AEMO
AUSTRALIAN ENERGY MARKET OPERATOR

MLF methodology review 2020

Workshop 1 – 5 June 2020

Agenda

No	TIME	AGENDA ITEM	PRESENTER
1	1:00pm – 1:30pm	Welcome, and introduction • Background and context • Objectives • Review timeframes	Chris Muffett
2	1:30pm – 1:45pm	Proposed MLF reports and studies • Publication timeframes • Key inputs	Samira Horoufi
3	1:45pm – 2:45pm	Issues for consideration • Key issue areas • Stakeholder input	Daniel Flynn
5	2:45pm – 3:00pm	High level prioritisation	Shantha Ranatunga
6	3:00pm	Closing summary	Chris Muffett

Welcome and introduction

Chris Muffett

Background and context

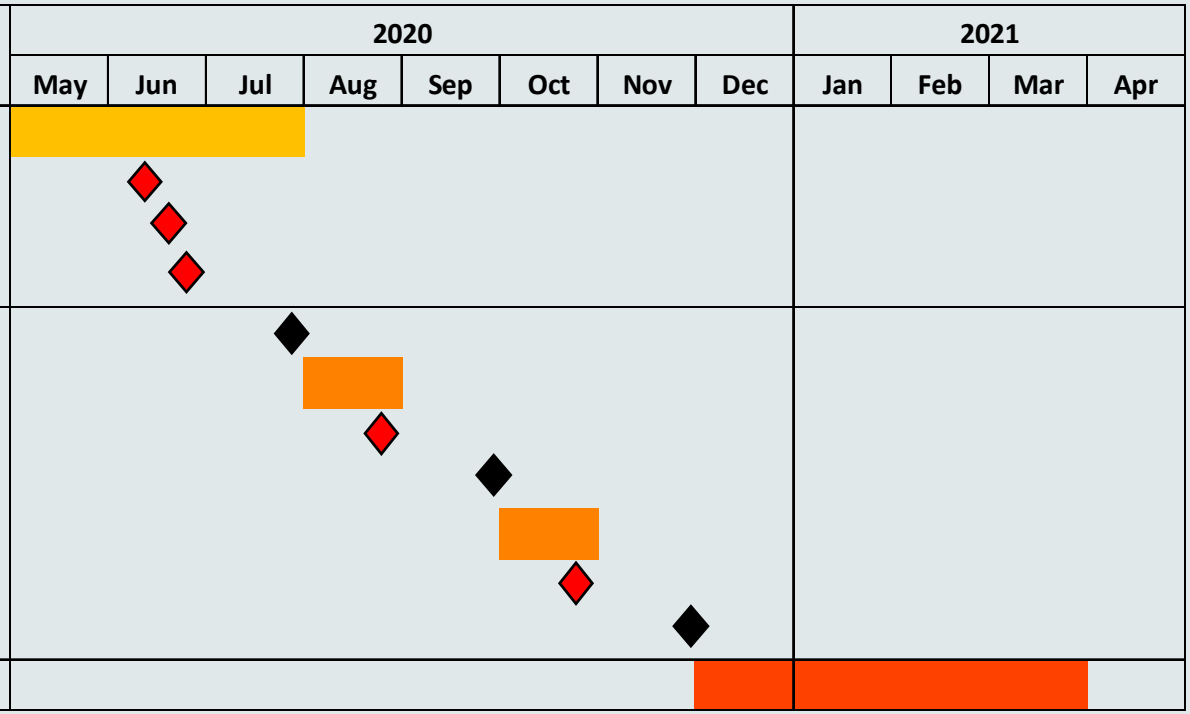
- Significant changes to generation mix in recent years, resulting in large shifts in MLFs in weaker/remote parts of the network between 2017-18 and 2019-20
- Increased prevalence of non-thermal network limitations, also impacting on the timing of commissioning new generation
- AEMC finalised Transmission Loss Factor rule change (2 Adani proposals):
  - No substantial changes to MLF framework (CoGaTI also working towards this)
  - Minor changes to incorporate improvements suggested by AEMO
- AEMO has committed to greater transparency of MLFs, including more frequent updates for upcoming FYs

