



EMMS RELEASE SCHEDULE - AUGUST 2018 - MARKET PARTICIPANT SELF FORECAST

EMMS RELEASE SCHEDULE: EMMS082018MP5F

Published 19 June 2018 Version 1.00



Schedule Pre-production: Thursday 12 July 2018

Production: Thursday 16 August 2018



IMPORTANT NOTICE

Purpose & audience

This document describes details about the EMMS Release Schedule - August 2018 - Market Participant Self Forecast. 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 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](#), indicates a reference to a document on AEMO's website.
- 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.
- *Italicised terms* are defined in the Rules. Any rules terms not in this format still have the same meaning.
- Actions to complete in the Web Portal interface are **bold and dark blue**.
- All time references are in Australian Eastern Standard Time (AEST).

Privacy and legal notices

The material in this publication may be used in accordance with the privacy and legal notices on [AEMO's website](#).

Trademark Notices

Microsoft, Windows and SQL Server are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

Oracle and Java are registered trademarks of Oracle and/or its affiliates.

UNIX is a registered trademark of The Open Group in the US and other countries.

© 2015 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.

Distribution

Available to the public.

Document Identification

Prepared by: AEMO Technology

Last update: Tuesday, 19 June 2018 09:39:00

Version History

1.00 Initial publication

Documents made obsolete

The release of this document changes only the version of EMMS Release Schedule - August 2018 - Market Participant Self Forecast.

Further Information

For further information, please visit AEMO's website www.aemo.com.au or contact:

AEMO Information and Support Hub Phone: 1300 AEMO 00 (1300 236 600) and follow the prompts. Email: supporthub@aemo.com.au

Feedback

Your feedback is important and helps us improve our services and products. To suggest improvements, please contact AEMO's Support Hub.



CONTENTS

1	Introduction.....	4
1.1	Summary.....	4
1.2	Schedule	4
1.3	Proposed timeline	4
1.4	Approval to change	5
1.5	Related resources	5
1.6	Glossary.....	6
2	Overview	7
2.1	Background.....	7
2.2	Goal.....	7
2.3	IT systems.....	7
3	Participant Submission.....	8
3.1	Prerequisites	8
3.2	User rights access	8
3.3	Obtaining resources	9
3.4	Submission window	9
3.5	Steps to submit a UIGF.....	10
3.6	Validation criteria	10
4	API Examples.....	12
4.1	SubmitDispatchForecast.....	12
4.2	Request content.....	12
4.3	Request example	13
4.4	Response examples	14
4.5	Response 400	15
4.6	Response 500	15
4.7	OpenAPI Specification (OAS) in YAML	16
5	Reports.....	18
5.1	NEM reports.....	18
5.2	Electricity Data Model	18



1 INTRODUCTION

1.1 Summary

This release schedule informs participants about the IT changes for stage 1 of the Market Participant 5-Minute Self Forecast (MP5F) project.

1.2 Schedule

Scheduled for implementation in:

- Pre-production: Thursday 12 July 2018
- Production: Thursday 16 August 2018

1.3 Proposed timeline

Milestone	Date	Description
Approval required	This release schedule is information only.	Final date for participant approval of this Release.
User group meeting: initial	No user group meetings required for this Release.	Market systems user group meeting to discuss items on this Release.
Revised Release Schedule	July 2018	Further details of the changes to assist IT staff with their own technical implementation.
Pre-production refresh	Not required for this Release	Refresh of the pre-production system.
Pre-production Data Model release	Not required for this Release	Participant Data Model scripts released.
Pre-production implementation	Monday 9 July 2018 Monday 9 July 2018 – Thursday 12 July 2018	AEMO implements components of the Release to pre-production for participant testing. AEMO has full access to the system during this period. Participant access is not restricted, however, the data content or system availability is not guaranteed.
Pre-production available	Thursday 12 July 2018	Connectivity and interface testing period begins for participants.
User group meeting: pre-production review	Not required for this Release	Market systems user group meeting to review the implementation of this pre-production Release.
Production implementation	Monday 13 August 2018 Monday 13 August 2018 – Thursday 16 August 2018	AEMO implements the Release to production.



Milestone	Date	Description
Production systems available	Thursday 16 August 2018	Production systems available to participants
User group meeting: post-implementation review	Not required for this Release	Market systems user group meeting to review the implementation of the Production Release.

1.4 Approval to change

This Release Schedule is information only. No approval required from participant change controllers.

