

OMAN ELECTRICITY MARKET RULES

APPROVED METHODOLOGY

FORECAST POOL DEMAND METHODOLOGY

VERSION 4.0

EFFECTIVE DATE: 30/12/2021

1. INTRODUCTION

1.1 Scope, Purpose and Effectiveness of the Approved Methodology

Section K.2.1.1 of the Oman Electricity Market Rules (the Market Rules) requires the Market Operator to prepare, as an Approved Methodology, a methodology for the purpose of determining a value of Forecast Pool Demand for each Trading Period h of a Trading Day d for the purpose of the Ex-Ante Market Schedule Run for Trading Day d .

The Approved Methodology is termed the Forecast Pool Demand Methodology.

This document is the Forecast Pool Demand Methodology prepared by the Market Operator in accordance with Section K.2.1.1 of the Market Rules and approved by the Authority on 2/5/2021.

This Approved Methodology is effective on and from **30/12/2021**.

1.2 Market Rules Provision

Interested parties should read this Approved Methodology in conjunction with the Market Rules and in particular Section K. This Approved Methodology has been produced in accordance with the provisions of the Market Rules. In the event of an inconsistency between the provisions of this Approved Methodology and the Market Rules, the provisions of the Market Rules shall prevail.

1.3 Review Procedure

The Market Operator may review this Approved Methodology from time to time and make changes, subject to the Authority's approval in accordance with Market Rules Section C.7.3.

1.4 Definitions and interpretation

Save as expressly defined, words and expressions defined in the Market Rules shall have the same meanings when used in this Approved Methodology. The rules of interpretation set out in Section B.3 of the Market Rules shall apply in the interpretation of this Approved Methodology.

References to particular sections relate internally to this Approved Methodology unless specifically noted. References to Market Rules sections are to the relevant sections of the Market Rules.

1.5 Compliance with Approved Methodology

Compliance with this Approved Methodology is required under the terms as set out in the Market Rules. This Approved Methodology does not create any additional rights or obligations.

2. FORECAST POOL DEMAND DETERMINATION

2.1 Introduction

The Market Operator shall apply the approach outlined below to determine a value of Forecast Pool Demand for each Trading Period h of Optimisation Horizon o , associated with Trading Day d , for the purpose of the Ex-Ante Market Schedule Run for Trading Day d .

2.2 Approach

2.2.1 *Transmission Company Demand Forecast*

The Transmission Company shall prepare, in accordance with its standard forecasting approach and good industry practice, a forecast of demand for the Main Interconnected System for each Trading Period h in Optimisation Horizon o , associated with Trading Day d , (**Transmission Company Demand Forecast**).

The Transmission Company Demand Forecast shall be a gross demand forecast which includes:

- (a) End Users consumption
- (b) Transmission and Distribution Losses
- (c) Production Facilities' House Load including Unit Auxiliary Consumption and Must Run Auxiliary Consumption

and excludes:

- (d) Power exports to other systems.

The Transmission Company shall provide to the Market Operator details of the Transmission Company Demand Forecast for each Trading Period h in Optimisation Horizon o , associated with Trading Day d , in accordance with the timescales specified in the Market Rules.

In the event that Transmission Company Demand Forecast data is incomplete in time for the initiation of the Ex-Ante Market Schedule Run, then:

- (a) if data is not provided for 6 or more of Trading Periods h in Optimisation Horizon o , associated with Trading Day d , the Market Operator shall not use any of the data received for Optimisation Horizon o , associated with Trading Day d , and shall instead use:
 - a. if Trading Day d is a Business Day, equivalent Transmission Company Demand Forecast data for each corresponding Trading Period h from Optimisation Horizon o , associated with the most recent Business Day;
 - b. if Trading Day d is not a Business Day, equivalent Transmission Company Demand Forecast data for each corresponding Trading Period h from Optimisation Horizon o , associated with the most recent non-Business Day;
- (b) if data is not provided for up to and including 5 Trading Periods h in Optimisation Horizon o , associated with Trading Day d , the Market Operator shall use the Transmission Company Demand Forecast data for the Trading Periods h for which data has been provided and Transmission Company Demand Forecast data for any missing Trading Periods h shall be subject to paragraphs (c), (d) and (e);

