



**Guide to Trial Run**  
**on**  
**Proposed Amendments**  
**to**  
**New Enhanced Dispatch Arrangement**

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**PART I**  
**INTRODUCTION**

**1. NEW ENHANCED DISPATCH ARRANGEMENT (NEDA)**

- 1.1 The Single Buyer has proposed amendments to the NEDA Rules, among others, on the categories of participants of NEDA ("the **"NEDA Participants"**") and the bidding, scheduling and dispatch of generation which are described in more detail in the following sections. A trial run has been proposed on the proposed bidding process (the **"Trial Run"**). This document is to provide a guide to the NEDA Participants for the Trial Run (the **"Guide"**). Any person who requires further information about the Single Buyer market and NEDA may refer to the NEDA Rules, the Single Buyer Rules, the Malaysian Grid Code and the Malaysian Distribution Code for more details.
- 1.2 As provided in the New Enhanced Dispatch Arrangement Rules (**"NEDA Rules"**), the New Enhanced Dispatch Arrangement (**"NEDA"**) will enhance competition and cost efficiency of the Single Buyer market with the following objectives :
- enhance cost efficiency in generation through short-run competition;
  - enable energy-efficient options, particularly the use of efficient technology, such as cogeneration, to participate in the electricity market;
  - provide opportunity for non-PPA/SLA generators, such as co-generators , renewable energy generators, franchise utilities with generation facilities, Part PPA/SLA generators (has the meaning given in clause 5.1), expired PPA/SLA generators and new build generation facilities who manage their own fuel requirements to operate as Merchant Generators (has the meaning given in clause 5.1) to supply and sell energy to the Single Buyer to enhance their business options by maximizing the use of existing facilities in a cost-efficient manner for the benefit of the electricity supply industry and the consumer.
- 1.3 The NEDA Rules is supplementary to the Single Buyer Rules and should be read in conjunction with the Single Buyer Rules. The NEDA Rules, together with the Single Buyer Rules, the Malaysian Grid Code and the Malaysian Distribution Code, will ensure equitable, fair, coordinated and cost efficient operation of the Single Buyer market and the NEDA market.
- 1.5 Unless the context otherwise requires, words and phrases used in the NEDA Rules and in this Guide shall have the same meaning as defined in the Single Buyer Rules, the Malaysian Grid Code and the Malaysian Distribution Code, and where relevant, the PPA/SLA.
- 1.6 It is recognised that some Generators have existing commercial agreements with the Grid Owner, the Network Operator, the Nominated Coal Supplier, the Nominated Gas Supplier or other parties. Nothing contained in the NEDA Rules, including the proposed amendments, is intended to modify the parties' rights and obligations under these agreements. In the event of any conflict, the existing commercial agreements take precedence only to the extent that it does not affect the security and safety of the Grid System and the Distribution System or seek to impose any liability on the Single Buyer, Grid System Operator and the Distributor in the discharge of their obligations under the Single Buyer Rules, the NEDA Rules, the Malaysian Grid Code and the Malaysian Distribution Code in accordance with the terms thereof.

**PART II**  
**PRINCIPLES OF NEDA**

**2. SCHEDULING AND DISPATCH OF GENERATION**

- 2.1 Under NEDA, the current cost-based bidding system is complemented by introducing an optional price-based bidding by which a NEDA Participant may offer bids in accordance and subject to the NEDA Rules ( the “**Bid**”). This will enhance competition in generation dispatch and result in more competitive energy prices.
- 2.2 Scheduling and dispatch under NEDA is similar to existing operations but incorporates Bids made by NEDA Participants in accordance with NEDA Rules and co-optimises PPA/SLA Generators and Merchant Generators at the same time.
- 2.3 If dispatched, the PPA/SLA Generator shall be paid based on the lower of the VOR and Heat Rates specified in the PPA/SLA or any optionally offered VOR and/or Heat Rate provided pursuant to the NEDA Rules and any such approved amendments. All settlement of PPA/SLA Generators shall be under the arrangements, and subject to the rights and obligations, specified in the relevant PPA/SLA. The optional offered VOR and/or Heat Rate may only be of a value less than the VOR and Heat Rate specified in the PPA or SLA.
- 2.3 A Generator may participate in more than one capacity (for example, as a PPA/SLA Generator and as a Part PPA/SLA Generator). Where that is the case, they shall (except to the extent approved by the Energy Commission otherwise) comply with all obligations imposed on them severally in each capacity.
- 2.4 There shall be no violation of contract with existing PPAs/SLAs as, once a PPA/SLA is registered pursuant to the NEDA Rules, the PPA/SLA Generator may choose whether to participate and submit Bids under NEDA.

