
EMMS Technical Specification – 5MS – Prudentials

2.00 May 2020

Release series: EMMS521

Important Notice

PURPOSE & AUDIENCE

This document describes the technical changes required to participant's systems for the AEMO Release Schedule - System Month Year (Release). The Australian Energy Market Operator (AEMO) provides this information as a service targeting business analysts and IT staff in participant organisations. It provides guidance about the changes to their market systems under the National Gas or Electricity Rules (Rules), as at the date of publication.

HOW TO USE THIS DOCUMENT

- If you have questions about the business aspects of these changes, please see Consultations on [AEMO's website](#).
- The references listed throughout this document are primary resources and take precedence over this document.
- Unless otherwise stated, you can find resources mentioned in this guide on AEMO's website.
- **Text in this format** is a link to related information.
- **Text in this format**, indicates a reference to a document on [AEMO's website](#).
- **Text in this format** is an action to perform in the MSATS Web Portal.
- This document is written in plain language for easy reading. Where there is a discrepancy between the Rules and information or a term in this document, the Rules take precedence.
- Glossary Terms are capitalised and have the meanings listed against them in the **Glossary**.
- Rules terms defined in the NER are listed in the Rules Terms section.

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VERSION HISTORY

2.00 Adds Preprod refresh details and details about the 5MS Staging – Prudentials activities by week.

DOCUMENTS MADE OBSOLETE

The release of this document updates the draft version of EMMS Technical Specification – 5MS – Prudentials.

SUPPORT HUB

To contact AEMO's Support Hub use [Contact Us](#) on AEMO's website or Phone: 1300 AEMO 00 (1300 236 600) and follow the prompts.

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1. Introduction

The EMMS Technical Specification – 5MS – Prudentials Release is part of the Five-Minute Settlement (5MS) project and includes changes related to participants' IT systems. The technical specification describes the projects planned by AEMO from a participant perspective.

1.1 Status

This is a draft technical specification for participant feedback. The design may change in the final version. Please send feedback to 5ms@aemo.com.au.

Participants can discuss the changes in this version in the upcoming Software Working Group (SWG) meeting. For SWG meeting dates, see For SWG meeting dates, see the 5MS Calendar: <https://aemo.com.au/initiatives/major-programs/nem-five-minute-settlement-program-and-global-settlement>.

Version	Status
1.01	Participants can commence their system builds but changes are still imminent due to participant feedback
1.00	Participants can commence their system builds but changes are still imminent due to participant feedback
0.02	Initial draft

1.2 Version numbers

Incremental version numbers such as 1.01, 2.01 and so on mean there is a small change to the technical specification.

Major version numbers such as 1.00, 2.00 means there are substantial changes to the technical specification. Participants must carefully review these changes.

Changes are listed below.

1.3 Changes in this version

This version of the 5MS Settlements and Billing technical specifications includes the following updates:

- Updates the pre-prod refresh dates in the Milestones chapter.
- Adds a new chapter detailing what the participants and expect in 5MS Prudentials Staging. For more information, see Weekly Planned Tests in 5MS Staging.

1.4 Overview

This section details the 5MS changes to Settlements and AEMO's real-time operational systems.

1.4.1 Five Minute Settlement (5MS)

On 28 November 2017, the AEMC made a final rule to alter the settlement period for the wholesale electricity spot market from 30 minutes to five minutes to align with the dispatch period. The changes are effective from 1 July 2021.

The AEMC determined the five-minute settlement provides a better price signal for investment in fast response technologies, such as batteries, new gas peaking generation, and demand response. The alignment of the operational dispatch and financial settlement periods are expected to lead to more efficient bidding, operational decisions, and investment.

For more information, see the [5MS Systems High-Level Impact Assessment \(HLIA\) document](#).

The 5MS updates are divided into different workstreams based on functionality as follows:

- Dispatch and Bidding
- Retail
- Settlements

1.5 Audience

AEMO provides this information as a service targeting business analysts and IT staff in participant organisations.

1.6 Project list

The EMMS Technical Specification – 5MS – Prudentials includes the following projects:

- EMMS Markets Portal: NEM Prudentials
- Prudential Systems API Design

1.7 Related rules and procedures

Type	Details
Credit Limit Procedures	Provides details on how AEMO determines the prudential settings for each Market Participant so that the Prudential standard is met for the National Electricity Market (NEM)

1.8 Proposed timeline

For the schedule and the Program timeline, see the [Five Minute Settlement and Global Settlement](#) page on the AEMO website.

1.9 Approval to change

The changes are continually discussed and updated as a part of the 5MS Systems Working Group and other 5MS Consulting Forum meetings. There is no approval to change required from participant change controllers at this time.

Amendments to the Rules regarding five-minute settlements are published on the AEMC website: [National Electricity Amendment \(Five-minute settlement rule\) 2017](#).

Amendments to the Rules regarding Global Settlements are published on the AEMC website: [National Electricity Amendment \(Global Settlement and Market Reconciliation\) 2018](#).

2. Milestones

2.1 Revised technical specification

Published as required with further details of the changes to assist IT staff with their own technical implementation.

2.2 Systems working group (SWG)

For details about the SWG, see <https://aemo.com.au/Electricity/National-Electricity-Market-NEM/Five-Minute-Settlement/Systems-Workstream/Systems-Working-Group>.

For SWG meeting dates, see the 5MS Calendar: <https://aemo.com.au/initiatives/major-programs/nem-five-minute-settlement-program-and-global-settlement>.

2.3 5MS staging environment

Status	Details
15 May 2020	AEMO implements components of the Release in stages. Participant access is not restricted; however, the data content or system availability is not guaranteed. For more details, see https://aemo.com.au/Electricity/National-Electricity-Market-NEM/Five-Minute-Settlement/Systems-Workstream/Staging-Environment

2.4 APIs and JSON schemas

Status	Details
Available for use in the staging environment over the Internet gateway only. The work to submit APIs via MarketNet is still in progress. We will advise when participants can test APIs in the staging environment over MarketNet.	For API e-Hub access details, see page 15. Participant IP addresses for the staging environment require whitelisting by AEMO. For help, see page 15.

2.5 Pre-production refresh

Status	Details
15 May 2020 9:00 am – 28 May 2020 10:00 am	This is an MSATS CATS and MDM pre-production refresh only. The MSATS pre-production environment is unavailable for the duration of the refresh. EMMS, NOS, OPDMS, and User Rights Management (URM) systems are not affected. User accounts, passwords and privileges remain the same.

2.6 Pre-production implementation

Status	Details
1 week before the pre-production release	<p>AEMO implements components of the Release to pre-production for participant testing.</p> <p>AEMO has full access to the system during this period.</p> <p>Participant access is not restricted; however, the data content or system availability is not guaranteed.</p>

2.7 Pre-production release

Status	Details
For details, see the Program Timeline on AEMO's website .	<p>Pre-production systems available to participants.</p> <p>The Readiness Working Group (RWG) provides these dates as they are confirmed.</p> <p>https://portal.preprod.nemnet.net.au</p>

2.8 Production implementation

Status	Details
1 week before the production release	AEMO implements components of the Release to production.

2.9 Production release

Status	Details
For details, see Program Timeline on AEMO's website .	<p>Production systems available to participants.</p> <p>The Readiness Working Group (RWG), provides these dates as they are confirmed.</p> <p>https://portal.prod.nemnet.net.au</p>

3. Weekly Planned Tests in 5MS Staging

This chapter details what the participants can expect for 5MS Prudentials Staging release on a weekly basis.

