

RC_2019_03: Method used for the assignment of Certified Reserve Capacity to Intermittent Generators

**MAC Workshop
10 May 2021**

Agenda and Ground Rules

- Agenda
 - Presentation from RCP Support (about 30 min)
 - Presentation from Alinta (about 20 min)
 - Presentation from the ERA (about 20 min)
 - Questions and discussion (about 110 min)
- Ground Rules
 - Please raise your hand or use the meeting chat to raise questions or make comments
 - Ask questions during presentations
 - Clarifications or responses on simple questions can be provided at the time
 - Larger questions and issues will be discussed after the presentations
 - The Meeting will be recorded for minute taking purposes

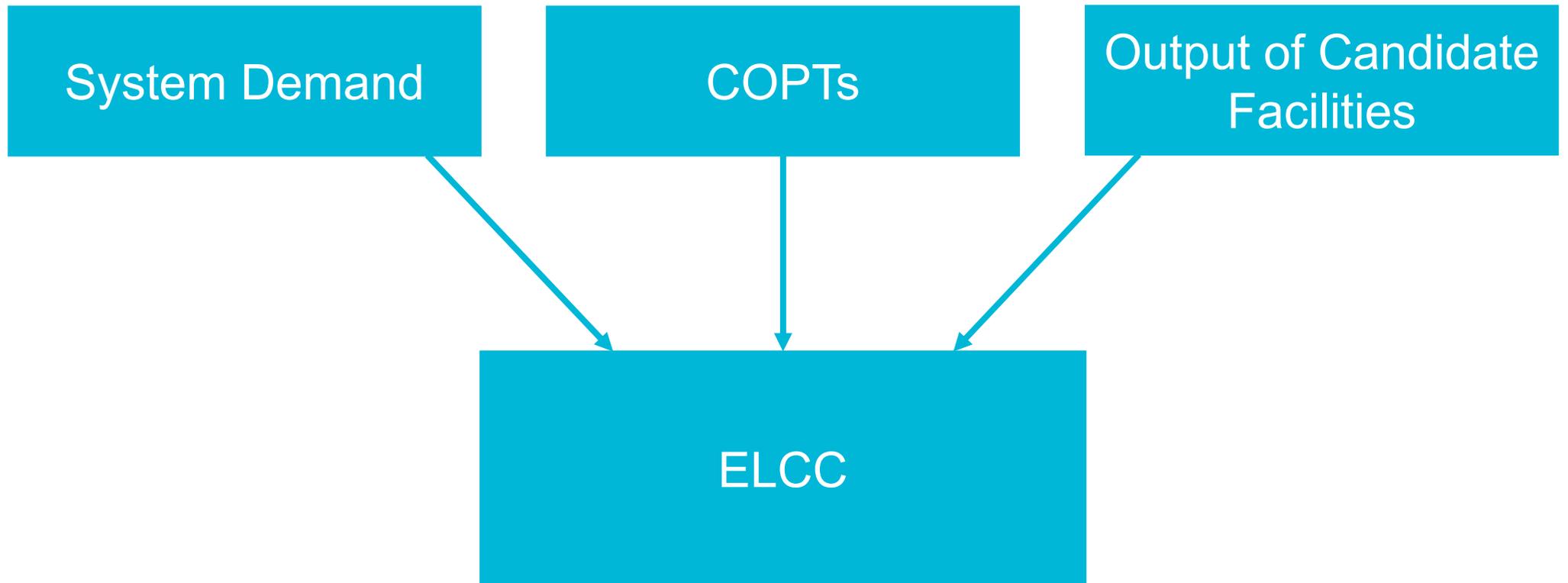
Overview of RCP Support Presentation

- Presentation Scope
- Aspects of the draft decision
 - ELCC
 - Volatility of the ELCC in the WEM
 - Target LOLE
 - Determination of Relevant Levels
 - Treatment of small Facilities
- RCM Timeline
- Next Steps

