



WEMS Release Notes - Prudential Service 1.3

June 2020

Important notice

PURPOSE

The Australian Energy Market Operator (AEMO) has prepared this document to provide information about changes incorporated in the latest release to the Wholesale Electricity Market System (WEMS) as at the date of publication.

DISCLAIMER

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VERSION CONTROL

Version	Release date	Changes
1.0	22/06/2020	Initial Publication for Prudential 1.3 Release

DOCUMENT APPROVAL

Name	Position	Date
Martin Maticka	Group Manager, WA Markets	10/06/2020

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1. Introduction

1.1 Overview

In July 2018, AEMO commenced the Reduction of Prudential Exposure (RoPE) project to address known issues with Prudential Requirements in the Wholesale Electricity Market (WEM). Phase 1 of the project ran from July 2018 to May 2019, and implemented the changes required under Rule Change Proposal: Reduction of the Prudential Exposure in the Reserve Capacity Mechanism (RC_2017_06), including amendments to the Individual Reserve Capacity Requirement, Capacity Credit Allocations and associated settlement and prudential processes.

AEMO is now progressing proposed amendments to the Procedures (APEC_2020_06¹) to implement phase 2 of the project, which will improve the accuracy of the Outstanding Amount calculation. The Outstanding Amount calculation is used in assessing Market Participants' Trading Margins.

The proposed amendments will implement a dynamic, daily Outstanding Amount calculation based on the settlement calculations specified in the WEM Rules, using the latest operational data or estimates of operational data when that data is not available.

These are the release notes for Prudential Services 1.3 (Build 1.3-735-2).

This release of the WEMS application suite includes the changes required to implement AEMO Procedure Change APEC_2020_06 including:

- A new dynamic Outstanding Amount calculation, as described in the Market Procedure: Prudential Requirements, implemented by a new calculation and estimation;
- A new user display that provides Market Participants with:
 - daily prudential monitoring parameters including Cumulative Estimated Exposure, Invoices not paid, Prepayments, Outstanding Amount, Credit Limit, Credit Support, Trading Limit and Trading Margin to review the prudential calculation results; and
 - access to a files and APIs that provide prudential parameters such as the inputs and outputs of the Cumulative Estimated Exposure calculation to reconcile against the WEM Metering, Settlement and Prudential Calculation Formulation document; and
- A new user display that provides Market Participants with details and documentation in relation to the Credit Limit reviews and their Credit Support arrangements.

The system changes under this release are described in the sections below.

1.2 Supporting documentation

- WEM Metering, Settlement and Prudential Calculation Formulation
- WEMS MPI User Guide
- WEMS Report and Web Service Specification

1.3 WEMS version summary

Table 1 summarises the changes in version post deployment of this release.

¹ https://aemo.com.au/consultations/current-and-closed-consultations/aepc_2020_06

Table 1 WEMS Version Summary

Application	Current version	New version
WEMS	3.35 (Build 3.35-1513-2)	3.35 (Build 3.35-1513-3)
Prudential Service	-	1.3 (Build 1.3-735-2)

To view the current version of MPI, please navigate to Help > About in the MPI.

1.4 Abbreviations

Table 2 outlines the abbreviations used in this document.

Table 2 Abbreviations

Abbreviation	Expanded name
AEMO	Australian Energy Market Operator
BMO	Balancing Merit Order
MOSMI	Market Operator System Monitoring Interface
MPI	Market Participant Interface
PDS	Public Data Site
PCS	Product Configuration Specification
SQL	Structured Query Language
WEMS	Wholesale Electricity Market System