Methodology review objectives

- Primary objectives of the review are to:
  - Incorporate changes to the Rules from the recent AEMC final determination
  - Re-align the methodology with changes in operational practise, particularly with respect to new generation
  - Address key issues with the methodology, including in light of the changing generation mix
  - Incorporate practical changes that can be adopted within a reasonable timeframe
- Secondary objectives also include:
  - Promote confidence and transparency in the methodology and AEMO's operational implementation
  - Assist the industry in understanding and modelling MLFs
  - Make the methodology less complicated where possible

Review timeframes

Phase	Task/milestone
Pre-consultation	Planning & stakeholder engagement
	Workshop 1 - high-level
	Workshop 2 - detailed issues 1
	Workshop 3 - detailed issues 2
Formal consultation	Issues paper published
	First round of consultation
	First round consultation workshop
	Draft determination published
	Second round of consultation
	Second round consultation workshop
	Final determination published
Implementation	Incorporate changes into MLF process



Proposed MLF reports and studies

Samira Horoufi

Proposed approach

- AEMO is proposing to publish 3 MLF reports for each target year:
  - Preliminary report
  - Draft report
  - Final report
- It is also proposed that 3 additional studies are conducted for the target year:
  - Scenario sensitivity study
  - Energy generation forecast study (previously referred to as indicative extrapolation)
  - Historical comparison study (previously referred to as a backcast)

Publication timeframes

Stage	FY19-20 application period	FY20-21 application period	FY21-22 application period
Scenario sensitivity study	-	-	Late August 2020
Energy generation forecast study		November 2019	October 2020
Preliminary report	-	November 2019	November 2020
Draft report	29 March & 1 April 2019	4 March 2020	1 March 2021
Final report	10 May 2019	1 April 2020	1 April 2021
1st revised report	21 June 2019	July 2020	July 2021
2nd revised report	-	October 2020	October 2021
3rd revised report	-	January 2021	January 2022
4th revised report	April 2020	April 2021	April 2022
5th revised report	June 2020	June 2021	June 2022
Historical comparison study	August-December 2020	August-December 2021	August-December 2022

Key inputs

Stage	Publication timing for FY21-22 application period	20_21 network model	21_22 network model	20_21 MLF input data	Historical generation data	Historical demand data	Scaled historical demand (regional %)	Connection point Forecast demand	New generation profile	Trading data	Generation Information
Scenario sensitivity study	Late Aug 2020	✓	✗	✓	✗	✗	✗	✗	✓	N/A	Jul 2020
Energy generation forecast study	Oct 2020	✓	✗	✗	✓	✓	✓	✗	✓	✓	Sep 2020
Preliminary report	Nov 2020	✓	✗	✗	✓	✓	✓	✗	✓	✓	Sep 2020
Draft report	1 Mar 2021	✗	✓	✗	✓	✗	✗	✓	✓	✓	Jan 2021
Final report	1 Apr 2021	✗	✓	✗	✓	✗	✗	✓	✓	✓	Jan 2021
Historical comparison study	Aug-Dec 2022	✓	✗	✗	✓	✓	✗	✗	✗	✓	N/A