**3. FUEL MANAGEMENT**

- 3.1 An expired PPA/SLA Generators whose PPA/SLA with the Grid Owner( means TNB/SB, unless mentioned otherwise) has expired and who wishes to continue to operate its generation facilities for supplying electricity solely to the Grid Owner (the “**Expired PPA/SLA Generator**”), except an expired PPA/SLA Generator under clause 3.3, and all existing PPA/SLA Generators shall be eligible for the power sector gas arrangement.
- 3.2 All Merchant Generators shall manage their own fuel requirements.
- 3.3 An expired PPA/SLA Generator may choose to be a Merchant Generator if it wishes to manage its own fuel requirements.
- 3.4 An expired PPA/SLA Generator shall obtain approval of Energy Commission and agreement from Petronas if it wishes to be eligible for power sector gas prior to registration as NEDA Participant.
- 3.5 An expired PPA/SLA Generator shall specify whether it will be using power sector gas or on own fuel arrangement on registration as NEDA Participant and shall amend its registration under the NEDA Rules in order to switch from using power sector gas to managing its own fuel requirements.

## PART III

### TRIAL RUN ON THE PROPOSED AMENDMENTS TO NEDA RULES

#### 4. PURPOSE OF THE TRIAL RUN

- 4.1 The purpose of the NEDA Trial Run is to seek feedbacks and suggestions from the NEDA Participants on the proposed bidding arrangement (bidding, scheduling, dispatch and settlement), to allow the NEDA Participants to prepare the necessities and to familiarise with the new arrangements before the bidding goes-live. Energy Commission will review the proposed amendments taking into consideration the feedbacks from the NEDA Participants and the relevant parties during the Trial Run.
- 4.2 The Trial Run will be conducted for a period of 6 months from **01 October 2016 to 31 March 2017**
- 4.3 The Energy Commission will designate a date for the bidding to go-live (the “Go-Live Date” ) after reviewing the proposed amendments taking into consideration the feedbacks from the NEDA Participants during the Trial Run.
- 4.4 During the Trial Run period, there will be two (2) parallel work streams :
  - 4.4.1 Stream 1 - Current Practice: Physical operations and settlement will continue to follow existing processes and rules;
  - 4.4.2 Stream 2 – NEDA Trial Run: Generators will submit bids and receive dispatch instructions but will not follow them in reality. This will have no impact on the physical operations and settlement.
- 4.5 Prior to the Go-Live Date, any operation of NEDA based on the proposed bidding arrangement during the Trial Run shall not give rise to legally binding rights or obligations relating to dispatch and settlement pursuant to the NEDA Rules.
- 4.6 For the purpose of NEDA Trial Run, there will be no cash transaction for settlement purposes between NEDA Participants and the Single Buyer or TNB Distribution relating to the bidding by the NEDA Participants, except as provided for under the PPA/SLA. There will be mock transaction on paper only.

**PART IV**  
**NEDA PARTICIPANTS AND REGISTRATION**

**5. CATEGORIES OF NEDA PARTICIPANTS**

5.1 The proposed new categories of the NEDA Participants are as follows:

5.1.1 Generators on Power Sector Fuel

This category of NEDA Participants consists of :

- (a) PPA/SLA Generators;
- (b) Expired PPA/SLA Generators supplying power solely to the Grid Owner and with their fuel requirements under the power sector gas supply arrangement.

This category of Generators will be eligible for gas supply under the power sector gas supply arrangement.

5.1.2 Merchant Generators

**Merchant Generators** consist of any Generator without a PPA/SLA with the Grid Owner and who manages its own fuel requirements. The Merchant Generators consist of the following categories: :

- (a) Large Merchant Generators

This category of Merchant Generators consists of co-generation plants, Part PPA/SLA Generators, expired PPA/SLA Generators on own fuel arrangements, franchise utilities with generation facilities and new build generation facilities (without a PPA with the Grid Owner) with export capacity of not less than 30MW; where a **Part PPA/SLA Generator** means a PPA/SLA Generator that has export capacity of at least 30MW more than the capacity contracted under the PPA/SLA and which has registered such additional capacity as a Part PPA/SLA Generator.

- (b) Price Takers

This category Generators includes co-generation plants, franchise utilities with generation facilities, expired PPA/SLA renewable plants and new build generation facilities (without a PPA/SLA with the Grid Owner) with export capacity of less than 30MW but not less than 100kW.

**6. THE REGISTRATION PROCESS**

6.1 To participate in NEDA and the NEDA Trial Run, a NEDA Participant shall:

- 6.1.1 possess appropriate generation licences issued by the Energy Commission; and
- 6.1.2 apply to register with the Energy Commission as NEDA Participants in accordance with the Registration Process set out in Appendix D (the "**Registration**").

6.3 On receiving the confirmation of the Registration from the Energy Commission, the Single Buyer and the NEDA Participant shall execute an appropriate NEDA Agreement. The NEDA Participant shall provide to the Single Buyer an estimated date on which it will be ready to participate in NEDA (the "**Estimated Participation Date**") and the Single Buyer shall issue a notice confirming the date on which the NEDA Participant may participate in Bidding under NEDA (the "**Firm Participation Date**").