1.5 Related resources

1.5.1 AEMO's website resources

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 Intermittent Generation: Provides instructions for using the Intermittent Generation web application in the Markets Portal.

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

1.5.2 API resources

OpenAPI-Specification: Defines the API specification: <https://github.com/OAI/OpenAPI-Specification/blob/OpenAPI.next/versions/3.0.0.md>

1.5.3 API web portal access

Connection	Pre-production	Production
Internet	https://apiportal.preprod.aemo.com.au	https://apiportal.prod.aemo.com.au
MarketNet	https://apiportal.prod.marketnet.net.au	https://apiportal.prod.marketnet.net.au

1.5.4 API Gateway access

Connection	Pre-production	Production
MarketNet	146.178.211.91	146.178.211.92



Connection	Pre-production	Production
Internet	202.44.76.204	202.44.76.204
	202.44.78.204	202.44.78.204

1.6 Glossary

Abbreviation/Term	Explanation
API	Application Programming Interface
API e-Hub	Consists of the API Web Portal and the API Gateway
API Gateway	The gateway on AEMO's side providing participant communication options, accessible over the internet or MarketNet. It uses resources and methods to push messages to participants' API Gateways
API Web Portal	Where you can find API resources such as methods, parameters, policies, end-point URLs, and Swagger files.
ECM	Energy Conversion Model
EMMS	Wholesale electricity market system
Markets Portal	Web access to wholesale web applications.
Market time	Australian Eastern Standard Time (AEST)
MP5F	Market Participant 5-Minute Self Forecast
MP5F file	The OAS swagger file in JSON or YAML format submitted to the API Gateway.
MSATS	Market Settlement and Transfer Solutions
MSATS Web Portal	Access to MSATS web applications.
OAS	OpenAPI Specification
Participant Gateway	The API gateway on the participant's side where the AEMO API Gateway responds. Participants are responsible for creating and maintaining this gateway.
PID	Participant's AEMO user ID
SCADA	Supervisory Control and Data Acquisition
Traffic Limits	The API Gallery in the API Web Portal provides the limits for each individual API.
UIGF	Unconstrained Intermittent Generation Forecasts



2 OVERVIEW

2.1 Background

AEMO prepares a forecast of available capacity for semi-scheduled units called the Unconstrained Intermittent Generation Forecasts (UIGF). The current inputs to the UIGF include:

1. Forecasts of (wind or solar) energy available for input into the electrical power conversion process.
2. The Energy Conversion Model (ECM).
3. SCADA required under the ECM.

AEMO doesn't provide a facility for participants to submit a Dispatch UIGF directly but participants can submit a Local Limit MW value through SCADA which caps the Dispatch UIGF.

The goal of this project is to allow *Market Participants* to submit their own Dispatch UIGFs for semi-scheduled generating units for use in AEMO's *dispatch* run.

2.2 Goal

At the completion of this project, participants can make UIGF submissions to AEMO's API e-Hub using the following MP5F API file: **SubmitDispatchForecast**.

2.3 IT systems

IT systems used:

1. [AEMO's API Web Portal](#): To obtain API resources such as methods, parameters, policies, end-point URLs, and Swagger files.
2. [AEMO's API e-Hub Gateway](#): to submit UIGF forecasts. For details, see [Guide to AEMO's e-Hub APIs](#).
3. [The Markets Portal Intermittent Generation web application](#): To view UIGF forecasts. For details, see [Guide to Intermittent Generation](#).



3 PARTICIPANT SUBMISSION

3.1 Prerequisites

Registered Participants require:

1. An API e-Hub registration. For help, see [Guide to AEMO's e-Hub APIs](#).
2. A MarketNet connection for access to the EMMS Markets Portal or to submit APIs over MarketNet. For help, see [Guide to Electricity Information Systems](#).
3. User rights access to:
 - a. MP5F APIs.
 - b. Intermittent Generation Forecasts in the Markets Portal.

3.2 User rights access

Your company's participant administrator (PA) provides you access to the e-Hub and Markets Portal applications in the Administration menu of the MSATS Web Portal. For help, see [Guide to User Rights Management](#). If you don't know who your company's PA is contact AEMO's Support Hub.

3.2.1 API

The entity required to submit UIGFs to the AEMO API Gateway is:

- EMMS - MP5F

3.2.2 Intermittent Generation Forecasts

The entity required to access intermittent generation forecasts in the Markets Portal is:

- EMMS – Intermittent Generation Forecast View
- EMMS – Intermittent Generation Forecast Override



3.3 Obtaining resources

You can find Self Forecast resources such as methods, parameters, policies, end-point URLs, and Swagger files in AEMO's API Web Portal > API Gallery > Electricity – Wholesale > SelfForecast.