Overall timing

Phase	Task/milestone
Pre-consultation	Planning & stakeholder engagement
	Workshop 1 - high-level
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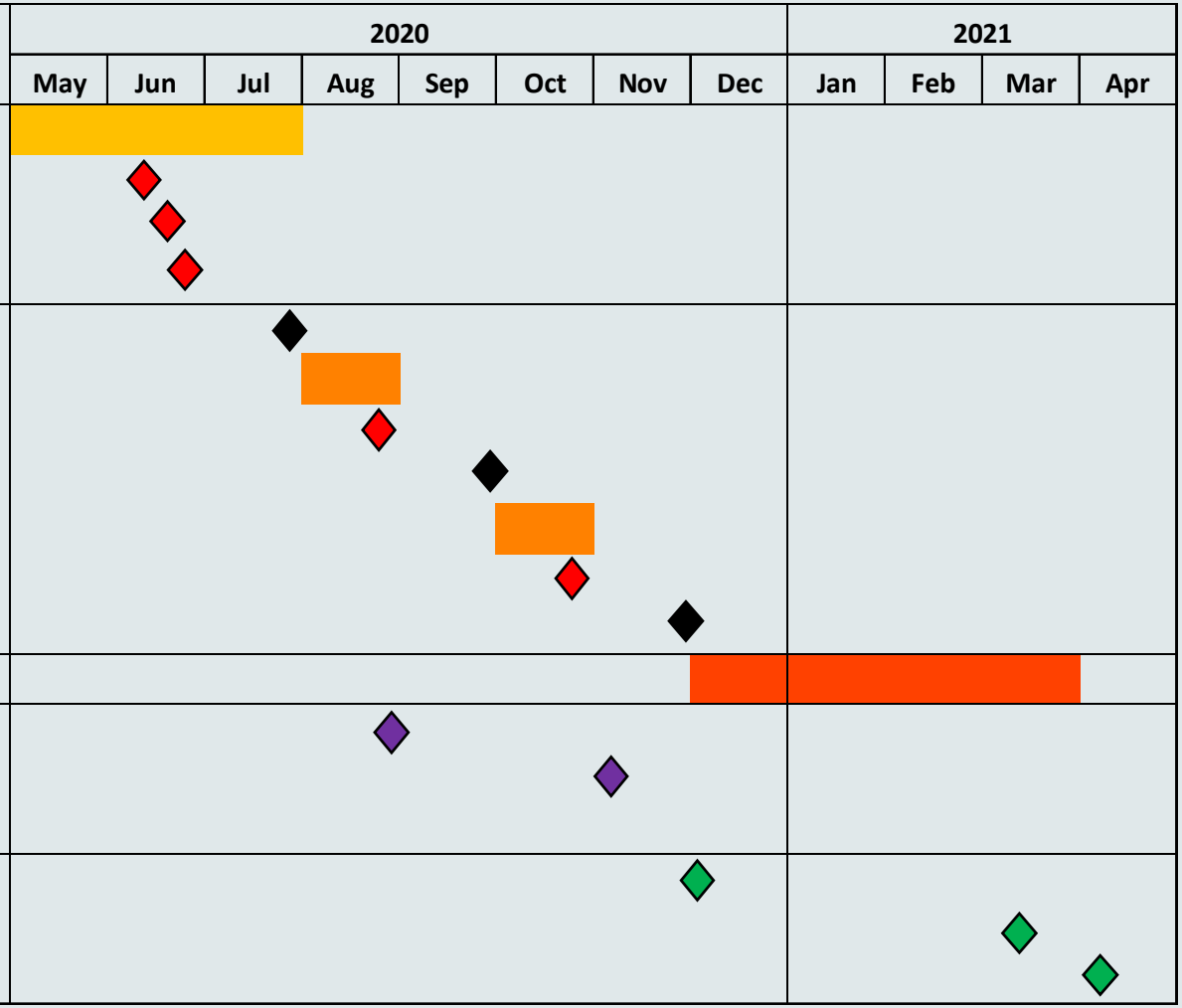
	First round of consultation
	First round consultation workshop
	Draft determination published
	Second round of consultation
	Second round consultation workshop
	Final determination published
Implementation	Incorporate changes into MLF process
2021-22 studies	Scenario sensitivity study
	Energy generation forecast study
	Historical comparison study (late 2022)
2021-22 reports	Preliminary report
	Draft report
	Final report