1.5 Status legend

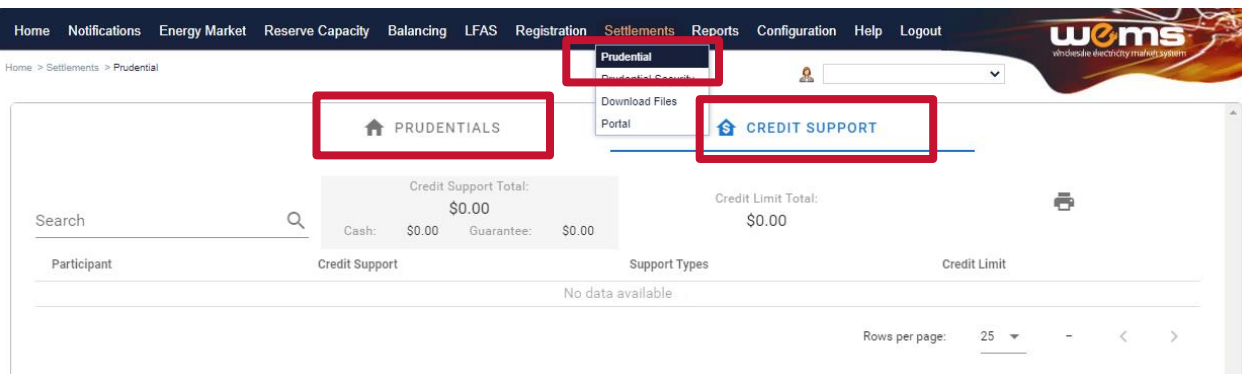
Table 3 outlines the issue statuses used in this document.

Table 3 Status Legend

Status
● Internal changes
● Minimal or no impact to Market Participants
● Needs Market Participants' attention. Potentially requires system or operational procedure changes.

2. New Prudential Menu Item

A new section has been added to the Settlements drop down menu in WEMS MPI. This provides access to both the “Prudentials” module and the “Credit Support” screens.



3. New Prudential Screen with Outstanding Amount Calculation

As part of phase 2 of the Reduction of Prudential Exposure in the RCM (RoPE) project, AEMO has developed a new settlement calculation engine. Prudential Service 1.3 is the first application in the WEMS suite to use this new settlement calculation engine to calculate the proposed dynamic Outstanding Amount calculation.

AEMO calculates the Outstanding Amount of a Market Participant under clause 2.40.1 of the WEM Rules and section 5 of the Market Procedure: Prudential Requirements.

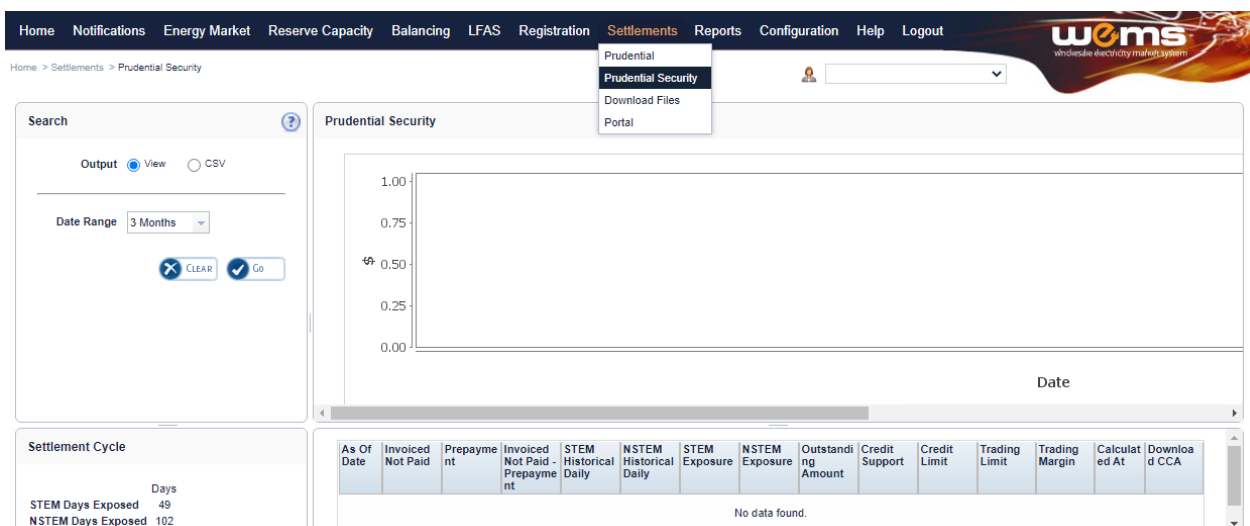
In this release of the WEMS, AEMO has introduced the Prudential Service which performs the calculation of the proposed new Outstanding Amount calculation introduced under APEC_2020_06. This system uses available data, or estimated data when required data is not available, in order to determine a Market Participant’s Outstanding Amount on a daily basis.

As communicated at the WEM Rule Change Working Group on 12 June², this release of the WEMS Prudential Service 1.3 is intended to support parallel testing for Market Participants. The parallel testing period will run from 3 July 2020 31 July 2020. During the parallel testing period, both the existing prudential reporting screen (found under the WEMS > Settlements > Prudential Security screen) and new prudential reporting screen (found under the WEMS > Settlements > Prudential screen) will be available in WEMS production. This will allow Market Participants to see the proposed new Outstanding Amount calculation working with actual market data prior APEC_2020_06 becoming effective.