About SelfForecast

Forecast Submissions API endpoints.

API resources

Below is a list of resources available in the API. Click each resource to view more details.

POST [/v1/mp5f/Submit5minPDForecast](#)

POST [/v1/mp5f/SubmitDispatchForecast](#)

Other attributes

API documents

API policies

3.4 Submission window

The submission window is five minutes for each *Dispatch Interval*. For example, for the *Dispatch Interval* ending 15:00 hrs, MP5F submissions open at 14:50 hrs and close at 14:55 hrs market time.



3.5 Steps to submit a UIGF

1. Create and test the MP5F API file. For help, see [Guide to AEMO's e-Hub APIs and the resources in the API Web Portal](#).
2. Validate the MP5F file before submission.
3. During the *Dispatch Interval* submission window, submit the valid MP5F file to AEMO's API Gateway.
4. AEMO responds with a submission success, warning, or rejection notice.
5. Subject to Traffic Limits, you can resubmit the MP5F as often as required within the *Dispatch Interval* submission window.
The API Gallery in the API Web Portal provides the Traffic Limits for each individual API. For help, see [Guide to AEMO's APIs](#).
6. AEMO uses the latest valid MP5F file as input to *dispatch*.

3.6 Validation criteria

Field	Criteria
AuthorisedBy	String ≤ 20
Comments	String maxLength ≤ 200
DUID	String ≤ 20 Must belong to the participant Must be semi-scheduled Must be active at IntervalDateTime Must not repeat in the same payload
ForecastPoe50	number
ForecastPriority	Only one forecast for each ForecastPriority for one DUID If provided, Integer, int32
IntervalDateTime	String, date-time Must match the RunDateTime
Model	String maxLength ≤ 30
Participant ID	Is the owning participant of the DUID(s) for the offered forecast Matches the Participant ID in the session.
Participant_TimeStamp	string \$date-time



Field	Criteria
RunDateTime	The Dispatch interval for the intended forecast. Participants must submit forecasts: → No earlier than 5 minutes before the start of the interval. → Not after the start of the interval. String
Suppressed	Boolean: true or false



4 API EXAMPLES

These are early examples and may change before the scheduled release date.

4.1 SubmitDispatchForecast

Description	Submit forecast for dispatch, any existing forecast is superseded
URL Path	http://localhost:30310/api/v1/mp5f/SubmitDispatchForecast
Method	POST
Authorization Mode	Participant User ID (PID) and password

4.2 Request content

```
DispatchForecast{
  RunDateTime* RunDateTime string($date-time)
  AuthorisedBy* AuthorisedBy string
    maxLength: 20
  Comments Comments string
    maxLength: 200
  Forecasts* [{
    Duid* Duid string
      maxLength: 20
    ForecastPriority ForecastPriority integer($int32)
    Model Model string
      maxLength: 30
    Suppressed Suppressed 12ispatc
    IntervalForecast* IntervalForecast{
      IntervalDateTime* IntervalDateTime string($date-time)
      ForecastPoe50* ForecastPoe50 number
    }
  }]
}
```



4.3 Request example

```
{
  "RunDateTime": "2017-12-01T22:05:00+10:00",
  "AuthorisedBy": "Someone",
  "Comments": "This is a trial dispatch forecast",
  "Forecasts": [
    {
      "Duid": "Duid1",
      "ForecastPriority": 324,
      "Model": "Model ABC",
      "Suppressed": false,
      "IntervalForecast": {
        "IntervalDateTime": "2017-12-01T22:05:00+10:00",
        "ForecastPoe50": 2.349
      }
    },
    {
      "Duid": "Duid2",
      "IntervalForecast": {
        "IntervalDateTime": "2017-12-01T22:05:00+10:00",
        "ForecastPoe50": 3.03
      }
    }
  ]
}

Response:
ResponseData{
  data {
    ResponseTimeStamp string($date-time)
    ResponseText      string
    maxLength: 500
  }
  errors [{
    code integer($int32)
    title      string
    maxLength: 200
    detail string
    maxLength: 500
    source string
    maxLength: 200
  }]
  errors [{
    code integer($int32)
    title      string
    maxLength: 200
    detail string
    maxLength: 500
    source string
    maxLength: 200
  }]
}
```