Issues for consideration

Daniel Flynn

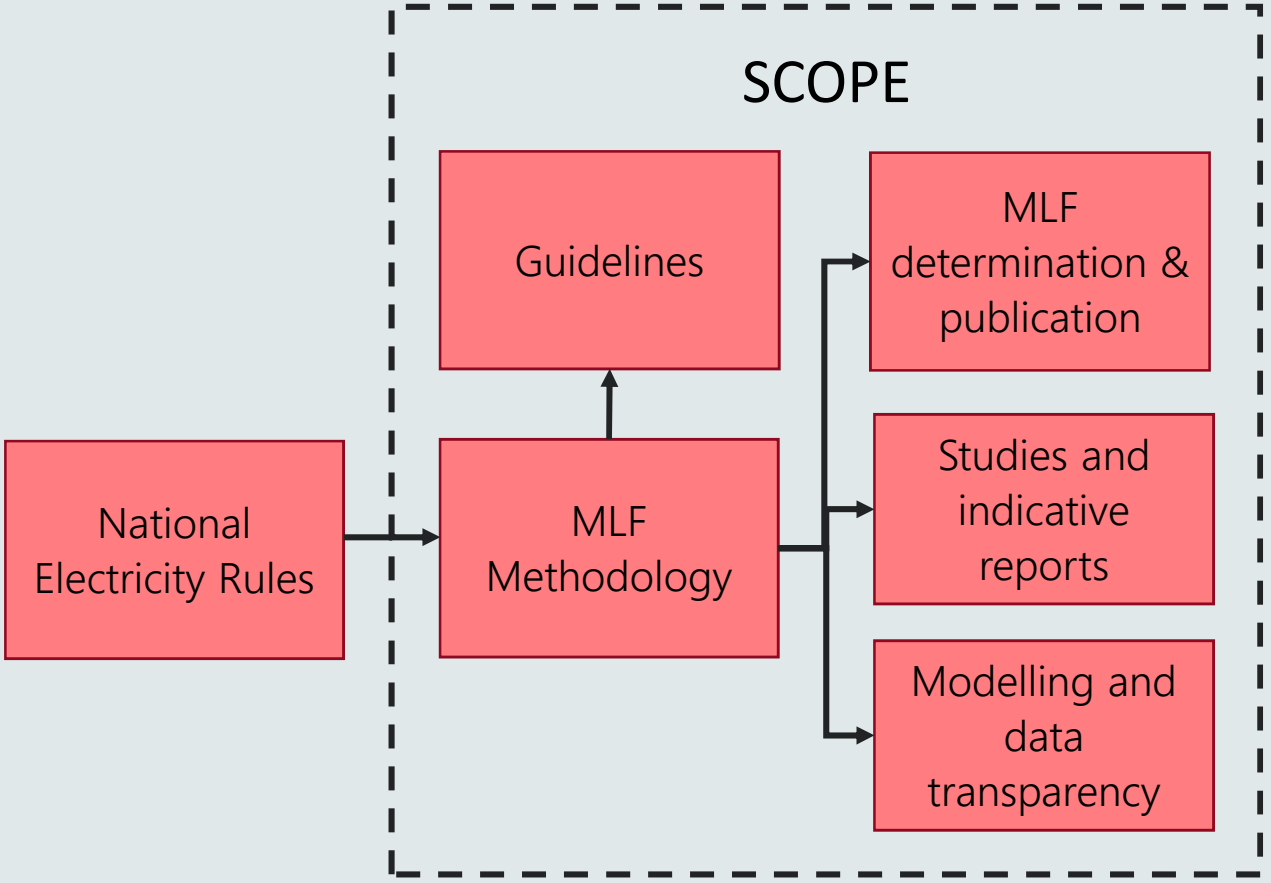
AEMO

Methodology review: Key issues

The scope of this review is focused on the MLF Methodology and associated documentation including guidelines and publications.

Priority will be given to issues that can be resolved and implemented into the 2021-22 MLF calculation process.

Issues that extend to the rules framework may need to be considered separately



Methodology review: Key issues

5.1 Network data

The Network Data section of the methodology describes the inputs and processes for preparing the network model for MLF studies.

Section	Specific Issue
5.1 Network Data	Distribution tie connected generators
	Transmission treatment

5.2 Load forecast data

The load forecast data section of the methodology describes the input and processes for preparing the load forecasts for MLF studies.

