

# OMAN ELECTRICITY MARKET RULES

## APPROVED METHODOLOGY

### AVAILABILITY CERTIFICATION METHODOLOGY

#### VERSION 1.0

EFFECTIVE DATE: [XX/XX/20XX]

## 1. INTRODUCTION

### 1.1 Scope, Purpose and Effectiveness of the Approved Methodology

Section E.2.12.1 of the Oman Electricity Market Rules (the Market Rules) requires the Power Procurer to prepare, as an Approved Methodology, a methodology:

- (a) setting out conditions by reference to which a Pool Scheduling Unit will be treated as eligible for having Eligible Availability determined under Section M by reference to Availability; and
- (b) providing for the certification by the Power Procurer of a Pool Scheduling Unit for that purpose and its maximum level of Availability.

The Approved Methodology is termed the Availability Certification Methodology.

This document is the Availability Certification Methodology prepared by the Power Procurer in accordance with Section E.2.12.1 of the Market Rules and approved by the Authority on [XX/XX/20XX].

This Approved Methodology is effective on and from [XX/XX/20XX].

### 1.2 Market Rules Provision

Interested parties should read this Approved Methodology in conjunction with the Market Rules and in particular Section E. 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 Power Procurer may review this Approved Methodology from time to time and make changes, subject to the Authority's approval in accordance with Market Rules 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 are to sections of this Approved Methodology unless specifically noted. References to Market Rules sections are to the relevant sections of the Market Rules.

**Table 1 – Defined terms**

<b>Term</b>	<b>Definition</b>
Annual Performance Test (APT)	means a test conducted on an annual cycle to assess the performance capabilities of a Pool Scheduling Unit
Duly Completed	means the completion of any Annual Performance Test and/or Spot Performance Test in accordance with the agreed procedures specified in or to be established pursuant to Power Contract or otherwise in accordance with agreed procedure established to serve the requirements of this approved methodology
First Validity Period of Certified Availability	means, with respect to the Validity Period of Certified Availability for the first-time certification, a period commences and ends at the time and the date agreed with the Power Procurer.
Spot Performance Test	means a test conducted outside of any regular testing schedule to assess the performance capabilities of a Pool Scheduling Unit
Standard Planning Data	has the meaning given in the Grid Code (Planning Code)
Validity Period of Certified Availability	means the period for which the Certified Availability of a Pool Scheduling Unit shall remain valid. Such period commences at 00:00 hours on 1 <sup>st</sup> May of a calendar year and ends after 12 months from such date. Provided that, if no Annual Performance Test is performed and/or performed but not Duly Completed before the expiry of this period, then the Certified Availability of is automatically set to zero from 0:00 hours of the first day following the expiry of this period.

## 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. AVAILABILITY CERTIFICATION

### 2.1 Introduction

The arrangements for determining Certified Availability for application under the Market Rules are set out below.

### 2.2 Conditions by reference to which a Pool Scheduling Unit has eligibility for having Certified Availability

For a Pool Scheduling Unit to have Certified Availability: (1) it must be assessed by the Power Procurer, either directly as a Pool Scheduling Unit in its own right or as part of a Production Block or a Production Facility as considered appropriate by the Power Procurer, as having reliable capacity, i.e. capacity that, if offered for dispatch and dispatched under the Grid Code, will be available to meet Dispatch Instructions; and (2) the Power Procurer must be satisfied (acting reasonably) that the relevant Generator is in compliance with Standard Planning Data requirements specified in Appendix B.2 of the Planning Code of the Grid Code, submitted in accordance with Planning Code 4.3 of the Grid Code.

Additionally, unless otherwise determined by the Power Procurer, Production Units with a fossil fuel as Fuel Type must have the ability to operate reliably on an alternative Fuel Type and for fuel switching to occur without interruption in order to have Certified Availability. Following the start of Validity Period of Certified Availability and after successful test on Primary Fuel Type, one (1) month will be given as a grace period (the "Grace Period") for the Generator to rectify and demonstrate the capability of its Production Units to operate reliably on alternate Fuel Type and/or to perform fuel switching without interruption. If the Generator fails to do so within the Grace Period, then its Certified Availability on Primary Fuel Type for the concerned Production Unit (s) will be reduced by 25% every subsequent month in a cumulative order. For avoiding of doubts, after the expiry of the Grace Period, the Certified Availability on Primary Fuel Type of the concerned Production Units will be considered 75%, 50%, 25% and Zero% for the 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> month respectively until the reliable operation on alternative Fuel Type and/or successful fuel switching without interruption is performed. Save, where the APT with respect to a Production Unit is performed for the First Validity Period of Certified Availability, the Grace Period and the Certified Availability on Primary Fuel Type will be counted on daily basis as follow:

Number of Trading Days d from the start of First Validity Period of Certified Availability	Grace Period (Yes/No)	Certified Availability on Primary Fuel Type %
30	Yes	100%
31-60	No	75%
61-90	No	50%
91-120	No	25%
>121	No	0%

The Power Procurer's assessment of reliable capacity shall be determined in respect of each Pool Scheduling Unit in its own right or as part of a Production Block or the Production Facility as a whole, as appropriate:

- (a) according to the results of tests that satisfy the relevant test criteria pursuant to whichever is applicable of:
  - (1) a Power Contract between the Generator and the Power Procurer;
  - (2) an Ancillary Service Agreement under the Grid Code between the Generator and the Transmission Company; or
  - (3) Demand Side Arrangements which make provision for a Demand Side Unit to provide Certified Availability; or
  - (4) the Grid Code; or
  - (5) a requirement of the Authority, pursuant to the relevant Generation Licence or Exemption; or
- (b) if no agreement or arrangement of the types referred to in paragraph 2.2(a) above is applicable and satisfactory to the Power Procurer for the purposes of Availability Certification, by the results of tests as specified in paragraph 2.4 of this Approved Methodology; and
- (c) in each case, shall be subject to adjustment by reference to historic adherence to any then prevailing Certified Availability arrangements, in accordance with paragraph 2.3 of this Approved Methodology.

If, based on its assessment of reliable capacity determined as provided above and in compliance with the relevant provisions of the Grid Code, the Power Procurer determines that a Pool Scheduling Unit has Certified Availability, then the Pool Scheduling Unit shall be treated as such and its quantity of Certified Availability shall be determined in accordance with paragraph 2.3.

### **2.3 Quantity of Certified Availability**

A Pool Scheduling Unit's maximum Certified Availability value shall be as determined in accordance with paragraph 2.5 except:

- (a) unless otherwise determined by the Power Procurer, in the event of a Production Unit with a fossil fuel as Fuel Type that does not have the ability to operate reliably on an alternative Fuel Type either at all or at any time, in which case its maximum Certified Availability shall be zero for the period over which reliable operation on the alternative Fuel Type is not possible. A Production Unit will continue to be Certified on Primary Fuel Type only for maximum of Seven (7) days to enable the Generator to rectify the alternative Fuel reliability issues. If the Production Unit still cannot operate reliably on alternative Fuel, then its Certified Availability on Primary Fuel Type for the concerned Production Unit (s) will be reduced by 25% every subsequent Seven (7) days in a cumulative order. For avoidance of doubts, after the expiry of the first Seven (7) days, the Certified Availability on Primary Fuel Type of the concerned Production Units will be considered 75%, 50%, 25% and Zero% for the 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> Seven (7) Trading Days d respectively until the alternative Fuel reliability issues are resolved. For Example, Certified Availability on Primary Fuel Type will be counted on daily basis as follow:

Number of Trading Days d from inability of a Production Unit to operate reliably on alternative Fuel Type	Grace Period (Yes/No)	Certified Availability on Primary Fuel Type %
7	Yes	100%
8-14	No	75%
15-21	No	50%
22-28	No	25%
>29	No	0%

(b) in the event of a Pool Scheduling Unit being demonstrated by testing to be underperforming (based on testing as specified in paragraph 2.4) or underperforming (based on monitoring such as that as specified in paragraph 2.6), in which cases the Power Procurer can:

- (1) reduce the Pool Scheduling Unit's Certified Availability based on the scale of underperformance relative to the then prevailing Certified Availability arrangements; or
- (2) remove the Pool Scheduling Unit's eligibility for Certified Availability if its scale of underperformance relative to the then prevailing Certified Availability arrangements is more than thirty (30%) percent.

The Power Procurer shall notify the relevant Generator and the Market Operator of, and of the rationale for and timing of, any removal of Certified Availability eligibility or revision to the maximum Certified Availability value for a Pool Scheduling Unit.

Generators shall promptly update Registration Data relating to Certified Availability to reflect the outcome of testing and any adjustment by the Power Procurer to give effect to the maximum Certified Availability determined through testing from the relevant Trading Period h and Trading Day d.

Certified Availability quantities shall be expressed in a manner consistent with Section I.3.2.1 of the Market Rules.

## 2.4 Testing requirements

### 2.4.1 Testing routes

In respect of a Pool Scheduling Unit in relation to which one of the agreements or arrangements referred to in paragraph 2.2(a) exists, testing shall be conducted in accordance with whichever of those items is applicable to determine the applicable maximum Certified Availability, unless the Power Procurer determines that testing under this Approved Methodology should be conducted.

In respect of a Pool Scheduling Unit in relation to which none of the agreements or arrangements referred to in paragraph 2.2(a) exists, or where the Power Procurer

determines, the following testing shall apply to determine the applicable maximum Certified Availability.