AEMO is in consultation with participants about using partial production data in the Staging environment. While the consultation is in progress, the data used/displayed in the Staging environment will use artificially constructed input values. AEMO hopes to have a confirmation from participants by the end of May. And if agreed, the input data will be a combination of artificial data and production data.

3.1 Assumptions

For the staging release, AEMO assumes the following:

- There is no integration with Reallocations system in the Staging environment.
- The timing for five-minute capability must align with Settlements which is being switched on in June.
- Prudential runs will happen once a day each day at 1 am.
- Prudential Forecast will run once a day each day at 3 pm.
- Settlements Direct for 5MS is deployed alongside Prudentials.

AEMO is determining a date (mid to late June) for participants to access the Prudential and Settlements Direct API's through the API gateway.

3.2 Weekly planned tests in 5MS staging

Release Week	Date	Staging activity	What Participants receive (at minimum)
Week 1	18 May – 22 May	Artificially created Prudential Dashboard and Prudential Forecast data	<ul style="list-style-type: none"> • New/updated Settlements Direct web UI • New/updated Prudential Dashboard web UI • Updated Prudential Forecast web UI • Restored Credit support UI • Participants receive: <ul style="list-style-type: none"> ○ Prudential results each day at 1am – all prudential results set to pre-determined values ○ Prudential Forecast results each day at 3pm – all prudential forecast results set to pre-determined values ○ Integration with Prudential Dashboard and Prudential Forecast web displays.
Week 2	25 May – 29 May	Artificially created Prudential Dashboard and Prudential Forecast data	<ul style="list-style-type: none"> • Participants receive: <ul style="list-style-type: none"> ○ Prudential results each day at 1am. ○ Prudential Forecast results each day at 3pm. ○ Integration with Prudential Dashboard and Prudential Forecast web displays
Week 3 and beyond	1 June – 5 June	TBA	To be advised based on consultation with the industry.

4. Prudential Overview

The Settlements system is part of the Electricity Market Management System (EMMS) that depends on information from Registration and Dispatch systems and calculates amounts owing to or owed by each party including AEMO.

This document details the 5MS and GS changes to the Settlements stream.

4.1 Settlements stream

The Settlements stream includes Settlements, Billing, Invoicing, Reallocations, and Prudentials. This version of the document focuses on the updates to the Prudentials packages.

From 1 July 2021, the following services are impacted:

- Transactions are calculated every five minutes.
- Settlement estimation calculates energy transactions every five minutes.
- The inter-regional and intra-regional residue surplus are calculated on a five-minute basis.
- Several non-energy transactions, such as market Ancillary Services (such as FCAS) are completed using five-minute energy volumes.

4.2 Prudential system

The NEM Prudential systems provides participants information on the money they are owed. An essential element of the prudential systems is the concept of Outstandings, which is the total amount owing but not yet paid or settled. The NEM Prudential system consists of the following:

- NEM Prudential Dashboard interface which displays the latest prudential information. The dashboard is updated throughout the settlement day, including weekends and public holidays.
- NEM Prudential Forecast interface which provides participants with a forecast of their expected prudential position for the next NEM business day, allowing participants to better manage their prudential obligations.
- NEM Credit Support interface which allows participants to view and analyse their credit support.

The NEM Prudential systems provides the participants a web-based dashboard for users to:

- View the current prudential position with AEMO
- View a forecast of their prudential position as of the next business day

- Calculate the future credit support based on the input variables provided by the user.

4.3 Updates for 5MS

All prudential information is now based on five-minute data volumes. For reallocations, calculations in Prudential system uses 5-minute data after July 1, 2021.

AEMO exposes new and updated APIs allowing participants to access their Prudential Dashboard, Prudential Forecast, and Credit Support details via APIs.

The Prudential web (Prudential Dashboard, Prudential Forecast, and Credit Support) interfaces are updated to align with current AEMO standards.

Due to updates to AEMO's internal systems, the NEM_REPORTS displays values up to eight decimal places. When the data loads into the table, it truncates to five decimal places. For example, in the AS_PAYMENTS_SUMMARY report, if the value is 200.00000000. In the BILLINGASPAYMENTS table, it would be 200.00000.

4.4 API design summary

API Name	Description
getPrudentialCompanySummary	Retrieve the company details for the given participant ID.
getPrudentialRunAllCompanies	Retrieve a prudential summary for each company in a prudential run.
getCumulativePrice	Retrieve the cumulative price per region.
getPrudentialCalendar	Retrieve the details for a Billing calendar.
getPrudentialRunVersion	Retrieve the latest prudential run details.
getForecastCompanySummary	Retrieve the company details for the given participant ID, forecast run number and date.
getForecastRegionalPrice	Retrieve the regional price details for the given forecast run number and date.
getForecastRevenue	Retrieve the regional revenue details for the given forecast run number and date.
getForecastRunVersion	Retrieve the latest forecast prudential run details.
getBankGuarantees	Retrieve all bank guarantees for a company based on the from and to dates.
getPrudentialCompanyAttributes	Retrieve a list of prudential attributes (MCL, Typical Accrual, Prudential Margin) for all effective dates for a company based on the from and to dates in the query parameters.

5. EMMS Markets Portal: NEM Prudentials

5.1 NEM Prudentials web interface

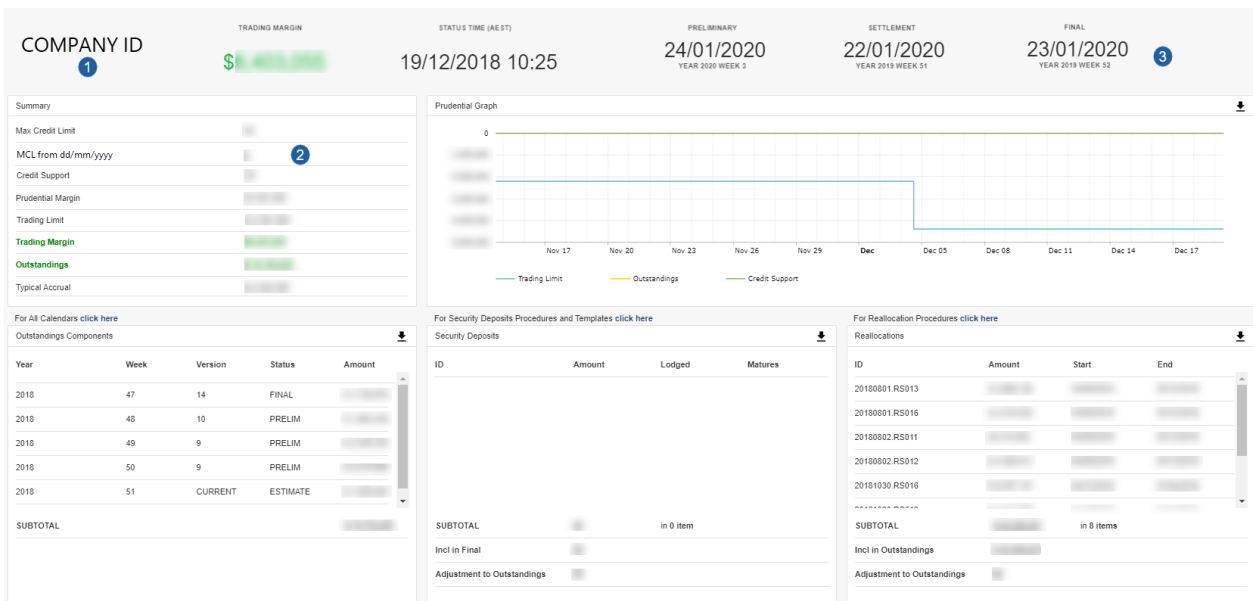
The new Prudentials web interface supports five-minute intervals starting on July 1, 2021. To access the Prudential Dashboard and Prudential Forecast screens from the AEMO Markets Portal, navigate to **MMS > Settlements > View**

Prudentials and select either **View NEM Prudential Dashboard** or **View NEM Prudential Forecast**.