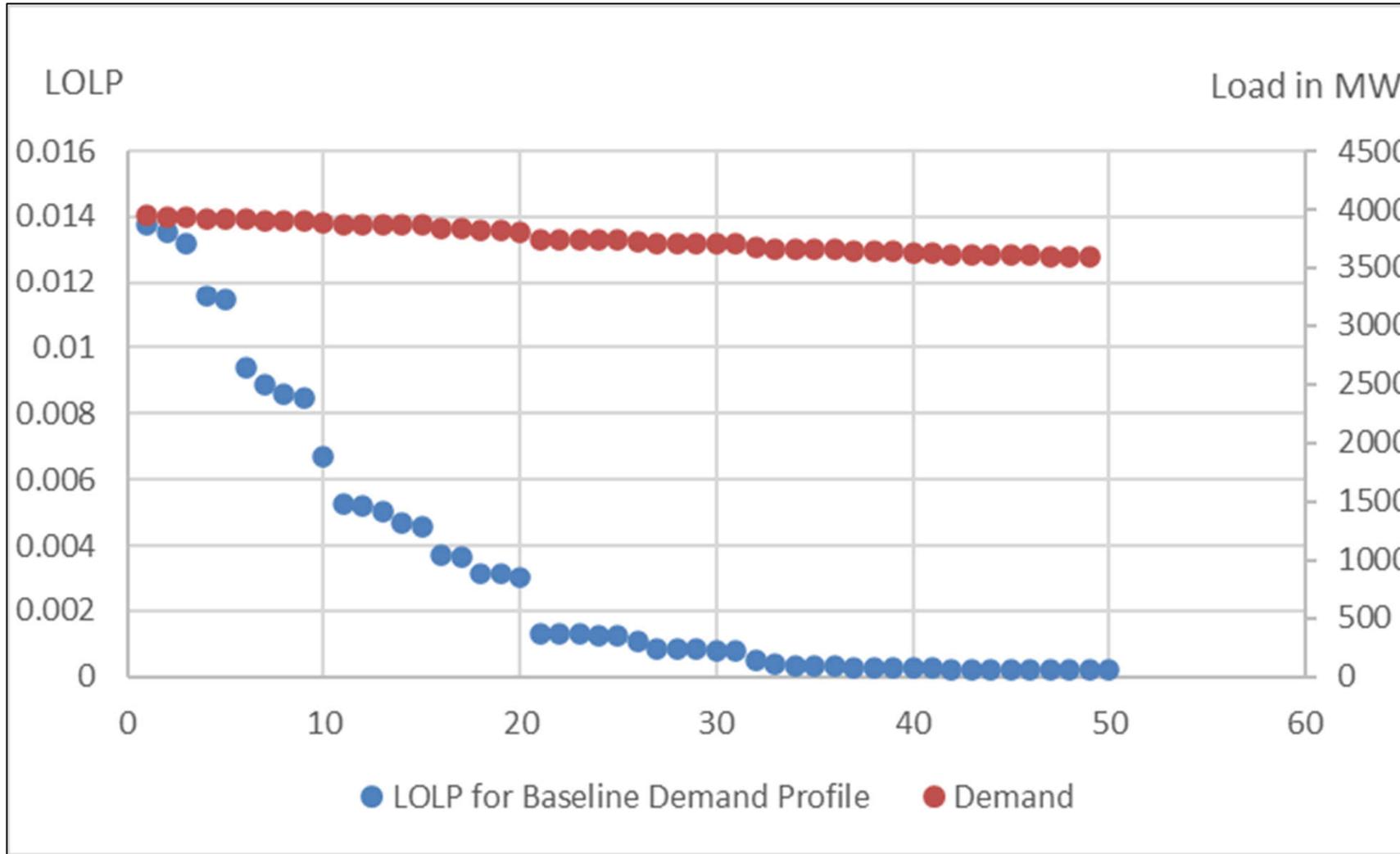
Presentation Scope

Focus of the Presentation	Other Issues	Not addressed in the Presentation
<ul style="list-style-type: none">• ELCC• Target LOLE• Allocation of the Fleet ELCC to individual Facilities	<ul style="list-style-type: none">• Treatment of small Facilities• RCM timeline	<ul style="list-style-type: none">• Reference Period• DER adjustment• COPT• Treatment of Proposed Facilities• Treatment of early CRC and Conditional CRC