Section	Specific Issue
5.2 Load Forecast Data	No specific issues identified

Methodology review: Key issues

5.3 Controllable network element flow data

The Controllable Network Element Flow Data section of the methodology describes the treatment of DC interconnectors for MLF studies.

Section	Specific Issue
5.3 Controllable Network Element Flow Data	Parallel AC/DC IC modelling
	Rule change implementation

5.4 Generator data

The Generation Data section of the methodology describes the process and inputs for generator data preparation for MLF studies.

Section	Specific Issue
5.4 Generation Data	Generator capacities
	New generator profiles
	Commissioning profiles

Methodology review: Key issues

5.5 Supply-demand balance

The Supply-Demand Balance section of the methodology describes the process and theory for matching generation to load for MLF studies. The current process is based on the minimal extrapolation process.

Section	Specific Issue
5.5 Supply-Demand Balance	Safe operation of thermal plant
	Minimal extrapolation theory
	Extrapolation capping
	Intra/inter-regional constraints

5.6 Intra-regional static loss factors

The Intra-regional Static Loss Factors section of the methodology describes the process and theory for calculation of MLFs

Section	Specific Issue
5.6 Intra-regional Static Loss Factors	Tidal flow locations
	AC load flow

Methodology review: Key issues

5.7 Inter-regional loss factor equations

The Inter-regional Loss Factor Equation section of the methodology describes the process and theory for determining the inter-regional loss factors.

Section	Specific Issue
5.7 Inter-regional Loss Factor Equations	Looped regions

5.8 Publication

The Publication section of the methodology describes timeline for the annual publication of MLFs.

Section	Specific Issue
5.8 Publication	Indicative reports
	Intra-year revisions
	Indicative extrapolation report

Methodology review: Key issues

5.9 Unexpected and unusual system conditions

The Unexpected and Unusual System Conditions section of the methodology allows the AEMO to make judgements where an issue is not covered in the methodology. If the AEMO exercises this clause, it must identify these judgements in the annual report.

Section	Specific Issue
5.9 Unexpected and unusual system conditions	Treatment of problematic historical data

5.10 New connection points or interconnectors

The New Connection Points or Interconnector section of the methodology defines the process for managing new connection points and interconnectors post publication of MLFs and inter-regional loss factors.

Section	Specific Issue
5.10 New connection points or interconnectors	Modelling of TNIs

Methodology review: Key issues

Guidelines

There is currently two guidelines supporting the methodology, the *Treatment of Loss Factors in the NEM* and the *Proportioning of Inter-Regional Losses Within Regions* documents.

- *Treatment of Loss Factors* provides an in-depth overview of how MLFs are calculated and implemented within the NEM.
- *Proportioning of Inter-regional Losses* provides and in-depth overview of how inter-regional losses are calculated are implemented within the NEM.

The last revision was several years ago for both documents, and as such there has been significant change within the industry since and there is likely a lack of coverage of issues that have since become material in nature.

What is the appetite for updated guidelines, and if the guidelines were to be updated what are the inclusions or additions that would of most benefit to stakeholders?

High level prioritisation

Shantha Ranatunga

Prioritisation approach

- Proposing to prioritise addressing issues that can be addressed as part of MLF determination for FY21-22 (prior to April 2021)
  - Incorporate changes for controllable network elements (rule change)
  - Re-align the methodology with current operational practises
  - Consider practical improvements to the methodology
  - Improve documentation
- More significant methodology changes and issues that impact the rules framework may need to be addressed separately
- Seeking input from stakeholders on their priorities – open to engaging 1-on-1 prior to formal consultation

Closing summary

Chris Muffett

Next steps

- Upcoming workshops:
  - Workshop 2: Thursday 18th June, 1-3pm
  - Workshop 3: Friday 26th June, 1-3pm
- Information from previous forums and all workshops available at: https://aemo.com.au/energy-systems/electricity/national-electricity-market-nem/market-operations/loss-factors-and-regional-boundaries/review-of-marginal-loss-factor-calculation-processes
- Any feedback or questions should be directed to: mlf_feedback@aemo.com.au

- Thank you all for your participation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