The screenshots available in this chapter are examples only and can differ from the final version on the Markets Portal.

5.2 NEM Prudential dashboard

The new NEM Prudential Dashboard includes the following updates:

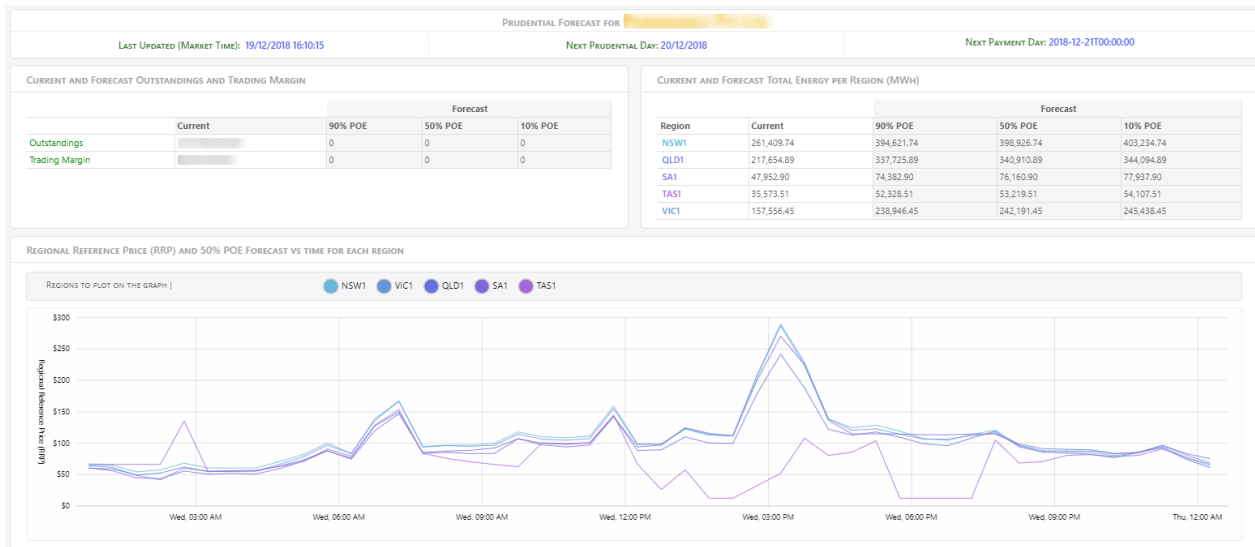


1. Adds Company ID to the web portal.
2. Adds a new row in the Summary section which displays a new MCL that becomes effective in the next 30 calendar days. In case of more than one MCL in the next 30 calendar days, only the immediate next MCL is displayed.
3. Rearranges the display format of Preliminary, Settlement and Final dates. The new format looks as below:

PRELIMINARY
DD/MM/YYYY
YEAR 2020 WEEK XX

5.3 NEM Prudential Forecast

The new NEM Prudential Forecast web portal updates the look and feel. Below is an example screen:



5.4 NEM Credit Support

The updated NEM Credit Support web portal fixes the following issues from the previous version:

- In the graph for Participant Guarantee Totals vs Participant MCL, the future MCL changes were not considered leading to false non-compliance indications.
- In the Details tab of the Participant Credit Support Status page, ten business days was incorrectly counted showing non-expiring guarantees as expiring.
- In the Details tab of the Participant Credit Support Status page, the expiry date of the bank guarantee is same as the termination date where as the bank guarantee date should always be one calendar day after the actual expiry date. The updated Credit Support status page will display the actual expiry date.
- The issues mentioned for the Participant Credit Support Status page should also apply to the Scenario Builder section of the NEM Credit Support web page.

The UI for the new Credit Support screen is under development and will be provided in subsequent version of this document.

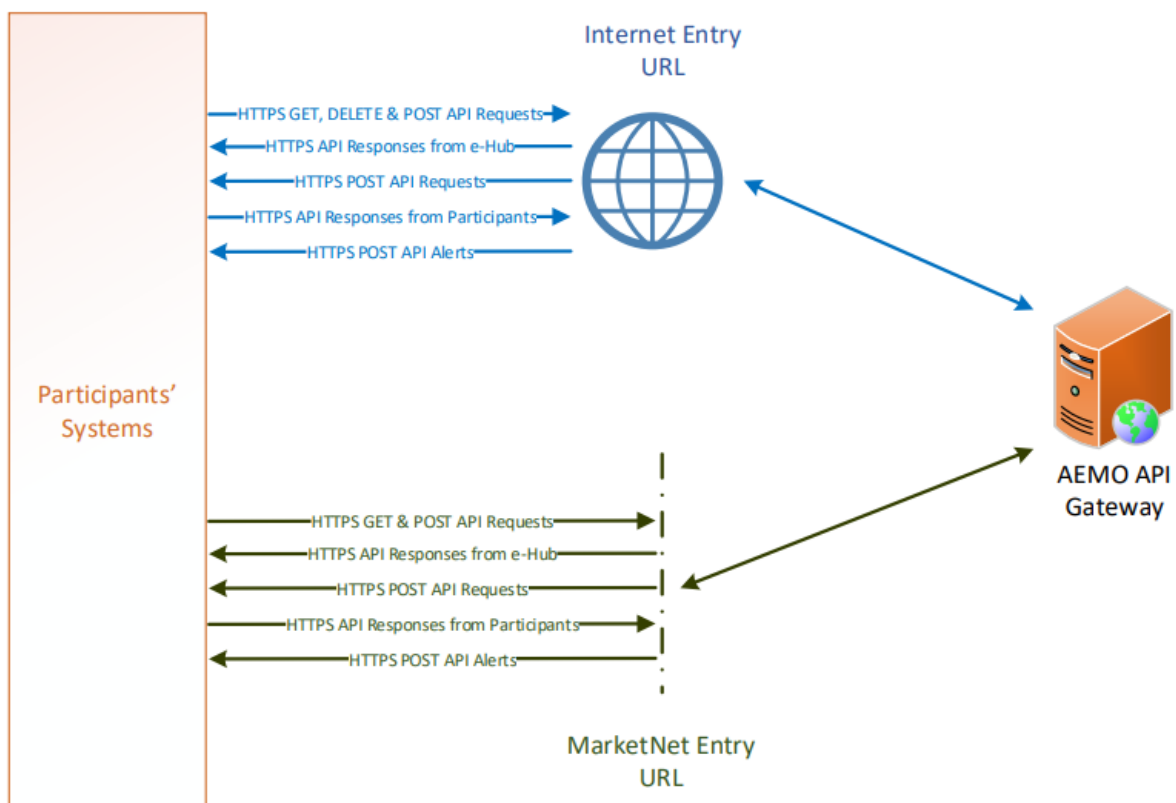
6. Prudential Systems API Design

The following chapter describes some general API information, lists the new Prudential APIs, the validation rules, and the request and response structures along with examples for the Prudential APIs.