ELCC - Inputs



ELCC – Highest LOLP Trading Intervals



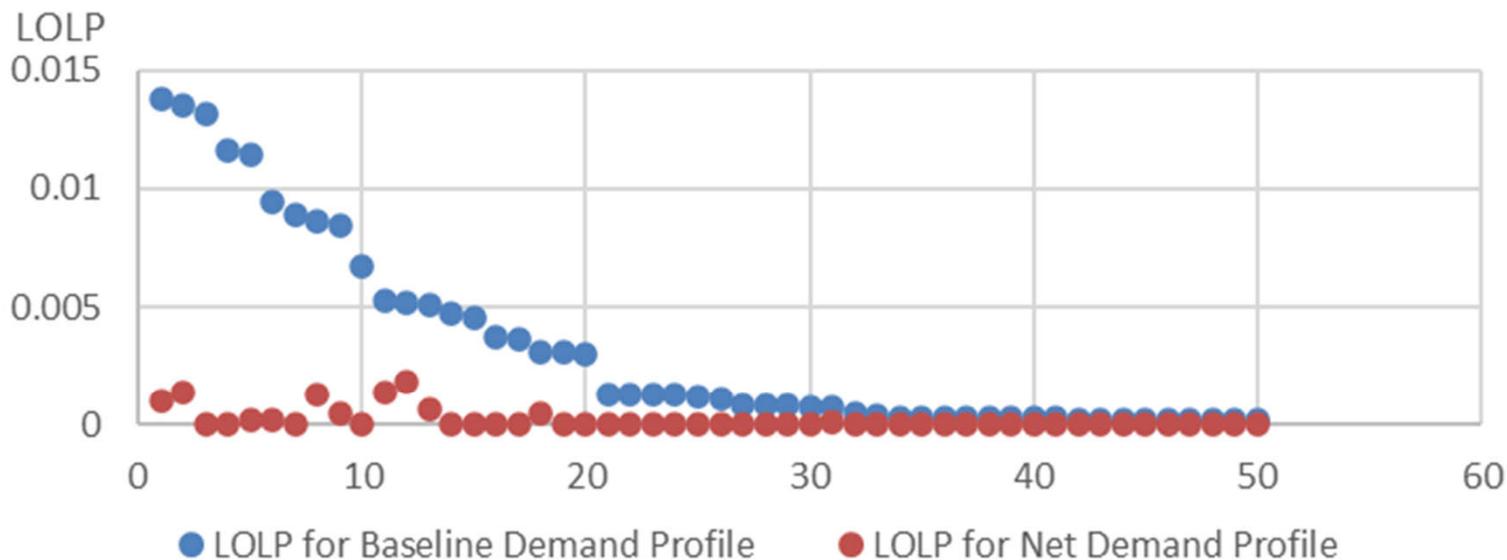
Highest 50 LOLP for Baseline Demand Profile for the Reference Period