4.4 Response examples

4.4.1 Response for http code 200

```
{
  "data": {
    "ResponseTimeStamp": "2017-12-01T22:05:13+10:00",
    "ResponseText": "Submission saved successfully"
  },
  "errors": {},
  "warnings": [
    {
      "code": 9999,
      "title": "SomeWarning",
      "detail": "This is some warning",
      "source": null
    },
    {
      "code": 9998,
      "title": "AnotherWarning",
      "detail": "This is yet another warning",
      "source": null
    }
  ]
}
```

4.4.2 Response for http code 422 – business validation error

HTTP response 422 is provided when the request is schema valid but one or more of the DUID forecasts submitted are invalid. The **detail** field in the response has the information to locate the error.

```
{
  "data": {
    "ResponseTimeStamp": "2017-12-01T22:05:13+10:00",
    "ResponseText": "Submission was rejected. No forecasts saved."
  },
  "errors": [
    {
      "code": 10,
      "title": "NotSemiScheduled",
      "detail": "The Duid1 is not semi dispatched",
      "source": null
    },
    {
      "code": 20,
      "title": "InvalidIntervalTime",
      "detail": "The interval time of Duid1 is invalid",
      "source": null
    }
  ],
  "warnings": {},
}
```



4.5 Response 400

When the payload is not schema valid the HTTP 400 response is provided without any body content.

4.6 Response 500

Any unhandled exceptions are handled with the HTTP 500 response without any body content.



4.7 OpenAPI Specification (OAS) in YAML

```
"swagger": "2.0",
  "info": {
    "description": "Submit your semi-scheduled generating unit self
forecasts to AEMO's e-Hub for use in the dispatch run.",
    "version": "1.0.0",
    "title": "Forecast Submissions",
    "termsOfService": "http://swagger.io/terms/"
  },
  "host": "nordewmweb3.aemo.local:8080",
  "basePath": "/api/",
  "schemes": [
    "https"
  ],
  "paths": {
    "/auth/AemoPortal": {
      "get": {
        "tags": [
          "Authenticate before using Forecast Submission requests"
        ],
        "summary": "",
        "description": "",
        "consumes": [
          "application/json"
        ],
        "produces": [
          "application/json"
        ],
        "security": [
          {
            "basicAuth": []
          }
        ],
        "responses": {
          "401": {
            "description": "Invalid input"
          }
        }
      }
    },
    "/v1/mp5f/SubmitDisptachForecast": {
      "post": {
        "tags": [
          "Submission of Dispatch Forecast"
        ],
        "summary": "Submit Dispatch Forecast",
        "description": "",
        "consumes": [
          "application/json"
        ],
        "produces": [
          "application/json"
        ],
        "parameters": [
          {
```



```
        "name": "body",
        "in": "body",
        "required": true,
        "schema": {
            "$ref": "#/definitions/DispatchForecast"
        }
    },
    "responses": {
        "200": {
            "description": "This response is provided when the submitted forecasts are validated and saved in the AEMO systems.",
            "schema": {
                "$ref": "#/definitions/DispatchForecastResponse200"
            }
        },
        "400": {
            "description": "This response is provided when the submitted payload cannot be parsed successfully."
        },
        "422": {
            "description": "This response is provided when any of the submitted forecasts fail business validation. If any forecast submitted fails validation then the entire submission is rejected.",
            "schema": {
                "$ref": "#/definitions/DispatchForecastResponse422"
            }
        },
        "500": {
            "description": "This response is provided when any unforeseen error is encountered"
        }
    }
}
```



5 REPORTS

5.1 NEM reports

5.1.1 Confidential reports

1. Same-day current interval report for all *dispatch* forecasts, including:
 - The current inputs to UIGF
 - Participant forecasts (confidential)
2. An immediate report flagging when AEMO suppresses or unsuppresses participant forecasting on each DUID.

5.1.2 Public reports

1. Next-day publication of valid *dispatch* forecasts, including:
 - All DUIDs and *dispatch intervals* for the previous trading day, regardless of suppression or origin.
 - Which forecast was used for each interval.
 - The Offer_DateTime of the used forecast.
 - The forecast priority.
 - The origin.
 - The MW UIGF value.
2. Next-day publication of all *dispatch* forecasts for the previous day regardless of suppression or origin.

Because it is confidential information, we do not publish details of the forecast provider, forecasting model, or variable used in the forecasts.

5.2 Electricity Data Model

There is no change to the Electricity Data Model for this Release. We will provide details about Data Model changes for stage two of this project in the year-end technical specification.