DRAFT NOTES OF MEETING – AWEFS/ASEFS Vendor Discussion

MEETING: # 1

DATE: Tuesday 20 March 2017

TIME: 1:00pm – 3:00pm AEST

CONTACT: Op.Forecasting@aemo.com.au

ATTENDEES:

NAME	ORGANISATION	LOCATION
Marcelle Gannon (chair)	AEMO	Melbourne
Mike Davidson	AEMO	Webinar
Ross Gillett	AEMO	Webinar
Steven Disano	AEMO	Webinar
Nick Morley	First Solar	Webinar
Nicole Ghiotto	First Solar	Webinar
Anna Cain	First Solar	Webinar
Colin Bonner	Fulcrum 3D	Webinar
Prabath Atapattu	Senvion	Melbourne
James Miele	Senvion	Melbourne
Rick Zhang	Siemens	Webinar
Nick Engerer	ANU	Melbourne
Steen Nielsen	Suzlon	Webinar
Venkatesh Madaswamy	Suzlon	Webinar
Philip Vegh	Vestas	Melbourne
John Sutton	Aeolius Wind Systems	Webinar
Ragu Balanthan	GE	Melbourne

References to slides are from "AWEFS ASEFS Vendor Discussion.pdf", attached to these notes.

NOTES OF DISCUSSION AT THE MEETING

The aims of this meeting were to:

- Educate wind and solar farm vendors on the Energy Conversion Model (ECM) process.
- Discuss the SCADA requirements for wind and solar forecasting purposes.
- Seek feedback on the meaning of the "Turbines Available" SCADA signal.
- Discuss the "Estimated Power" SCADA signal concept.
- Discuss technological possibilities for forward forecasting of wind and solar farm generation.

Energy Conversion Model and AWEFS/ASEFS dispatch forecasting process

Marcelle Gannon presented slides 3-4. These covered:

- Purpose of the Energy Conversion Model

- Location of the current Energy Conversion Model spreadsheet and formal consultation reports.

SCADA signals

Marcelle Gannon presented slides 5-12. These covered:

- Meaning of “Active Power” SCADA (farm and cluster).
- Meaning of MW Setpoint signal.
- Definition and use of Turbines / Inverters Available signal.
- Potential additional Turbines Available signal more suitable for the dispatch forecast.
- Definition of wind speed and irradiance measures.
- Definition of new Local Limit SCADA signal.
- Definition and purpose of Turbines Extreme Wind Cut-Out signal.

Discussion:

- General agreement that the MW Setpoint SCADA signal is easy to provide.
- Detailed discussion on the meaning of the Turbines Available signal. General agreement that the current definition is met as turbines that are available to generate including those that are outside of their operational parameters.
- Discussion on the existing Turbines Available identified some gaps in the definition, for the situations of wind and noise sector management and turbine de-rating. **Action on AEMO**: to follow up with the AWEFS vendor on how these would best be handled.
- Detailed discussion on an alternative (or additional) SCADA signal for turbine availability for dispatch.
    - Identified that this could mean the turbines that are connected to grid (running, or could be running), which are not in error (not with an alarm). This may be equivalent to the current Turbines Available value less those that are outside of their operational parameters.
    - General agreement that while this could be implemented with a software change for future farms, it could be difficult to apply retrospectively.
    - Discussion on the value of having this reflecting availability at the end of the 5-minute dispatch interval, to better forecast output from turbines coming out of error or outage, but that this could be very difficult to do.
- *Question on slide 9: How many pyranometers are needed for a good solar irradiance reading for the farm? Is there benefit to averaging multiple readings, like for the wind speed?* **Action on AEMO:** Follow up with ASEFS vendor.
- Discussion on the meaning and implementation of the Local Limit signal. Comment that this is likely to come from the Balance of Plant (BOP) SCADA. (See also correction below to slide 11).
- Discussion of the purpose and the potential implementation of the Turbines Extreme Wind Cut-out signal. General agreement on that it could be derived from status at the turbines, but was not currently generally available in the central SCADA system.

Correction:

- Slide 11, a short summary of the Local Limit signal, has been updated to explicitly state that it is to include technical limits only.

Estimated Power SCADA / Forward Forecasting

Marcelle Gannon presented slides 13 – 14. These covered:

- Purpose of optional Estimated Power signal and critical implementation details.
- Questions about the technological capability for forward (5+ minutes) forecasting of wind and solar generation.

Discussion:

- Estimated power – general agreement that a “current” signal (e.g. “Possible Power”) exists for many wind farms, but that the looking forwards would likely need to be done outside the SCADA system. There would need to be R&D done to implement an Estimated Power signal to its full potential.
- Note that India is looking at requiring wind and solar farms to provide a forward forecasting capability.
- For solar, there are a variety of technologies in R&D that could inform near-term forward forecasting, with different technologies appropriate for different timescales (including 15+ mins) and cloud types.
- For solar, there’s currently a technical/mathematical issue with the use of multiple cloud cameras for near-term forecasting for large sites.

Actions arising

- **AEMO** to follow up with AWEFS vendor on how to handle the cases not explicitly covered by the Turbines Available definition.
- **AEMO** to follow up with ASEFS vendor on how many pyranometers are needed for a good solar irradiance reading for a farm and whether averaging multiple meters would be of benefit.