ELCC for different sets of Trading Intervals with High System Stress

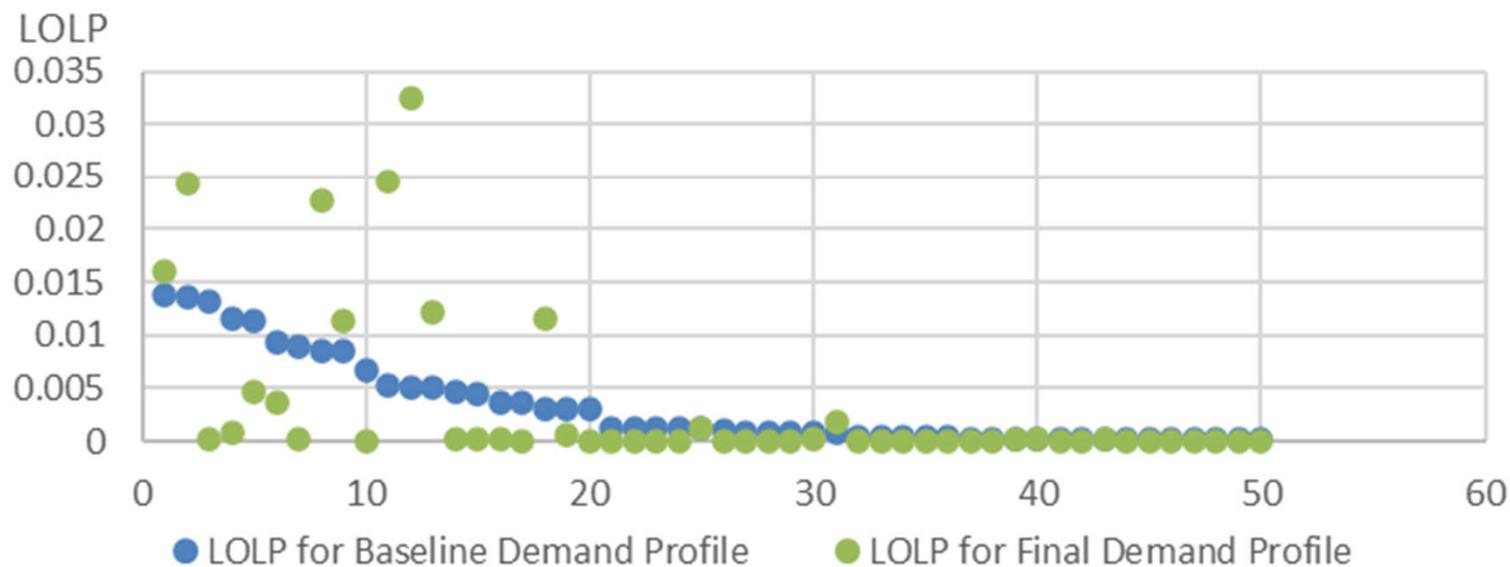


ELCC of the Fleet without setting a Target LOLE

ELCC – Highest LOLP Trading Intervals



LOLP for the 50 Trading Intervals with the highest LOLP under the Baseline Demand Profile



ELCC Calculation - Example

TI	Original LOLP	Reduced LOLP	+ 1 MW LOLP	...	+ 10 MW LOLP	...	+ ELCC MW LOLP
1	0.01376	0.00104	0.00106		0.00124		0.01606
2	0.01353	0.00140	0.00141		0.00157		0.02431
3	0.01319	0.00001	0.00001		0.00001		0.00031
4	0.01158	0.00003	0.00003		0.00003		0.00088
5	0.01147	0.00024	0.00024		0.00026		0.00460
...
Sum	0.17236	0.00928	0.00940		0.01066		0.17492

Total LOLP Reduction = 0.16308

Draft Decision to use ELCC

- The ELCC ‘finds’ the Trading Intervals with the highest system stress
- The ELCC appears to account for the right factors
 - ‘steep’ load duration curve
 - Unpredictability of number and occurrence of high system stress Trading Intervals
 - In WEM, most Trading Intervals have no material effect on the ELCC (because of the low LOLP)

Volatility of the ELCC in the WEM

- Events of high system stress are rare in the WEM
 - Only a few Trading Intervals of high system stress in the reference period
 - Future events of high system stress may be different to past events and Intermittent Facilities performance during those events may be different
- Modelling possible alternative scenarios of high system stress is complex and not achievable in time for the 2021 Reserve Capacity Cycle
- The Rule Change Panel considers that it is not appropriate to base the Fleet value or individual Relevant Levels on Trading Intervals with low system stress