For all information on accessing and using the APIs, see [Guide to AEMO's APIs](#).

6.1 API access

AEMO's prudential APIs are accessible via the MarketNet and the Internet.



6.2 API whitelisting

The staging environment requires AEMO to whitelist your public IP address. To have your IP whitelisted, log a call with the Support Hub who will ask you to provide the following details:

1. Participant ID(s)
2. Inbound Public IP address or a range of IPs

3. SSL Certificate Signing Request (CSR)
4. The APIs you want to access

For help obtaining SSL certificates, see **Guide to AEMO's APIs**.

For help with Participant User access and required URM entities, see User rights access.

6.3 API e-Hub addresses

API documentation, including Swagger files, are available via AEMO's API Portal. For more information about e-Hub APIs, see **Guide to AEMO's e-Hub APIs**.

Environment	Internet Address	MarketNet Address
5MS Staging gateway	https://partner.api.5msstaging.aemo.com.au/	Unavailable until further notice https://apis.5msstaging.marketnet.net.au:9319/
5MS Staging API portal	https://staging.apiportal.aemo.com.au/	TBA
Pre-production gateway	https://apis.preprod.aemo.com.au	https://apis.preprod.marketnet.net.au
Production gateway	https://apis.prod.aemo.com.au	https://apis.prod.marketnet.net.au

6.4 API authentication and authorisation

API connections use SSL certificates to secure the transport layer ensuring encrypted communication and secure interactions between participant and AEMO's systems. AEMO issues the SSL certificates to participants on request.

API calls are authorised by Basic HTTP authentication using a username and password assigned by the company's Participant Administrator.

For more information about user rights creating new Participant Users, and assigning rights, see **Guide to User Rights Management (URM)**.

For details about obtaining a certificate, see **Guide to AEMO's e-Hub APIs**.

6.5 API format

API URLs are in the following format:

```
https://<host>/<business_name>/<business_function>/<APIversion>/<resource>?querystring parameters
```

For example:

```
https://apis.prod.aemo.com.au:9319/NEMWholesale/prudentials/v1/getPrudentialCompanySummary
```

Table 1 – API Definition

Parameter	Description
<protocol>	HTTPS
<host>	Names the server hosting the service or an external proxy Internet web service host: apis.prod.aemo.com.au:9319 MarketNet web service host: apis.prod.marketnet.net.au:9319
<business_name>	A business area such as NEMRetail or NEMWholesale
<business_function>	API Name – The AEMO system providing the services e.g. GeneratorRecall
<APIversion>	The version for this API i.e. v1, v2, v3 etc...
<verb> <resource>	Entities of a Business Function e.g. /getCumulativePrice
?querystring parameters	Query string parameters for GET method

6.6 API naming

The 5MS APIs follow a verb and noun naming convention, enabling a clear understanding of their action.

6.7 User rights access

The user rights access used in the Prudential APIs, and Prudential web screens use a new URM entity:

- EMMS – Settlements – View Prudentials

The steps to set up URM rights for API access are:

1. If required, the Participant Administrator (PA) creates a new Participant User in MSATS.
2. The PA assigns the URM entity to the Participant User.

API account passwords are reset every 90 days.

For help with user rights access, see [Guide to User Rights Management](#).

6.8 Prudential APIs

6.8.1 getPrudentialCompanySummary API

The getPrudentialCompanySummary API retrieves a single company's prudential details along with its associated properties including Historic Days, Security Deposit, Outstandings, Pay Amount, Pay Nomination, SDA Interest Rates, and Reallocations data. The participantId request parameter is used to get the company prudential details matching the given ID.

The request is validated by checking if the given participantId parameter is a registered participant with a valid parent company detail to view company prudential data. If request validations fail, a response with an error message is returned to the client.

API name	getPrudentialCompanySummary
URL path	/NEMWholesale/Prudentials/getPrudentialCompanySummary
Method	GET
Authorisation mode	Participant specific
Request content	Query parameters: <ul style="list-style-type: none"> • prudentialDate: [Mandatory] Date of the prudential run • prudentialRunNo: [Mandatory] Run number of the prudential run

Success response

Content Body:

```

{
  "data":
  {
    "prudentialDate": [datetime],
    "prudentialRunNo": [integer],
    "lastChanged": [datetime],
    "companySummary": {
      "companyId": [string],
      "todayOutstandingsPercent": [decimal],
      "maximumCreditLimit": [decimal],
      "prudentialMargin": [decimal],
      "tradingLimit": [decimal],
      "tradingMargin": [decimal],
      "outstandings": [decimal],
      "typicalAccrual": [decimal],
      "creditSupport": [decimal],
      "expostReallocBalance": [decimal],
      "securityDepositProvision": [decimal],
      "securityDepositOffset": [decimal],
      "securityDepositBalance": [decimal],
      "outstandingsReallocations": [decimal],
      "prudentialException": [bool],
      "historicDays": [
        {
          "calendarDate": [datetime],
          "runDateTime": [datetime],
          "historicOutstandings": [decimal],
          "historicCreditSupport": [decimal],
          "historicTradingLimit": [decimal]
        }
      ],
      "securityDeposits": [
        {
          "securityDepositId": [string],
          "participantId": [string],
          "lodgeDate": [datetime],
          "maturityDate": [datetime],
          "interestRate": [decimal],
          "interestAcctId": [string],
          "interestCalcType": [string],
          "amount": [decimal]
        }
      ],
      "reallocations": [
        {
          "reallocationId": [string],
          "participantId": [string],
          "counterPartyId": [string],
          "startDate": [datetime],
          "endDate": [datetime],
          "reportStartDate": [datetime],
          "reportEndDate": [datetime],
          "amount": [decimal]
        }
      ],
      "outstandings": [
        {

```

API name	getPrudentialCompanySummary
	<pre> "contractYear": [integer], "weekNo": [integer], "billRunNo": [string], "runType": [string], "companyOutstandingsAmount": [decimal], "participants": [{ "participantId": [string], "participantOutstandingsAmount": [decimal] }] }], "earlyPaymentNominations": [{ "participantId": [string], "paymentDate": [datetime], "paymentMethodId": [string], "paymentTypeId": [string], "paymentMethodDescription": [string], }], "earlyPaymentAmounts": [{ "contractYear": [integer], "weekNo": [integer], "earlyPaymentAmount": [decimal] }], "sdaFloatingInterestRates": [{ "participantId": [string], "interestAcctId": [string], "effectiveDate": [datetime], "interestRate": [decimal] }] } } </pre>
Notes	

Example request

```

GET
/NEMWholesale/Prudentials/v1/getPrudentialCompanySummary?participantId=PARTICIP
ANTID&prudentialDate=2018-12-19T00:00:00&prudentialRunNo=5
Content-Type: application/json
Accept: application/json
Accept-Encoding: gzip
Content-Length: nnn
Content-Encoding: gzip
Authorisation: Basic dGVzdG1hbnVhbSpOZK1tY28wMw==
X-market: NEM
X-initiatingParticipantID: <PARTICIPANTID>