For the avoidance of doubt, the existing Outstanding Amount calculation (found under the WEMS > Settlements > Prudential Security screen) will continue to be used by AEMO and should be used by Market Participants for all prudential obligations under the WEM Rules and current Market Procedure: Prudential Requirement (v7.0) until APEC_2020_06 becomes effective.

The current screen (shown below) will remain in place and will be archived on the effective date of the new Market Procedure: Prudential Requirements.

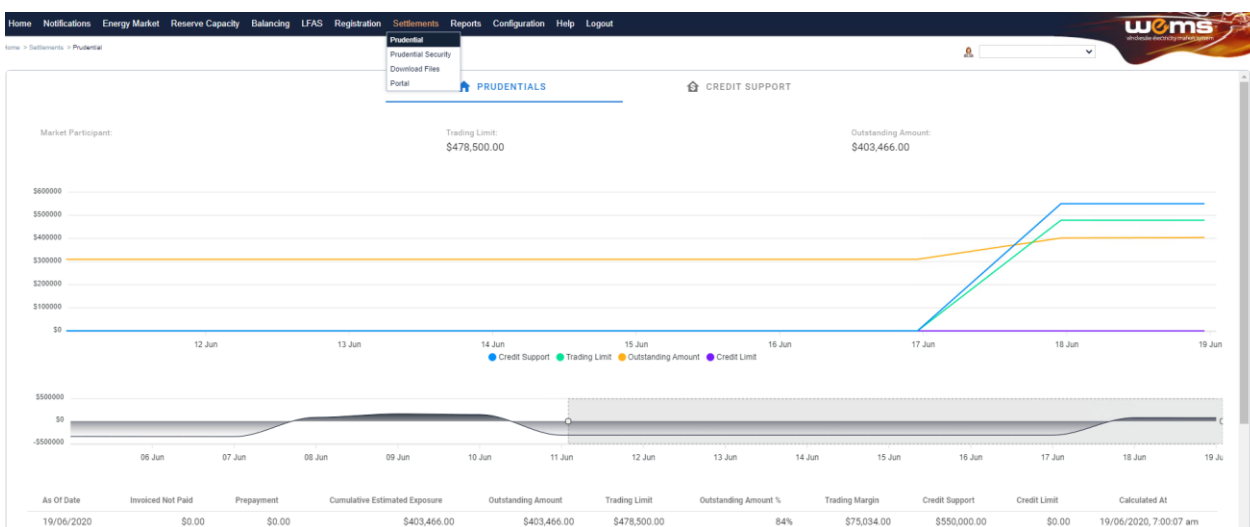
² Powerpoint presentation of this meeting can be found at <https://aemo.com.au/en/consultations/industry-forums-and-working-groups/list-of-industry-forums-and-working-groups/wem-rule-change-working-group>



3.1 New Prudential Monitoring Screen

To view the results of the new Outstanding Amount calculation, navigate to the Prudential screen within the new "Prudential" menu item. This will display a new screen with information pertaining to the results of the Prudential Service calculation. Specifically, it will show:

- Credit Support provided by the Market Participant in accordance with clause 2.38.1 of the WEM Rules.
- Trading Limit calculated in accordance with clause 2.39.1 of the WEM Rules;
- (Proposed) Outstanding Amount calculated in accordance with clause 2.40.1 of the WEM Rules and section 5.1 of the APEC_2020_06 proposed Market Procedure: Prudential Requirements;
- Credit Limit as per the most recent determination made by AEMO under clause 2.37.1 of the WEM Rules; and
- Trading Margin calculated in accordance with clause 2.41.1 of the WEM Rules, but using the proposed Outstanding Amount value;



Note: Although the calculation time may vary, the Cumulative Estimated Exposure is anticipated to be updated by 12 noon each day. All other information on the Prudential screen (e.g. Prepayment and Invoiced Not Paid) is updated every hour (on the hour) by a scheduled process.