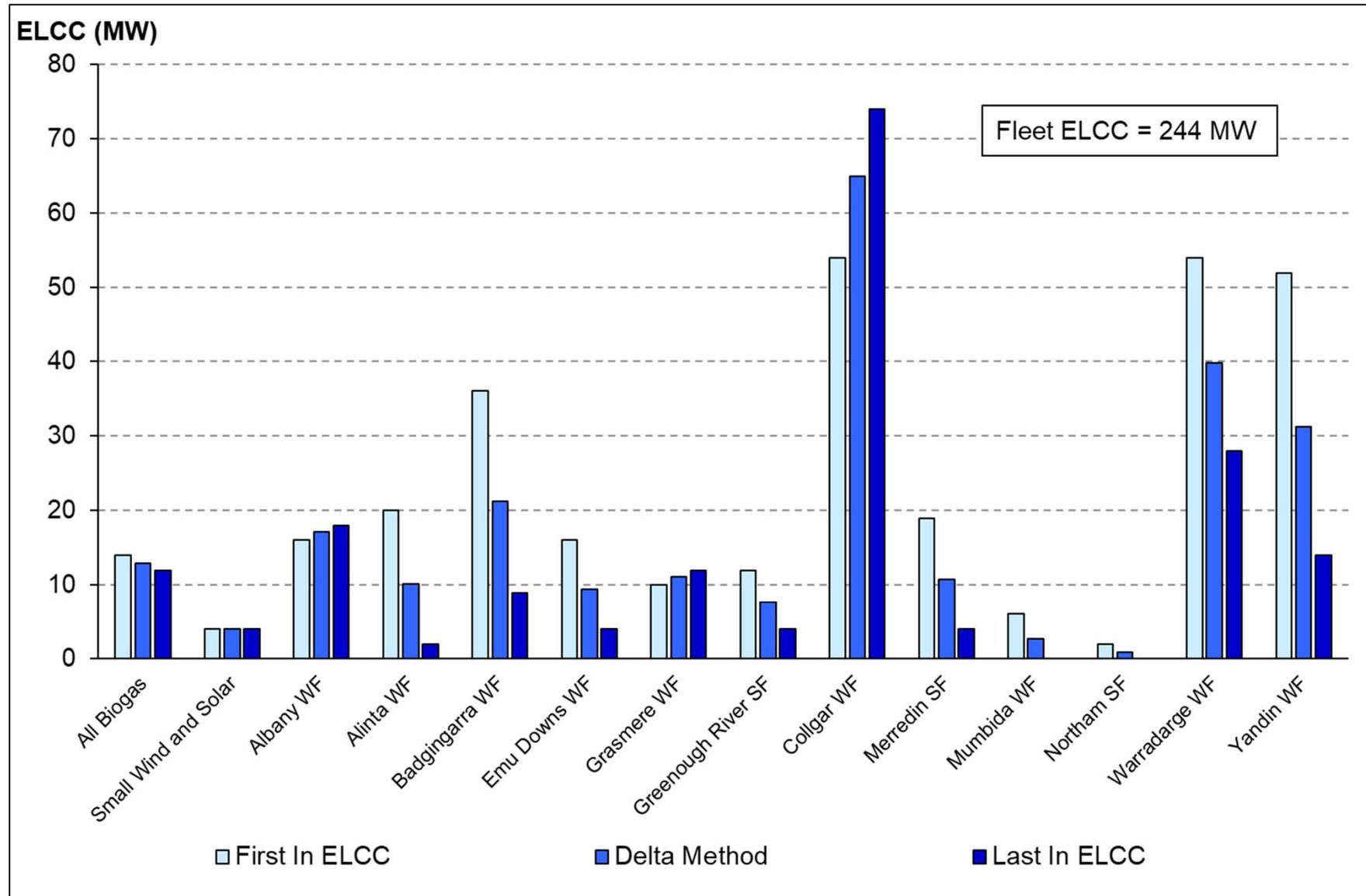
Target LOLE

- The WEM Rules do not state a target LOLE
- Using original LOLE as target
 - may undervalue Candidate Facilities where Non-Intermittent Facilities' CRC exceeds RCR
 - may overvalue Candidate Facilities where Non-Intermittent Facilities' CRC is less than RCR
- Implicit target LOLE set by Reserve Capacity Requirement
 - Target LOLE set based on LOLE determined if Non-Intermittent Facilities would meet Reserve Capacity Requirement

Draft Decision to use Delta Method

- Rule Change Panel's main concerns about the allocation proposed in the Rule Change Proposal
 - does not reflect performance during periods of high system stress
 - does not reflect benefits of diversity
 - does not reflect saturation effects
- Delta Method
 - addresses above concerns
 - reflects contribution during high system stress Trading Intervals without arbitrarily selecting these Trading Intervals