```

Example response

```

HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnn
Content-Encoding: gzip
{
  "transactionId": "e0000000-b000-000c-00b7-fd8a9575e84b",
  "data": {
    "prudentialDate": "2018-12-19T00:00:00",
    "prudentialRunNo": 5,
    "lastChanged": "2018-12-19T10:25:05",
    "errorMessage": null,
    "companySummary": {
      "companyId": "COMPANYID",
      "todayOutstandingsPercent": 0.60000000,
      "maximumCreditLimit": 0.000000,
      "prudentialMargin": 4000000.000000,
      "tradingLimit": -4000000.000000,
      "tradingMargin": 6000000.000000,
      "outstandings": -10000000.000000,
      "typicalAccrual": -6000000.000000,
      "creditSupport": 0.000000,
      "expostReallocBalance": 0.000000,
      "securityDepositProvision": 0.000000,
      "securityDepositOffset": 0.000000,
      "securityDepositBalance": 0.000000,
      "outstandingsReallocations": -20000000.000000,
      "prudentialException": false,
      "historicDays": [
        {
          "calendarDate": "2018-11-14T00:00:00",
          "calendarDateTime": "2018-11-14T15:42:30",
          "historicOutstandings": 0.0,
          "historicCreditSupport": 0.0,
          "historicTradingLimit": -2000000.000000
        },
        {
          "calendarDate": "2018-11-15T00:00:00",
          "calendarDateTime": "2018-11-15T14:23:50",
          "historicOutstandings": 0.0,
          "historicCreditSupport": 0.0,

```

```

    "historicTradingLimit": -2000000.000000
  },
  ...
  {
    "calendarDate": "2018-12-18T00:00:00",
    "calendarDateTime": "2018-12-18T13:22:00",
    "historicOutstandings": 0.0,
    "historicCreditSupport": 0.0,
    "historicTradingLimit": -4000000.000000
  },
  {
    "calendarDate": "2018-12-19T00:00:00",
    "calendarDateTime": "2018-12-19T10:25:05",
    "historicOutstandings": 0.0,
    "historicCreditSupport": 0.0,
    "historicTradingLimit": -4000000.000000
  }
],
"securityDeposits": [],
"reallocations": [
  {
    "reallocationId": "REALLOCATIONID1",
    "participantId": "COMPANYID",
    "counterPartyId": "COMPANYID1",
    "startDate": "2018-11-18T00:00:00",
    "endDate": "2018-12-03T00:00:00",
    "reportStartDate": "2018-09-04T00:00:00",
    "reportEndDate": "2018-12-03T00:00:00",
    "amount": -3000000.000000
  },
  {
    "reallocationId": " REALLOCATIONID2",
    "participantId": "COMPANYID",
    "counterPartyId": "COMPANYID2",
    "startDate": "2018-11-18T00:00:00",
    "endDate": "2018-12-03T00:00:00",
    "reportStartDate": "2018-09-04T00:00:00",
    "reportEndDate": "2018-12-03T00:00:00",
    "amount": -4000000.000000
  },
],
"outstandingsWeeks": [
  {
    "contractYear": 2018,
    "weekNo": 47,
    "billRunVersion": "14",
    "runStatus": "FINAL",
    "amount": -1000000.000000,
    "participants": [
      {
        "participantId": "COMPANYID",
        "participantAmount": -1000000.000000
      }
    ]
  }
],
},
...

```



```

{
  "contractYear": 2018,
  "weekNo": 51,
  "billRunVersion": "CURRENT",
  "runStatus": "ESTIMATE",
  "amount": -1000000.000000,
  "participants": [
    {
      "participantId": "COMPANYID",
      "participantAmount": -1000000.000000
    }
  ]
},
"earlyPaymentNominations": [],
"earlyPaymentAmount": [],
"sdaFloatingInterestRates": []
}
},
"errors": [],
"warnings": []
}

```

6.8.2 getCumulativePrice API

The getCumulativePrice API retrieves cumulative and average price for each region.

API name	getCumulativePrice
URL path	/NEMWholesale/Prudentials/getCumulativePrice
Method	GET
Authorisation mode	Authenticated user
Request content	No input necessary
Success response	<p>Content Body:</p> <pre> { "data": { "cumulativePrices": [{ "regionId": [string], "cumulativePrice": [decimal], "averagePrice": [decimal] }] } } </pre>
Notes	

Example request

```

GET /NEMWholesale/Prudentials/v1/getCumulativePrice
Content-Type: application/json
Accept: application/json
Accept-Encoding: gzip
Content-Length: nnn
Content-Encoding: gzip
Authorisation: Basic dGVzdG1hbnVhbSpOZK1tY28wMw==
X-market: NEM
X-initiatingParticipantID: <PARTICIPANTID>

```

Example response

```

HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnn
Content-Encoding: gzip
{
  "transactionId": "03886027-b00f-4f23-bcff-00000d415e0d",
  "data": {
    "cumulativePrices": [
      {
        "regionId": "NSW1",
        "cumulativePrice": 30000.00000,
        "averagePrice": 0.0
      },
      {
        "regionId": "QLD1",
        "cumulativePrice": 30000.00000,
        "averagePrice": 0.0
      },
      {
        "regionId": "SA1",
        "cumulativePrice": 30000.00000,
        "averagePrice": 0.0
      },
      {
        "regionId": "TAS1",
        "cumulativePrice": 20000.00000,
        "averagePrice": 0.0
      },
      {
        "regionId": "VIC1",
        "cumulativePrice": 30000.00000,
        "averagePrice": 0.0
      }
    ]
  },
  "errors": [],
  "warnings": []
}

```

6.8.3 getPrudentialCalendar API

The `getPrudentialCalendar` API retrieves the Billing calendar entries for each Billing run contributing to the prudential outstandings.

API name	<code>getPrudentialCalendar</code>
URL path	<code>/NEMWholesale/Prudentials/getPrudentialCalendar</code>
Method	GET
Authorisation mode	Authenticated user
Request content	Query parameters: <ul style="list-style-type: none"> • <code>prudentialDate</code>: [Mandatory] Date of the prudential run • <code>prudentialRunNo</code>: [Mandatory] Run number of the prudential run
Success response	Content Body: <pre> { "data": { "calendarEntries": [{ "billingPeriodId": [string], "contractYear": [integer], "weekNo": [integer], "nextDate": [datetime] }] } } </pre>
Notes	

Example request

```

GET
/NEMWholesale/Prudentials/v1/getPrudentialCalendar?participantId=PARTICIPANTID&
prudentialDate=2019-12-19T00:00:00&prudentialRunNo=5
Content-Type: application/json
Accept: application/json
Accept-Encoding: gzip
Content-Length: nnn
Content-Encoding: gzip
Authorisation: Basic dGVzdG1hbnVhbSpOZK1tY28wMw==
X-market: NEM
X-initiatingParticipantID: <PARTICIPANTID>

```

Example response

```

HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnn
Content-Encoding: gzip
{
  "transactionId": "e0000000-b000-000c-00b7-fd8a9575e84b",
  "data": {
    "calendarEntries": [
      {
        "billingDateId": "FINAL",
        "contractYear": 2019,
        "weekNo": 52,
        "nextDate": "2020-01-23T00:00:00"
      },
      {
        "billingDateId": "PRELIMINARY",
        "contractYear": 2020,
        "weekNo": 3,
        "nextDate": "2020-01-24T00:00:00"
      },
      {
        "billingDateId": "SETTLEMENT",
        "contractYear": 2019,
        "weekNo": 51,
        "nextDate": "2020-01-22T00:00:00"
      }
    ]
  },
  "errors": [],
  "warnings": []
}

```

6.8.4 getPrudentialRunVersion API

The getPrudentialRunVersion API retrieves the latest prudential run number and date.