The Prudential screen includes a table which provides Market Participants a breakdown of their Cumulative Estimated Exposure by invoice period. For example, on 23 June 2020, there are 53 days of Non-STEM

exposure and 5 days of STEM exposure contributing to the Cumulative Estimated Exposure value. This would be broken down into the following invoicing periods:

- 31 days of Non-STEM exposure in May 2020
- 22 days of Non-STEM exposure in June 2020
- 5 days of STEM exposure in TW 25/20

Prudential Settlement Statement

As at:
 Current (23/06/2020)
 Forecast (24/06/2020)

Participant	Market	Invoice Period	Adjustment Type	Type	Amount
	NSTEM	May 2020	Initial	Estimate	\$0.00
	NSTEM	Jun 2020	Initial	Partial Estimate	\$0.00
	STEM	TW 25/20	Initial	Partial Estimate	\$0.00

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[DOWNLOAD SUMMARY](#) [DOWNLOAD DETAILS](#) [DOWNLOAD ESTIMATION DETAILS](#)

3.2 Download latest prudential calculation data

On the Prudential screen three new buttons are provided to download the underlying data used in the proposed outstanding amount calculation for the latest As of Date. Each button provides a compressed zip file containing one or more CSV files with details from the calculation.

- Summary File: Contains the summary information of the calculation at the highest level of the calculation. This data is contained within a single file, which contains data for each market (STEM and Non-STEM) for each Trading Day within the exposed period. This data is at a similar level to the line items on Market Participants’ invoices.

An example of a summary file is below:

```

1 As of Date,Participant,Market,Variable,Timestamp,P or C,GST Applicable,Value
2 "2020-06-23","PARTYX","NSTEM","CASSR_P_D","2020-05-01","Payment","Y","0.00000000"
3 "2020-06-23","PARTYX","NSTEM","COFFC_P_D","2020-05-01","Payment","Y","0.00000000"
4 "2020-06-23","PARTYX","NSTEM","DIPT3_P_D","2020-05-01","Payment","Y","0.00000000"
5 "2020-06-23","PARTYX","NSTEM","LFMC_P_D","2020-05-01","Charge","Y","0.00000000"
6 "2020-06-23","PARTYX","NSTEM","SRAC_P_D","2020-05-01","Charge","Y","0.00000000"
7 "2020-06-23","PARTYX","NSTEM","CASD_P_D","2020-05-01","Payment","Y","0.00000000"
8 "2020-06-23","PARTYX","NSTEM","COCC_P_D","2020-05-01","Charge","Y","0.00000000"
9 "2020-06-23","PARTYX","NSTEM","CONC_P_D","2020-05-01","Payment","Y","0.00000000"
10 "2020-06-23","PARTYX","NSTEM","DSMCCSA_P_D","2020-05-01","Payment","Y","0.00000000"
11 "2020-06-23","PARTYX","NSTEM","MFSAD_P_D","2020-05-01","Charge","N","0.00000000"
12 "2020-06-23","PARTYX","NSTEM","RFSAD_P_D","2020-05-01","Charge","N","0.00000000"

```

- Detailed File: Contains the detailed information of the calculation including all values used as inputs and the values resulting from the calculated variables under the WEM Rules. This data is presented in multiple files with a single file relating to a market (STEM or Non-STEM) for a single Trading Day. This data is intended to be used by Market Participants in conjunction with the WEM Metering, Settlement and Prudential Calculation Specification³ to allow them to reconcile the calculation. The data is at a similar level to the data in Market Participants’ PIR files.

An example of a detailed file is a below:

³ The draft version of this document can be found at <https://aemo.com.au/en/consultations/industry-forums-and-working-groups/list-of-industry-forums-and-working-groups/wem-rule-change-working-group>


```

1 As of Date,Participant,Settlement Trading Day,Variable,Scope,Timestamp,Value
2 "2020-06-23","PARTYX","2020-05-01","MAXPGR_P_CY","PARTYX","2019-10-01","0.0"
3 "2020-06-23","PARTYX","2020-05-01","DSMRCP_G_CY","Global","2019-10-01","16990.38"
4 "2020-06-23","PARTYX","2020-05-01","DSMRCP_G_M","Global","2019-10-01","1415.865"
5 "2020-06-23","PARTYX","2020-05-01","RCP_G_CY","Global","2019-10-01","126683.47"
6 "2020-06-23","PARTYX","2020-05-01","RCP_G_M","Global","2019-10-01","10556.95583333"
7 "2020-06-23","PARTYX","2020-05-01","TDTM_G_M","Global","2019-10-01","31.0"
8 "2020-06-23","PARTYX","2020-05-01","MAXPGR_P_D","PARTYX","2019-10-01","0.0"
9 "2020-06-23","PARTYX","2020-05-01","RCP_G_D","Global","2019-10-01","340.54696237"
10 "2020-06-23","PARTYX","2020-05-01","DSMRCP_G_D","Global","2019-10-01","45.67306452"
11 "2020-06-23","PARTYX","2020-05-01","RCP_G_D","Global","2019-10-02","340.54696237"
12 "2020-06-23","PARTYX","2020-05-01","DSMRCP_G_D","Global","2019-10-02","45.67306452"
13 "2020-06-23","PARTYX","2020-05-01","MAXPGR_P_D","PARTYX","2019-10-02","0.0"
14 "2020-06-23","PARTYX","2020-05-01","MAXPGR_P_D","PARTYX","2019-10-03","0.0"