- (c) if data is not provided for up to and including 5 Trading Periods h in Optimisation Horizon o, associated with Trading Day d, the Market Operator shall determine Transmission Company Demand Forecast data for each missing Trading Period h to be the arithmetic average of the data for the adjacent 2 Trading Periods either side of the missing range, subject to paragraphs (d) and (e);
- (d) if data is missing for the initial Trading Period h in Optimisation Horizon o, associated with Trading Day d, then Transmission Company Demand Forecast for the initial Trading Period h shall be set equal to:
 - a. if Trading Day d is a Business Day, the value for the first Trading Period h in Optimisation Horizon o, associated with the most recent Business Day, for which data has been provided;
 - b. if Trading Day d is not a Business Day, the value for the first Trading Period h in Optimisation Horizon o, associated with the most recent non-Business Day, for which data has been provided;
- (e) if data is missing for the final Trading Period h in Optimisation Horizon o, associated with Trading Day d, then Transmission Company Demand Forecast for the final Trading Period h shall be set equal to:
 - a. if Trading Day d is a Business Day, the value for the last Trading Period h in Optimisation Horizon o, associated with the most recent Business Day, for which data has been provided;
 - b. if Trading Day d is not a Business Day, the value for the last Trading Period h in Optimisation Horizon o, associated with the most recent non-Business Day, for which data has been provided.

2.2.2 Pool Excluded Generation Forecast

The Market Operator shall calculate a forecast of generation to be provided by Pool Excluded Generation for each Trading Period h in Optimisation Horizon o, associated with Trading Day d, (**Pool Excluded Generation Forecast**).

The Pool Excluded Generation Forecast for each Trading Period h in Optimisation Horizon o, associated with Trading Day d, will be the sum of estimates for the following:

- (a) forecast overall Output in Trading Period h of Optimisation Horizon o, associated with Trading Day d, within the Main Interconnected System provided, by the Power Procurer, across each Production Facility f identified in accordance with Section E.3.1.2 and each Production Facility f identified in accordance with Section E.3.1.3 that chooses not to Participate in the Pool (**De Minimis Generation Forecast**);
- (b) forecast overall Output in Trading Period h of Optimisation Horizon o, associated with Trading Day d, within the Main Interconnected System provided across all exempt generation identified in accordance with Section E.3.1.5 (**Exempt Generation Forecast**); and
- (c) forecast overall Output in Trading Period h of Optimisation Horizon o, associated with Trading Day d, that feeds into the Main Interconnected System provided, by the Power Procurer, across all generation identified in accordance with Section E.3.2.1 (**Non-MIS Generation Forecast**)

The Market Operator shall base its estimates of the variables listed in paragraphs 2.2.2 (a), (b) and (c) upon analysis that, in the judgement of the Market Operator and in accordance with the OPWP Licence, is reasonable for the intended purpose.

If the value for a variable listed in paragraphs 2.2.2 (a), (b) and (c) is not available for Trading Period h in Optimisation Horizon o , associated with Trading Day d , the Market Operator shall instead use the relevant value for the corresponding Trading Period h in the Optimisation Horizon o , associated with the preceding Trading Day $d-1$.

Based on the above, Pool Excluded Generation Forecast ($PGEF_h$) for each Trading Period h is defined as follows:

$$PGEF_h = DMGF_h + EGF_h + NMGF_h$$

Where:

1. $DMGF_h$ is the De-Minimis Generation Forecast for Trading Period h
2. EGF_h is the Exempt Generation Forecast for Trading Period h
3. $NMGF_h$ is the Non-MIS Generation Forecast for Trading Period h

2.2.3 House Load and Unit Auxiliary Consumption Forecast

The Transmission Company shall provide to the Market Operator details of the House Load and Unit Auxiliary Consumption for each Trading Period h in Optimisation Horizon o , associated with Trading Day d , in accordance with the timescales specified in the Market Rules.

From time to time the Transmission Company may request Generators to provide or update necessary information that enables it to estimate the House Load and Unit Auxiliary Consumption for their Production Facilities.

In the event that House Load and Unit Auxiliary Consumption data is incomplete in time for the initiation of the Ex-Ante Market Schedule Run, then the fallback approach outlined in paragraph 2.2.1 in respect of Transmission Company Demand Forecast data shall apply in respect of Must Run Auxiliary Consumption data.

2.2.4 Forecast System Exports

Forecast System Exports for each Trading Period h in Optimisation Horizon o , associated with Trading Day d , is as defined in the Market Rules and determined pursuant to Sections K.2.7.2. and K.2.7.3.

2.2.5 Forecast Pool Demand

Forecast Pool Demand (FPD_h) for each Trading Period h is defined as follows:

$$FPD_h = TCDF_h - PGEF_h - (HoLo_h + UAC_h) + FEXPORTS_h$$

Where:

1. $TCDF_h$ is the Transmission Company Demand Forecast for Trading Period h for the Main Interconnected System
2. $PGEF_h$ is the Pool Excluded Generation Forecast for Trading Period h
3. $HoLo_h$ is the House Load for Trading Period h
4. UAC_h is the Unit Auxiliary Consumption for Trading Period h
5. $FEXPORTS_h$ is the Forecast System Exports for Trading Period h