API name	getPrudentialRunVersion
URL path	/NEMWholesale/Prudentials/getPrudentialRunVersion

API name	getPrudentialRunVersion
Method	GET
Authorisation mode	Authenticated user
Request content	No input necessary
Success response	<p>Content Body:</p> <pre>{ "data": { "prudentialDate": [datetime], "prudentialRunNo": [integer], "latestTradingInterval": [datetime], "lastChanged": [datetime] } }</pre>
Notes	

Example request

```
GET /NEMWholesale/Prudentials/v1/getPrudentialRunVersion
Content-Type: application/json
Accept: application/json
Accept-Encoding: gzip
Content-Length: nnn
Content-Encoding: gzip
Authorisation: Basic dGVzdG1hbnVhbSpOZK1tY28wMw==
X-market: NEM
X-initiatingParticipantID: <PARTICIPANTID>
```

Example response

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnn
Content-Encoding: gzip
{
  "transactionId": "e0000000-b000-000c-00b7-fd8a9575e84b",
  "data": {
    "prudentialDate": "2018-12-19T00:00:00",
    "prudentialRunNo": 5,
    "latestTradingInterval": "2018-12-20T11:00:00",
    "lastChanged": "2018-12-19T10:25:05"
  },
  "errors": [],
  "warnings": []
}
```

6.8.5 getForecastCompanySummary API

The `getForecastCompanySummary` API retrieves the forecast prudential details for a single company, along with the associated properties including Trading Margin, Outstandings, POE data. The `participantId` request parameter is used to retrieve the company prudential matching the given ID for the `forecastRun` and `forecastDate` parameters.

The request is validated by checking if the given `participantId` parameter is a registered participant with a valid parent company detail. If request validations fail, a response with an error message is returned to the client.

API name	<code>getForecastCompanySummary</code>
URL path	<code>/NEMWholesale/Prudentials/getForecastCompanySummary</code>
Method	GET
Authorisation mode	Participant specific
Request content	Query parameters: <ul style="list-style-type: none"> <code>forecastDate</code>: [Mandatory] Forecast date for the forecast run <code>forecastRunNo</code>: [Mandatory] Forecast run number

API name	getForecastCompanySummary
Success response	<p>Content Body:</p> <pre>{ "data": { "companyId": [string], "companyName": [string], "currentTradingMargin": [decimal], "currentOutstandings": [decimal], "poe10TradingMargin": [decimal], "poe10Outstandings": [decimal], "poe50TradingMargin": [decimal], "poe50Outstandings": [decimal], "poe90TradingMargin": [decimal], "poe90Outstandings": [decimal] } }</pre>
Notes	

Example request

```
GET
/NEMWholesale/Prudentials/v1/getForecastCompanySummary?participantId=PARTICIPANTID&forecastDate=2019-12-19T00:00:00&forecastRunNo=5
Content-Type: application/json
Accept: application/json
Accept-Encoding: gzip
Content-Length: nnn
Content-Encoding: gzip
Authorisation: Basic dGVzdG1hbnVhbSpOZK1tY28wMw==
X-market: NEM
X-initiatingParticipantID: <PARTICIPANTID>
```

Example response

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnn
Content-Encoding: gzip
{
  "transactionId": "e0000000-b000-000c-00b7-fd8a9575e84b",
  "data": {
    "companyId": "COMPANYID",
    "companyName": "COMPANYNAME",
    "currentTradingMargin": 10000000.000000,
    "currentOustandings": -3000000.000000,
    "poE10TradingMargin": 0.0,
    "poE10Outstandings": 0.0,
    "poE50TradingMargin": 0.0,
    "poE50Outstandings": 0.0,
    "poE90TradingMargin": 0.0,
    "poE90Outstandings": 0.0
  },
  "errors": [],
  "warnings": []
}
```

6.8.6 getForecastRegionalPrice API

The getForecastRegionalPrice API retrieves regional price data for each PoE forecast type with the highest prices calculated for POE50 type and regional reference prices calculated for POE50 forecast type for each region. The forecastRun and forecastDate request parameters are used to retrieve the regional price data.

API name	getForecastRegionalPrice
URL path	/NEMWholesale/Prudentials/getForecastRegionalPrice
Method	GET
Authorisation mode	Authenticated user

API name	getForecastRegionalPrice
Request content	Query parameters: <ul style="list-style-type: none">• forecastDate: [Mandatory] Forecast date for the forecast run.• forecastRunNo: [Mandatory] Forecast run number.
Success response	Content Body: <pre>{ "data": { "regions": [{ "highestPriceInterval": [datetime], "highestRRP": [decimal], "cumulativeRRP": [decimal], "totalCurrentCumulativeDemand": [decimal], "totalPOE10ForecastDemand": [decimal], "totalPOE50ForecastDemand": [decimal], "totalPOE90ForecastDemand": [decimal], "regionId": [string], "intervals": [{ "intervalDateTime": [datetime], "forecastDemand": [decimal], "forecastRRP": [decimal] }] }] } }</pre>
Notes	

Example request

```

GET
/NEMWholesale/Prudentials/v1/getForecastRegionalPrice?participantId=PARTICIPANT
ID&forecastDate=2018-12-19T00:00:00&forecastRunNo=5
Content-Type: application/json
Accept: application/json
Accept-Encoding: gzip
Content-Length: nnn
Content-Encoding: gzip
Authorisation: Basic dGVzdG1hbnVhbSpOZK1tY28wMw==
X-market: NEM
X-initiatingParticipantID: <PARTICIPANTID>

```

Example response

```

HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnn
Content-Encoding: gzip
{
  "transactionId": "e0000000-b000-000c-00b7-fd8a9575e84b",
  "data": {
    "regions": [
      {
        "highestPriceInterval": "2018-12-19T15:00:00",
        "highestRRP": 200.00000000,
        "cumulativeRRP": 30000.00000,
        "totalCurrentCumulativeDemand": 200000.00000000,
        "totalPOE10ForecastDemand": 400000.00000000,
        "totalPOE50ForecastDemand": 300000.00000000,
        "totalPOE90ForecastDemand": 300000.00000000,
        "regionId": "NSW1",
        "intervals": [
          {
            "intervalDateTime": "2018-12-19T00:30:00",
            "forecastDemand": 7000.00000000,
            "forecastRRP": 60.00000000
          },
          {
            "intervalDateTime": "2018-12-19T01:00:00",
            "forecastDemand": 7000.00000000,
            "forecastRRP": 60.00000000
          },
          {
            "intervalDateTime": "2018-12-19T01:30:00",
            "forecastDemand": 6000.00000000,
            "forecastRRP": 50.00000000
          }
        ]
      }
    ]
  },
  "errors": [],
  "warnings": []
}

```

6.8.7 getForecastRevenue API

The getForecastRevenue API retrieves revenue data for the supplied forecastRunNo and forecastDate request parameters.