```

- Estimation File: Contains the detailed information of settlement input estimation calculations based on the proposed Market Procedure: Prudential Requirements and detailed in the WEM Metering, Settlement and Prudential Calculation Specification. This data is at a similar level to the detailed file outlined above.

An example of an estimation file is below:

```

1 As of Date,Participant,Settlement Trading Day,Variable,Scope,Timestamp,Value
2 "2020-06-23","PARTYX","2020-02-01","_CASD_P_M","PARTYX","2020-02-01","0.0"
3 "2020-06-23","PARTYX","2020-02-01","_CASR_P_M","PARTYX","2020-02-01","0.0"
4 "2020-06-23","PARTYX","2020-02-01","CASL_P_M","PARTYX","2020-02-01","0.0"
5 "2020-06-23","PARTYX","2020-02-01","CASSRQmwh_P_I","PARTYX","2020-01-31 08:00","0.0"
6 "2020-06-23","PARTYX","2020-02-01","CASSRQmwh_P_I","PARTYX","2020-01-31 08:30","0.0"
7 "2020-06-23","PARTYX","2020-02-01","CASSRQmwh_P_I","PARTYX","2020-01-31 09:00","0.0"
8 "2020-06-23","PARTYX","2020-02-01","CASSRQmwh_P_I","PARTYX","2020-01-31 09:30","0.0"
9 "2020-06-23","PARTYX","2020-02-01","CASSRQmwh_P_I","PARTYX","2020-01-31 10:00","0.0"
10 "2020-06-23","PARTYX","2020-02-01","CASSRQmwh_P_I","PARTYX","2020-01-31 10:30","0.0"
11 "2020-06-23","PARTYX","2020-02-01","CASSRQmwh_P_I","PARTYX","2020-01-31 11:00","0.0"
12 "2020-06-23","PARTYX","2020-02-01","CASSRQmwh_P_I","PARTYX","2020-01-31 11:30","0.0"

```

The screenshot below shows the buttons that generate the files above. Due to the volume of data within the files it can take minutes to generate.

Prudential Settlement Statement

As at:

Current (23/06/2020)

Forecast (24/06/2020)

Participant	Market	Invoice Period	Adjustment Type	Type	Amount
	NSTEM	May 2020	Initial	Estimate	\$0.00
	NSTEM	Jun 2020	Initial	Partial Estimate	\$0.00
	STEM	TW 25/20	Initial	Partial Estimate	\$0.00

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3.3 Prudential Service web service documentation

Market Participants can choose to obtain the results of the Prudential Service calculation from the provided RESTful web services. Documentation for the web service is provided using the swagger documentation framework and available from: <https://wems.aemo.com.au/prudential/api/docs/>

There are 4 webservices that provide participants with the following data:

- /api/v1/prudential/summary/latest
Provides just the current Outstanding Amount and Trading Margin for the participant.

- /api/v1/prudential
Provides a high level summary of a participants prudential position for a given date. This data is the same as that in the prudential summary file outlined in the previous section.
- /api/v1/prudential/detail
Provides the complete data set of all input and output variables used in the Outstanding Amount calculation. This data is the same as that in the prudential details file outlined in the previous section. Does not include any inputs used in to determine estimated input values.
- /api/v1/prudential/estimation
Provides the complete data set of all input values used in the determination of estimated values. This data is the same as that in the estimation file as outlined in the previous section.