- 6.2 Each NEDA Participant shall keep the information provided in the Registration Process ( the “**Registration Data**” ) relating to it and any of its generation facilities connected and supply electricity to the Grid System or Distribution System (hereinafter referred to as the “**Generating Facility**” ) under review to ensure that the Registration Data is accurate and complete.
- 6.3 Where a NEDA Participant wishes to or is required to amend its Registration Data ( the “**Registration Amendment**” ) in whole or in part , it shall submit a notice ( the “**Registration Amendment Notice**” ) to the Energy Commission with copy to the Single Buyer.
- 6.4 A Registration Amendment Notice shall contain:
- 6.4.1 details of the NEDA Participant’s existing Registration Data; and
  - 6.4.2 details of the NEDA Participant’s proposed Registration Data.
- 6.5 Within three (3) Months of receipt of a Registration Amendment Notice, the Energy Commission shall either:
- 6.5.1 refuse the Registration Amendment and provide the NEDA Participant with an explanation of why such Registration Amendment is not accepted; or
  - 6.5.2 approve the Registration Amendment and send the NEDA Participant a confirmation on the amendment to the Registration ( the “**Registration Amendment Confirmation**”).
- 6.6 Any party who applies for Registration as a NEDA Participant (the “**Applicant**”) shall be responsible for its own costs and expenses incurred in relation to the registration process and participation in the Trial Run.

## **MARKET PARTICIPANT INTERFACE AND PROVISION OF INFORMATION**

### **7. MARKET PARTICIPANT INTERFACE (MPI)**

- 7.1 The Single Buyer will provide a software portal (“**Market Participant Interface**” or “**MPI**”) and make available a virtual location on the World Wide Web for the MPI that is accessible to the NEDA Participants to interface with NEDA.
- 7.2 The Single Buyer will ensure that the MPI:
- 7.2.1 is accessible by all NEDA Parties on the World Wide Web;
  - 7.2.2 presents data and information clearly;
  - 7.2.3 is updated regularly;
  - 7.2.4 is adequately resourced, responsive and stable; and
  - 7.2.5 utilises access security with respect to each NEDA participant.
- 7.3 The Single Buyer will, in addition to any other matters specified in the Single Buyer Rules and the NEDA Rules and publish and keep updated the following information on the MPI
- 7.3.1 Registration forms;
  - 7.3.2 a list of all NEDA Participants and their capacity within NEDA;
  - 7.3.3 the key information in Appendix B (the “**Key Information**”) required by NEDA Participants to prepare their Bid.

7.4 The Single Buyer shall provide adequate documentation and reasonable training for NEDA Participants regarding the use of the MPI.

7.5 Each NEDA Participant shall install or have available hardware, equipment and information technology systems that allow it to participate in and use the MPI and shall bear its own costs and expenses in so doing.

**8. PUBLICATION OF INFORMATION BY THE SINGLE BUYER**

8.1 The Single Buyer shall publish on the MPI each Key Information Item in Appendix B in accordance with the provisions of that Appendix (the “**Key Information Item**”).

8.2 The Single Buyer may publish any additional material or information on the MPI if it reasonably believes it is expedient and necessary to do so for the proper and efficient operation of NEDA and the Trial Run.

8.3 Where there is a technical error or defect in the MPI which prevents the Single Buyer from publishing the Key Information or any Key Information Item at the times specified in Appendix B, then the Single Buyer shall use reasonable endeavours to identify an alternative physical or virtual location for the publishing of the Key Information or any Key Information Item.

8.4 If there is any delay in the publishing of the Key Information or Key Information Item at the times specified in Appendix B, the Single Buyer shall notify the Energy Commission and the NEDA Participants of the delay, which notification shall include at a minimum the reason for the delay.

8.5 In the event of any errors in the information provided by the Single Buyer on the MPI, the Single Buyer shall be entitled to correct such information and shall use reasonable endeavours to notify the Energy Commission and the NEDA Participants, via the MPI, of such corrections. NEDA Participants shall notify the Energy Commission and the Single Buyer of any manifest errors they identify as soon as reasonably practicable.