API name	getForecastRevenue
URL path	/NEMWholesale/Prudentials/getForecastRevenue
Method	GET
Authorisation mode	Authenticated user
Request content	Query parameters: <ul style="list-style-type: none">• forecastDate: [Mandatory] Forecast date for the forecast run.• forecastRunNo: [Mandatory] Forecast run number.
Success response	Content Body: <pre>{ "data": { "revenueSinceMidnight": [decimal], "revenueLastHour": [decimal], "revenueForecastForToday": [decimal] } }</pre>
Notes	

Example request

```

GET
/NEMWholesale/Prudentials/v1/getForecastRevenue?participantId=PARTICIPANTID&for
ecastDate=2018-12-19T00:00:00&forecastRunNo=5
Content-Type: application/json
Accept: application/json
Accept-Encoding: gzip
Content-Length: nnn
Content-Encoding: gzip
Authorisation: Basic dGVzdG1hbnVhbSpOZK1tY28wMw==
X-market: NEM
X-initiatingParticipantID: <PARTICIPANTID>

```

Example response

```

HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnn
Content-Encoding: gzip
{
  "transactionId": "e0000000-b000-000c-00b7-fd8a9575e84b",
  "data": {
    "revenueSinceMidnight": -30000000.00000000,
    "revenueLastHour": -4000000.00000000,
    "revenueForecastForToday": -50000000.00000000
  },
  "errors": [],
  "warnings": []
}

```

6.8.8 getForecastRunVersion API

The getForecastRunVersion API retrieves the latest forecast prudential run number and date.

API name	getForecastRunVersion
URL path	/NEMWholesale/Prudentials/getForecastRunVersion
Method	GET
Authorisation mode	Authenticated user
Request content	No input necessary

API name	getForecastRunVersion
Success response	<p>Content Body:</p> <pre>{ "data": { "forecastDate": [datetime], "forecastRunNo": [integer], "prudentialDate": [datetime], "forecastRunDateTime": [datetime], "prudentialRunDateTime": [datetime], "forecastTradingStartInterval": [datetime], "forecastTradingEndInterval": [datetime], "forecastDispatchInterval": [datetime], "forecastP5MinStartInterval": [datetime], "forecastP5MinEndInterval": [datetime], "forecastPDStartInterval": [datetime], "forecastPDEndInterval": [datetime], "forecastPDSensStartInterval": [datetime], "forecastPDSensEndInterval": [datetime], "nextStatementDate": [datetime] } }</pre>
Notes	

Example request

```
GET /NEMWholesale/Prudentials/v1/getForecastRunVersion
Content-Type: application/json
Accept: application/json
Accept-Encoding: gzip
Content-Length: nnn
Content-Encoding: gzip
Authorisation: Basic dGVzdG1hbnVhbSpOZK1tY28wMw==
X-market: NEM
X-initiatingParticipantID: <PARTICIPANTID>
```

Example response

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnn
Content-Encoding: gzip
{
  "transactionId": "e0000000-b000-000c-00b7-fd8a9575e84b",
  "data": {
    "forecastDate": "2018-12-20T00:00:00",
    "forecastRunNo": 196,
    "prudentialDate": "0001-01-01T00:00:00",
    "forecastRunDateTime": "2018-12-19T16:10:15",
    "prudentialRunDateTime": "0001-01-01T00:00:00",
    "forecastTradingStartInterval": "2018-12-19T00:30:00",
    "forecastTradingEndInterval": "2018-12-19T16:00:00",
    "forecastDispatchInterval": "0001-01-01T00:00:00",
    "forecastP5MinStartInterval": "2018-12-19T16:10:00",
    "forecastP5MinEndInterval": "2018-12-19T17:05:00",
    "forecastPDStartInterval": "2018-12-19T16:30:00",
    "forecastPDEndInterval": "2018-12-21T04:00:00",
    "forecastPDSensStartInterval": "2018-12-19T16:30:00",
    "forecastPDSensEndInterval": "2018-12-21T04:00:00",
    "nextStatementDate": "2018-12-21T00:00:00"
  },
  "errors": [],
  "warnings": []
}
```

6.8.9 getBankGuarantees API

Retrieve all bank guarantees for a company based on the from and to dates.

The following changes are under consultation and not definite at this stage.

API name	getBankGuarantees
URL path	/NEMWholesale/Prudentials/getBankGuarantees
Method	GET
Authorisation mode	Participant specific

API name	getBankGuarantees
Request content	<p>Query parameters:</p> <ul style="list-style-type: none">• fromDate: [Mandatory] The 'from' date of the request.• toDate: [Optional] The 'to' date of the request. Equal to 31-12-9999 if not supplied.
Success response	<p>Content Body:</p> <pre>{ "data": { "bankGuarantees": [{ "guaranteeId": [string], "creditProviderId": [string], "creditProviderName": [string], "companyId": [string], "commencementDate": [datetime], "terminationDate": [datetime], "returnDate": [datetime], "lastChanged": [datetime], "guaranteeAmount": [decimal] }] } }</pre>
Notes	

Example request

```

GET
/NEMWholesale/Prudentials/v1/getBankGuarantee?participantId=PARTICIPANTID&fromDate=2020-06-10T00:00:00
Content-Type: application/json
Accept: application/json
Accept-Encoding: gzip
Content-Length: nnn
Content-Encoding: gzip
Authorisation: Basic dGVzdG1hbnVhbSpOZK1tY28wMw==
X-market: NEM
X-initiatingParticipantID: <PARTICIPANTID>

```

Example response

```

HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnn
Content-Encoding: gzip
{
  "transactionId": "e0000000-b000-000c-00b7-fd8a9575e84b",
  {
    "data":
      { "companyId": "COMPANYID",
        "companyName": "COMPANY_NAME",
        "bankGuarantees": [
          {
            "guaranteeId": "GUARANTEEID1",
            "creditProviderId": "CREDITPROVIDERID1",
            "creditProviderName": "CREDITPROVIDER_NAME1",
            "commencementDate": "2020-06-14T00:00:00",
            "terminationDate": "2020-07-14T00:00:00",
            "returnDate": "2020-08-15T00:00:00",
            "lastChanged": "2020-06-14T00:00:00",
            "guaranteeAmount": 30000000
          },
          {
            "guaranteeId": "GUARANTEEID2",
            "creditProviderId": " CREDITPROVIDERID2",
            "creditProviderName": " CREDITPROVIDER_NAME2",
            "commencementDate": "2020-08-18T00:00:00",
            "terminationDate": "2020-09-18T00:00:00",
            "returnDate": "2020-10-18T00:00:00",
            "lastChanged": "2020-06-14T00:00:00",
            "guaranteeAmount": 400000
          }
        ]
      }
    }
  }
}

```

6.8.10 getPrudentialCompanyAttributes API

Retrieve a list of prudential attributes (MCL, Typical Accrual, Prudential Margin) for all effective dates for a company based on the from and to dates in the query parameters.

The following changes are under consultation and not definite at this stage.

API name	getPrudentialCompanyAttributes
URL path	/NEMWholesale/Prudentials/getPrudentialCompanyAttributes
Method	GET
Authorisation mode	Participant specific
Request content	Query parameters: <ul style="list-style-type: none">• fromDate: [Mandatory] The 'from' date of the request.• toDate: [Optional] The 'to' date of the request. Equal to 31-12-9999 if not supplied.
Success response	Content Body: <pre>{ "data": { "companyId": [string], "effectiveDates": [{ "effectiveDate": [datetime], "calculatedMcl": [decimal], "dailyTypicalAccrual": [decimal], "prudentialMargin": [decimal], "lastChanged": [datetime] }] } }</pre>
Notes	

Example request

