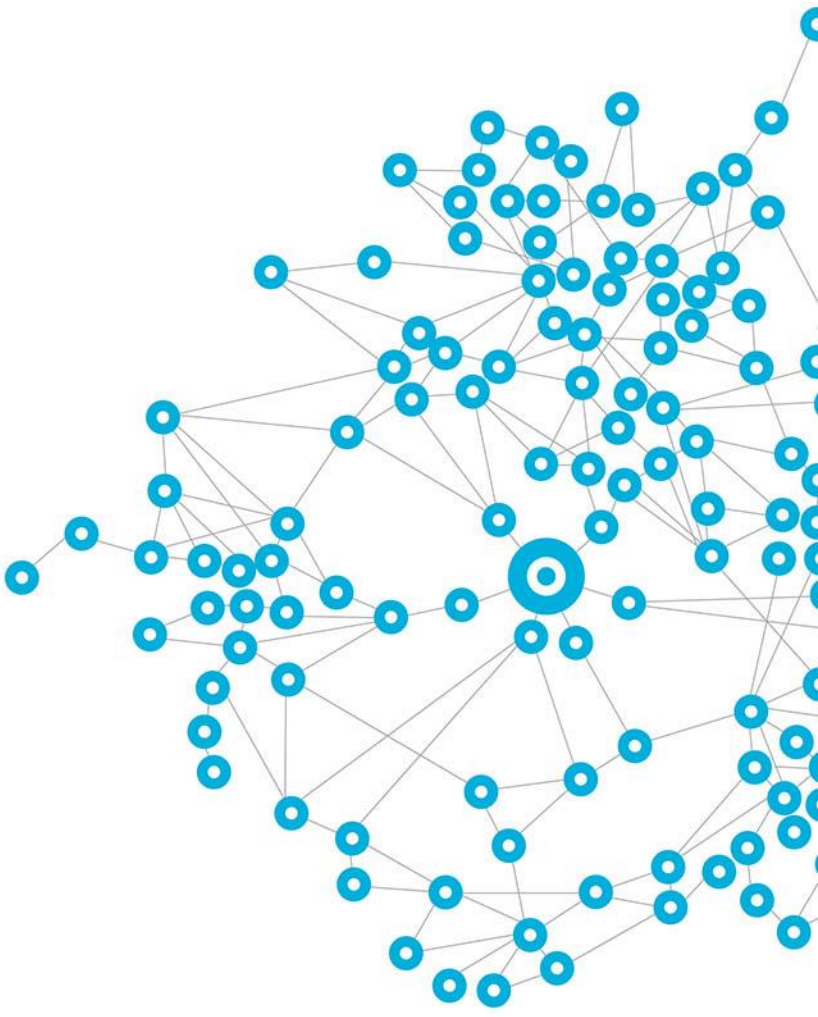
Questions and feedback



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