#### **2.4.2 Testing routes under this Approved Methodology**

This Approved Methodology includes provisions for testing as follows:

- (a) an Annual Performance Test in respect of a Pool Scheduling Unit shall, unless otherwise determined by the Power Procurer, be conducted at least once within the Validity Period of Certified Availability by the relevant Generator to determine its maximum Certified Availability at Reference Ambient Conditions. Such test shall be conducted as close as is reasonably practicable before the expiry of the Validity Period of Certified Availability but not earlier than three (3) Months before the expiry of the Validity Period of Certified Availability; and/or
- (b) a Spot Performance Test in respect of a Pool Scheduling Unit may be conducted at the reasonable request of the Power Procurer, including in the event of underperformance, in accordance with paragraph 2.6, of the Pool Scheduling Unit to determine its maximum Certified Availability at Reference Ambient Conditions; and
- (c) the Power Procurer may require that testing under this paragraph 2.4 in respect of a Pool Scheduling Unit may be in such Configuration or Configurations of Production Units as may be specified by the Power Procurer; and
- (d) testing pursuant to this Approved Methodology may be combined with tests required for the purposes of one or more of the arrangements specified in paragraph 2.2(a) and the relevant Parties shall seek to coordinate the timing and nature of tests to be undertaken.

#### **2.4.3 Scheduling a test under this Approved Methodology**

To schedule a test specified in paragraph 2.4.2 in respect of a Pool Scheduling Unit, the Generator shall prepare and submit a Testing Schedule in accordance with Section I.7.1 of the Market Rules, and also provide the Testing Schedule to the Power Procurer and the Transmission Company.

The timing and form of the tests to be carried out under this Approved Methodology shall be as reasonably determined by the Power Procurer for the purpose of establishing the maximum Certified Availability, taking into account the schedule proposed by the Generator. The Power Procurer and its technical advisers shall be entitled to attend the tests.

During the Testing Period the provisions of Section I.7 shall apply.

### **2.5 Process following completion of a test**

Following completion of a test specified in paragraph 2.4 in respect of a Pool Scheduling Unit, the Generator shall, following agreement on the outcome of testing with the representatives of the Power Procurer in attendance, promptly confirm to the Power Procurer whether or not the test has been Duly Completed.

2.5.1 If a test in respect of a Pool Scheduling Unit has been Duly Completed, the Generator shall promptly notify the Power Procurer of:

- (a) its proposed maximum Certified Availability value at Reference Ambient Conditions for that Pool Scheduling Unit based on its performance during the Testing Period;
- (b) its proposed Ambient Temperature Correction Curve; and

- (c) the Day d and Trading Period h from which that maximum Certified Availability value and associated Ambient Temperature Correction Curve shall apply, subject to approval by Power Procurer of the proposed Ambient Temperature Correction Curve.

The Power Procurer shall review the Ambient Temperature Correction Curve submitted by the Generator in 2.5.1. (b).

After its review of the Ambient Temperature Correction Curve, the Power Procurer shall either approve the Ambient Temperature Correction Curve or, in the event of concerns regarding the technical accuracy of the curve, instruct the Generator to recalculate and resubmit the Ambient Temperature Correction Curve for approval.

2.5.2 If a test in respect of a Pool Scheduling Unit has not been Duly Completed:

- (a) the relevant Generator shall initiate a repeat test in accordance with paragraph 2.4.3 at the earliest opportunity; and
- (b) if the test was conducted within the Validity Period of Certified Availability, the prevailing maximum Certified Availability value at Reference Ambient Conditions for that Pool Scheduling Unit shall remain unchanged pending the completion of the repeat test.
- (c) if the test was conducted after the expiry of Validity Period of Certified Availability, the maximum Certified Availability for the Pool Scheduling Unit shall remain zero pending the completion of the repeat test.

2.5.3 If a test repeated in respect of a Pool Scheduling Unit in accordance with 2.5.2 (a) has:

- (a) been Duly Completed, then paragraph 2.5.1 shall apply.
- (b) not been Duly Completed, then paragraph 2.5.2 shall apply.

2.5.4 The Power Procurer has the option to request reasonable supporting information to accompany a Generator's Certified Availability declaration, including any reports of the Generator's test engineers.

The Power Procurer shall, acting reasonably, approve:

- (a) the maximum Certified Availability value at Reference Ambient Conditions for each Pool Scheduling Unit tested;
- (b) an associated Ambient Temperature Correction Curve; and
- (c) the Day d and Trading Period h from which that maximum Certified Availability value and associated Ambient Temperature Correction Curve shall apply,

in each case, based on its performance during the Testing Period and the Generator proposals. The Power Procurer shall promptly notify the relevant Generator of its approval.

## 2.6 Performance monitoring

If a Generator becomes aware of performance issues in respect of a Pool Scheduling Unit linked to it which has Certified Availability, it shall notify the Power Procurer as soon as possible.

The Market Operator and, separately, the Transmission Company, shall monitor, on an ongoing basis, and report to the Power Procurer the performance of each Pool Scheduling Unit u with a Certified Availability in terms of its:



- (a) Offered Availability;
- (b) Actual Availability; and
- (c) Uninstructed Imbalance.

A Pool Scheduling Unit shall be considered to be underperforming for the purposes of Availability Certification if:

- (a) Offered Availability is less than Certified Availability;
- (b) Actual Availability is less than Certified Availability; or
- (c) Uninstructed Imbalance volumes are evident.

If an instance or set of instances of underperformance are considered by the Power Procurer to be significant, the Power Procurer may require additional testing in accordance with paragraph 2.4, which may result in withdrawal or revision of a Pool Scheduling Unit's maximum Certified Availability value as provided for in paragraph 2.3.