Prudential Show/Hide | List Operations | Expand Operations

GET /api/v1/prudential Retrieves the high-level summary of a participant's prudential position

GET /api/v1/prudential/summary/latest Retrieves the latest Outstanding Amount for a participant

GET /api/v1/prudential/detail/{tradingDay} Retrieves the low-level details for a single day, associated with a participant's prudential position

GET /api/v1/prudential/estimation/{tradingDay} Retrieves the low-level estimation details for a single day, associated with a participant's prudential position

Response Class (Status 200)
Success

Model | Example Value

```

{
  "data": {
    "tradingDay": "2020-06-11T07:02:14.083Z",
    "tradingDays": [
      {
        "tradingDay": "2020-06-11T07:02:14.083Z",
        "variables": [
          {
            "variable": "string",
            "scope": "string",
            "estimatedValue": "string"
          }
        ]
      }
    ]
  }
}

```

Response Content Type

Parameters

Parameter	Value	Description	Parameter Type	Data Type
tradingDay	<input type="text" value="required"/>	Trading day eg.2019-10-25	path	date-time

Response Messages

HTTP Status Code	Reason	Response Model	Headers
403	Forbidden		
404	Not Found		

[Try it out!](#)

4. New Credit Support and Credit Limit Screen

A new screen has been added within the Prudential drop down menu item of the WEMS MPI. The Credit Support tab of the Prudential screen will provide greater visibility to Market Participants of any determined Credit Limits or Credit Support held by AEMO.

The Credit Support screen provides the breakdown of the Participants Credit Support instruments (Bank Guarantee or Security Deposits) and the history of Credit Limit as determined by AEMO for the purposes of Prudential Management.

Both screens will provide Market Participants with access to the supporting documentation (e.g. scanned Bank Guarantees, Credit Limit letters).

The effective Credit Support is determined as any instruments currently held by AEMO as listed in the Credit Support section with the 'Executed' state. The history of Credit Support instruments will be available as indicated by a 'Returned' or 'Drawn Down' state, to indicate the action AEMO had taken for that instrument.

PRUDENTIALS		CREDIT SUPPORT						
Market Participant:							Credit Limit: \$0.00	
Credit Support: \$550,000.00								
CREDIT SUPPORT								
Effective	Amount	Type	Institution	State	Finance Notified	Supporting Documents	PPSR	
18th Jun 2020	\$550,000.00	Bank Guarantee	Bendigo and Adelaide Bank	Executed				

Credit Limit table includes the history of Credit Limit determinations made by AEMO for the Participant. The effective Credit Limit is determined by the 'Effective Date' as applicable from that date until the next 'Effective Date'.

CREDIT LIMIT						
Effective Date	Amount	Trend	Authorised	Last Review	Next Review	Supporting Documents
8th Jun 2020	\$520,000.00			4th May 2020		

5. Market Participant Testing Activities

Due to the nature of the changes introduced in this release, AEMO has planned system deployments and testing periods to allow Market Participants to undertake testing of the new system using production data. These activities are summarised as follows.

5.1 Market Trial activities

Market Participants will have the ability to view and use the new functionality in the Market Trial environment. However, as the data in this environment does not closely match Production data, the value of any testing is limited and therefore AEMO does not expect participants to undertake any validation of results in the Market Trial environment.

5.2 Production – Parallel Testing

AEMO is providing Market Participants with a 4 weeks period to observe the accuracy of the proposed new Outstanding Amount calculation using real production data. This trial is to coincide with the consultation period for the Market Procedure Change Proposal APEC_2020_06. The primary purpose is for Market Participants to assess the accuracy of the proposed Outstanding Amount calculation to inform their feedback on the Market Procedure Change Proposal.

All Market Participants are encouraged to use the information provided in the files available to download or web services in conjunction with their own data to:

- assess the accuracy of the Cumulative Estimated Exposure (a key component of the proposed Outstanding Amount calculation);
- provide feedback to Market Procedure Change Proposal APEC_2020_06; and
- consider if any internal process updates are required due to the introduction of a new Outstanding Amount calculation (e.g. regular monitoring of Trading Margins, processes to respond to Margin Calls by AEMO).

Any queries, issues or feedback can be provided to the WA Market Operations team at wa.operations@aemo.com.au.

For the avoidance of doubt, the existing Outstanding Amount calculation (found under the WEMS > Settlements > Prudential Security screen) will continue to be used by AEMO and should be used by Market Participants for all prudential obligations under the WEM Rules and current Market Procedure: Prudential Requirement (v7.0) until APEC_2020_06 becomes effective.