```

GET
/NEMWholesale/Prudentials/v1/getPrudentialCompanyAttributes?participantId=PARTI
CIPANTID&fromDate=2020-06-10T00:00:00&toDate=2020-12-10T00:00:00
Content-Type: application/json
Accept: application/json
Accept-Encoding: gzip
Content-Length: nnn
Content-Encoding: gzip
Authorisation: Basic dGVzdG1hbnVhbSpOZK1tY28wMw==
X-market: NEM
X-initiatingParticipantID:

```

Example response

```

HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnn
Content-Encoding: gzip
{
  "transactionId": "e0000000-b000-000c-00b7-fd8a9575e84b",
  "data":
  {
    "companyId": "COMPANYID",
    "effectiveDates": [
      {
        "effectiveDate": "2020-06-14T00:00:00",
        "calculatedMcl": 500000,
        "dailyTypicalAccrual": 100.00,
        "prudentialMargin": 200000,
        "lastChanged": "2020-06-12T00:00:00"
      },
      {
        "effectiveDate": "2020-06-17T00:00:00",
        "calculatedMcl": 9000000,
        "dailyTypicalAccrual": 80000.00,
        "prudentialMargin": 0,
        "lastChanged": "2020-06-12T00:00:00"
      }
    ]
  }
}

```

7. Implementation

7.1 Transition

Participants are required to build APIs on their end to interact with the new 5MS Prudential APIs information.

This section is a draft and subject to the 5MS Readiness Workstream transition and cutover forums.

7.2 Implications

To maintain systems in line with AEMO's Market systems, participants need to:

- Review the changes implemented as part of this Release and assess the impact on their market systems.
- Change their systems prior to the implementation of this Release.
- Schedule staff and resources to upgrade their market systems for the production implementation of this Release.

7.3 Risks

Participants not subscribed to the latest versions of files using the Data Subscriptions web application will not receive the new data.

7.4 Upgrade options

From a wholesale energy market system's focus, participants need to:

1. Review and assess the impact on their market systems with respect to the changes implemented as part of this Release.
2. Plan to upgrade their installations to the latest versions to realise benefits from the new functionality, operate against newly supported platforms, and to maintain ongoing support from AEMO.
3. Schedule staff and resources to upgrade their market systems from the implementation of this Release. To maintain systems in-line with AEMO's market systems, AEMO recommends upgrading within six months of the implementation date.
4. Change their systems prior to the deployment of this Release to ensure they are up-to-date. AEMO recommends participants' wholesale market systems are compliant with the latest software versions.

7.5 What happens if I do not upgrade?

If participants' systems are compliant with AEMO's supported configuration defined in the [DI Framework and Glossary](#), this Release does not impact MMS Data Model systems immediately. Depending on participant's systems, not upgrading may result in the following issues:

- Participant's database does not receive the new fields or tables because the Data Model elements are not created.
- Participants not subscribed to the latest versions of files using the Data Subscriptions web application will not receive the new data.
- Content in legacy files may change after deployment of this Release.

AEMO encourages participants to make use of the four-week pre-production period, to assess and test any impact to their market systems and business processes. Participants using data replication products critical to their business are strongly advised to participate in the pre-production rollout and testing period.

If participants have a system dependency on the formats of the non-MMS Data Model reports they need to manage these dependencies using the detail provided in this technical specification. Participants need to review and assess the impact on their market systems with respect to the changes implemented as part of this Release.

8. Prudentials API vs Data Model Comparison

The following table compares the details covered by the APIs with the Data Models for PRUDENTIALS package.

API name	Available in the Data Model?
getPrudentialCompanySummary	Yes. See: Package: PRUDENTIALS Table: PRUDENTIALCOMPANYPOSITION <div style="background-color: #4a5568; color: white; padding: 5px; text-align: center;"> The attributes listed in the APIs cover more details than those available in the PRUDENTIALCOMPANYPOSITION Data Model table. </div>
getCumulativePrice	No
getPrudentialCalendar	No
getPrudentialRunVersion	Yes. See: Package: PRUDENTIALS Table: PRUDENTIALRUNTRK
getForecastCompanySummary	No
getForecastRegionalPrice	No
getForecastRevenue	No
getForecastRunVersion	No
getBankGuarantees	No
getPrudentialCompanyAttributes	No

9. References

You can find the following resources on AEMO's website:

Data Interchange Framework and Glossary: provides important information about upgrading your Data Interchange (DI) environment, explains DI terms, and DI related resources. Please read this guide in conjunction with this technical specification.

Guide to AEMO's e-Hub APIs: Provides details about using AEMO's e-Hub as an interface to communicate information with AEMO. It assists Wholesale electricity and gas participants developing their own APIs.

Guide to Electricity Information Systems: Provides guidance for *Registered* Participants and interested parties about AEMO's participant electricity market systems.

Guide to User Rights Management: Assists participant administrators (PAs) to use the user rights management functions in the MSATS Web Portal.

10. Rules Terms

You can find the following terms defined in the [National Electricity Rules \(NER\)](#):

Term
AEMC
AEMO
AEMO Markets Portal
AEMO Website
Confidential Information
Market
Market Participant
NEM

Term
Outstandings
Participants
Product
Prudential Approved Participant
Prudential Exposure
Reallocations
Region

Term
Regional reference prices
Registered Participant
Trading Margin
Trading Position
Unit Category
Units

11. Glossary

Abbreviation/Term	Explanation
5MS	Five-Minute Settlement Program
AEMO	Australian Energy Market Operator
AEST	Australian Eastern Standard Time
EMMS	Electricity Market Management System; software, hardware, network and related processes to implement the wholesale energy market
JSON	Java Standard Object Notation. An agreed format for text files and data exchange.
NEM	National Electricity Market
NER	National Electricity Rules
NMI	National Metering Identifier for electricity meters
MW	Megawatt
Participant ID	Registered participant identifier; A company can have more than one Participant ID.
PID	Participant ID
Release	EMMS Technical Specification – 5MS – Prudentials
SSL	Secure Sockets Layer. A standard security technology for establishing an encrypted link between a web server and a browser
SWG	Systems Working Group

12. Version History

12.1 V2.00

- Updates the pre-prod refresh dates in the Milestones chapter.
- Adds a new chapter detailing what the participants and expect in 5MS Prudentials Staging. For more information, see Weekly Planned Tests in 5MS Staging.

12.2 V1.00

- Adds new APIs for Credit Support: `getBankGuarantees` and `getPrudentialCompanyAttributes`. See `getBankGuarantees` API and `getPrudentialCompanyAttributes` API.
- Adds example requests and responses for all APIs. See Prudential Systems API Design.
- Adds a new chapter displaying the changes to the NEM Prudentials web portal on the EMMS Markets Portal. See EMMS Markets Portal: NEM Prudentials.
- Adds a table comparing the APIs and Data Model coverage. See Prudentials API vs Data Model Comparison.
- Includes updates to existing sections based on the feedback provided by participants for the draft version of the document.

12.3 V0.02

Initial draft published to participants

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