Marginal Loss Factor (MLF) Engagement session notes

DATE: August 2018

LOCATION: Brisbane, Melbourne and Sydney

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ATTENDEES:

COMPANY	COMPANY	COMPANY
Adani	EnergyAustralia	Origin
AEMC	ERM Power	Public Interest Advocacy Centre
AEMO	Ernst & Young	Red/Lumo
AGL	ESCO Pacific	RES Australia
APA Group	First Solar	Risen Energy
Aurecon	Foresight Group	Shell
Australian Energy Council	Greenview Strategic Consulting	Snowy Hydro
Baringa	Infigen	Stanwell
Clean Energy Council	Innogy Renewables Australia	Sumitomo Mitsui Banking Corporation
CS Energy	Jacobs (Australia)	Tilt Renewables
Delta Electricity	Lighthouse	TransGrid
Edge Energy Services	Macquarie Group	UPC Renewables Australia
Edify Energy	Meridian Energy	WIRSOL
Energy Developments	NAB	Woolnorth Windfarm Holding

1. Brisbane Session

One MLF per Connection Point vs using TNIs

AEMO should examine the use of TNIs for aggregating connection points – The MLF calculation will assign the same MLF to several connection points which share a common TNI. Is this an accurate process given that different generator/load connection points will have different generation/consumption profiles?

Increasing forecast-ability

AEMO should aim to release as much information on the MLF process as possible, AEMO should publicly release the network (PSS/E) model used in the MLF calculation.

AEMO should consider releasing additional confidential information to a selected group of consultants who can provide improved MLF forecasting services to the market. It was noted that if AEMO took this approach participants/developers would potentially be less likely to share confidential information with AEMO.

Accuracy of calculation

Concerns were raised over the accuracy of the list of committed projects AEMO used in the MLF calculation. It was asked whether there was alignment between Powerlink's committed project list and the list that is used in the MLF calculation. Question taken on notice.

It was suggested that AEMO more heavily lean on the powers it has under the NEL and NER to compel participants to provide updated and accurate information. Either directly into the MLF process or into other process that can be used to inform the MLF calculation: e.g. MTPASA and EAAP (GELF).

It was suggested that AEMO may be able to use the REIMS process to represent transmission outages in the MLF calculation.

Sensitivity Analysis

Can AEMO publish the sensitivity of MLFs to changes in generation at the connection point?

Frameworks Changes

Different sets of MLF

Should different MLFs be developed for different applications – one set for settlement and one set for dispatch?

Should generators be allowed select MLFs with their assumed set of committed generation?

Dynamic MLFs

General agreement that if AEMO were to change the temporal basis for MLF calculation that going straight to Dynamic (5-minute) MLFs would be preferable. The main reason being that dynamic MLFs most closely represent actual marginal losses in the system, and that actual marginal losses are easier to forecast than averaged forecast marginal losses.

Dynamic MLFs also incentivise generators to change their operating behaviour to minimise losses. Current framework does not incentivise this, it only provides a locational signal.

Support for AEMO publishing dynamic MLFs even if not implemented. This would allow participants to see if they could adapt their systems to take advantage of dynamic MLFs.

Intraregional residues

Discussion on whether it is appropriate to return all intraregional residues to TNSPs. Consideration should be made to loss credits, with participants receiving residues in line with their loss factors.

2. Melbourne Session

Increasing forecast-ability

AEMO should consider approach made in assessing committed projects. There is information asymmetry with AEMO using different assumptions to consultants/participants, and AEMO should increase the granularity of the information we report on future project status, and criteria we use to determine if a project is committed, so everyone can be working off the same page. It was noted that there is sometimes an inconsistency in information reported by AEMO on project status – typically between the generator information page and information from connections teams.

Accuracy of calculation

Question asked if there was any analysis done on the benefit of using high fidelity metering data over other sources. Would it be better to use lower fidelity data that could be sourced

later in the process (nearer to time of application)? AEMO will check to see if there are any NER issues with this.

Question asked whether AEMO checks the accuracy of the data given to us: are wind forecasts 50% POE or 90% POE? Do revised generation profiles match actuals? AEMO should consider spot checks.

AEMO should provide detailed back-cast information.

Sensitivity Analysis

Can MLFs be publish the more information on the sensitivity of MLFs to change? Ideally the sensitivity analysis would consider generation type and transmission limits as well.

Frameworks Changes

Triggers for re-run of MLF

Can we use changes in MT PASA or like trigger re-runs of MLF following material changes in forecast condition?

Dynamic v Static MLFs

Point again made that that dynamic MLFs most closely represent actual marginal losses in the system, and that actual marginal losses are easier to forecast than averaged forecast marginal losses.

Support for AEMO publishing dynamic MLFs even if not implemented.

Some concerns raised that a 5-minute dynamic MLF would be too difficult for some participants to deal with from a trading or settlement perspective. AEMO should consider looking at different forecast periods: day, week, month, etc to see what gives the best value when trading off frequency of calculation against accuracy. Suggest that we do back-cast exercise to look at this.

Support for grandfathered MLFs or moving average MLFs expressed as they give greater certainty to new projects.

Risk Management

Discussion on whether it is appropriate to return all intraregional residues to TNSPs. Consideration should be made to loss credits, with participants receiving residues in line with their loss factors.

Discussion on whether or how MLF risk should be managed. Are generators best place to manage this risk?

3. Sydney Session

Increasing forecast-ability

There was general feedback that the process is not transparent and is very hard to replicate, and that this is the biggest issue with the MLF process. As much as possible AEMO's input data, modelling methodology, assumptions, and decisions should be made clear.

Suggestions to improve transparency and forecast-ability include:

- Creating a MLF process document that sits beside the FLLF procedure that clearly steps through the calculation
- Providing example calculations
- Making the full MLF model open access
    - In the discussion on this topic it was noted that some data would be very hard to make public, especially industrial demand forecasts.
- Providing a public 'black box' model
- Having a panel of consultants with whom we share the full MLF model who can provide forecasts to participants.
- Publishing sensitivity factors for each MLF, relating to generation at the connection point and interconnector flow.

Increasing knowledge of the market

AEMO should seek to further educate participants and intending participants.

Accuracy of calculation

It was stated that AEMO's demand forecasts are systemically high, has AEMO studied the impact of this error on MLF ?.

Concerns were raised over the accuracy of the minimum extrapolation process. The current process does not discriminate between low cost and high cost generation when scaling generation to meet demand.

Can AEMO provide more information on reactive power flows in the model. Is gen MVAr output constrained by GPS limits.

The use of probabilistic calculations was discussed with some support, assuming different generation conditions and committed project profiles. It was also suggested that AEMO use different reference years in the calculation of MLF and use the weighted average.

Are limits associated with FCAS, inertia and system strength taken into consideration? Minimum extrapolation process should make sure they are.

Frameworks Changes

Different sets of MLF

The issue of using different MLFs be developed for different applications – one set for settlement and one set for dispatch was discussed.

Dynamic MLFs

Concern was raised about increasing the rate of MLF calculations. Dynamic MLFs may be too complex for some participants to use in their bidding and settlement processes.

Higher resolution MLFs

AEMO should consider having higher resolution MLFs, say monthly, that are calculated 6 months ahead. This would allow more accurate MLFs but also allow generators to plan, e.g. schedule major outages.

Loss factor equations

Consideration should be given to nearby generation, not just generation at the connection point.

Loss factor equations would likely be as volatile as MLF numbers, so there may be little value in moving to equations.

Risk Management

Discussion on whether it is appropriate to return all intraregional residues to TNSPs. Support given to the concept of for loss credits, with participants receiving residues in line with their loss factors.