Allocation of Fleet ELCC with Delta Method

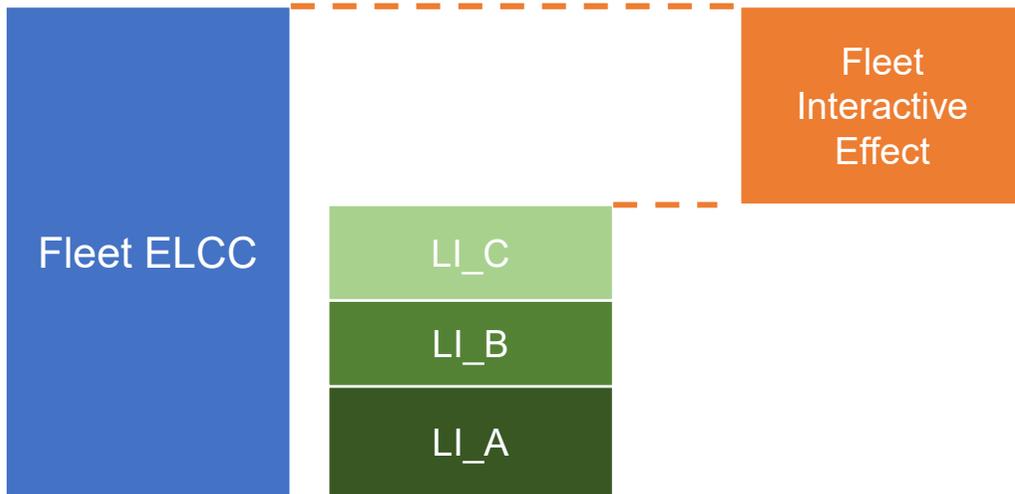


First In ELCC VS Last In ELCC

				CF_A			CF_B		
TI First In	LOLP First In	LOLP Reduction CF_A	LOLP Reduction CF_B	TI Last In	LOLP Last In	LOLP Reduction	TI Last In	LOLP Last In	LOLP Reduction
1	0.1376	0.00187	0.00012	1 (12)	0.00239	0.00057	1 (12)	0.00221	0.00039
2	0.01353	0.00205	0.00128	2 (2)	0.00170	0.00016	2 (8)	0.00212	0.00081
3	0.01319	0.00171	0.01136	3 (11)	0.00158	0.00030	3 (11)	0.00209	0.00067
4	0.01158	0.00296	0.00017	4 (8)	0.00156	0.00024	4 (2)	0.00156	0.00015
5	0.01147	0.00300	0	5 (1)	0.00129	0.00025	5 (9)	0.001286	0.00084
...		
Sum	0.17236	0.03174	0.07537	Sum	0.01162	0.00234	Sum	0.01356	0.004275

Individual ELCC under Delta Method – Example

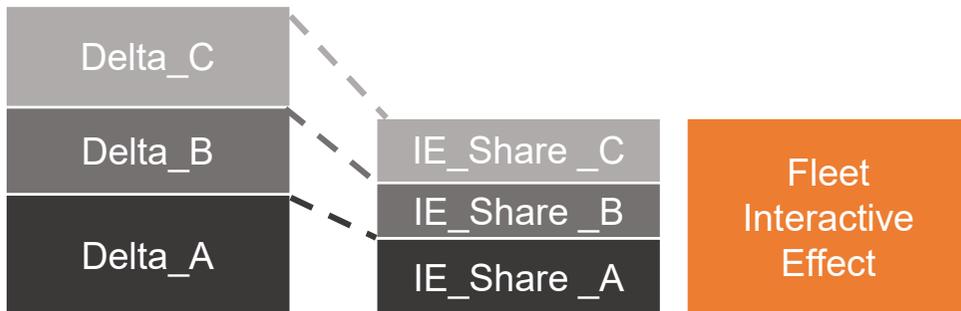
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Treatment of Small Facilities

- The determination of Relevant Levels for small Facilities and upgrades is problematic because
 - The granularity of 0.1 MW in the COPT
 - The steps in the COPT due to the size of Non-Candidate Facilities and assuming only full Forced Outages
- Draft decision
 - Group Non-Scheduled Facilities by technology (wind and solar together)
 - Allocate group ELCCs between Facilities based on relative performance during high system stress
- Should AEMO be allowed to include Semi Scheduled Facilities in the one of the groups for small Facilities?
- Should a small upgrade to a large Facility be grouped with that Facility for the Delta Method?

RCM Timeline

Event	Timing
CRC application window opens	~ 14 April
ESOO and Reserve Capacity Information Pack published	~ 17 June
CRC application window closes	~ 24 June
Applicants notified of CRC	~12 August
Applicants provide RCS and bilateral declarations	~ 25 August
Capacity Credit and NAQ allocations published	~ 30 September

- AEMO seeking more time between close of CRC application window and notification of CRC – proposes earlier close of CRC application window
 - 1 week between ESOO and close of CRC application window
- Alternative: later notification of CRC to applicants
 - compressed timeframes for subsequent steps; and/or
 - publish Allocation of Capacity Credits and NAQ later

Next Steps

- RCP Support available for one-on-one meetings
- Submissions on the Draft Rule Change Report due 19 May 2021
- Final Rule Change Report due 14 June 2021
 - Leaves only 9 Business Days to spare for the Rule Change Panel to finalize the Final Rule Change Report before 1 July 2021
 - If this timeline is not met, then it is very unlikely that the new RLM will be implemented for the 2021 Reserve Capacity Cycle
- Commencement of Amending Rules on 6 August 2021 (TBC)