**PART V**  
**BIDDING, SCHEDULING AND DISPATCH**

**9. SUMMARY OF GUIDELINES ON BIDDING**

9.1 Detailed guidelines on bidding by NEDA Participants are provided below. In summary:

- 9.1.1 PPA/SLA Generators and Expired PPA/SLA Generators may submit Bids on reduced Heat Rate and/or VOR for each Bidding Period, subject to:
- (a) in the case of PPA/SLA Generators, a cap being the values specified in the applicable PPA/SLA and in the format specified in the PPA/SLA. Only one VOR value shall be specified for each Bidding Period; and
  - (b) in the case of Expired PPA/SLA Generators, the Heat Rate and VOR caps set out in the Monthly Cap applicable at the relevant time. Bids for Heat Rate can specify up to ten (10) points, each point decreasing with increased output, separated by a minimum of 10MW and not be less than the Minimum Stable Load, and shall specify one VOR value for each Bidding Period;
- 9.1.2 Large Merchant Generators may submit Bids with up to ten (10) Price Quantity Pairs for each Bidding Period, each Bid increment separated by a minimum of 10MW and not be less than the Minimum Stable Load and with prices increasing as the quantity increases; and
- 9.1.3 Price Takers are not entitled to submit any Bids into NEDA and the Trial Run.

**10. BIDDING INTO NEDA AND TRIAL RUN**

10.1 A **Trading Day (D day)** is a period from 00.00 hour to 23.59 hour in which a NEDA Participant shall meet its **Delivery Obligation**, which is the obligation to deliver energy in Half-Hour Period in accordance with its successful Bid/PPA/SLA, whichever relevant, and the dispatch instructions issue by the Grid System Operator . The **Bidding Window** for each Trading Day shall be ( in the usual course) be as follows :

Dispatch on	Bidding Window opens on	Gate Closure on
Monday from 00.00 hours	Thursday at 10.00 hours	Friday at 9.59 hours
Tuesday from 00.00 hours	Friday at 10.00 hours	Monday at 9.59 hours
Wednesday from 00.00 hours	Monday at 10.00 hours	Tuesday at 9.59 hours
Thursday from 00.00 hours	Tuesday at 10.00 hours	Wednesday at 9.59 hours
Friday from 00.00 hours	Wednesday at 10.00 hours	Thursday at 9.59 hours

Saturday from 00.00 hours	Thursday at 10.00 hours	Friday at 9.59 hours
Sunday from 00.00 hours	Thursday at 10.00 hours	Friday at 9.59 hours

- 10.2 A Price Taker shall submit the planned generation of its Generating Facility connected to the Grid System or Distribution System for a Trading Day based on forecast and prudent utility practice ( the “**Planned Generation Schedule**”) to the Single Buyer by 2:00pm on the Working Day preceding the Trading Day (D-1 Day) via the MPI.
- 10.3 Bids will be limited to the following two **Bidding Periods** in each Trading Day:
- 10.3.1 Off Peak: 00.00 hours to 07.59 hours and 22.00 hours to 23.59 hours; and
- 10.3.2 Peak: 08.00 hours to 21.59 hours.
- 10.4 NEDA Participants who are subject to Central Dispatch may submit Bids (the “**Bidding NEDA Participants**” ) during the Bidding Window in respect of each Bidding Period of the Trading Day as follows:
- 10.4.1 PPA/SLA Generators shall provide a Heat Rate and/or VOR, which shall be lower than the Heat Rate and/or VOR set out in the relevant PPA/SLA;
- 10.4.2 Expired PPA/SLA Generators shall provide a Heat Rate and/or VOR; and
- 10.4.3 Large Merchant Generators shall provide Price Quantity Pairs.
- 10.5 Bidding NEDA Participants may provide segments of capacity from its Generating Facility at different prices for each Bidding Period provided that each Bid must be for a minimum capacity of 10MW and must not be less than the Minimum Stable Load.
- 10.6 Bidding NEDA Participants shall submit their Bids to the Single Buyer by Gate Closure via the MPI.
- 10.7 Bidding NEDA Participants may update their Bids via the MPI during the Bidding Window up to Gate Closure. There shall be no amendments to the prices included in the Bids submitted after Gate Closure.
- 10.8 Where a Bidding NEDA Participant has confirmed it is Available prior to Gate Closure but does not provide a Bid in accordance with this section 10, the Default Bid for that Bidding NEDA Participant shall be used to prepare the Day Ahead Dispatch Schedule, for dispatch by the Grid System Operator and for Settlement where dispatched.
- 10.9 The Single Buyer shall update the MPI to reflect Bids received from Bidding NEDA Participants.

## 11. VALIDATION

- 11.1 The Single Buyer shall review Bids to confirm whether, for each Half-Hour Period, Bids comply with the requirements of the NEDA Rules and any additional validation criteria specified by the Single Buyer from time to time.
- 11.2 The Single Buyer may reject any Bid, in whole or in part, where the Bid:
- 11.2.1 does not comply with the requirements of the NEDA Rules (including, for the avoidance of doubt, any guidance issued alongside the NEDA Rules); or
- 11.2.2 would in its view be likely to involve the Single Buyer being in breach of:
- (a) any duties under legislation or its licence;

- (b) the Malaysian Grid Code;
- (c) the Malaysian Distribution Code; or
- (c) any PPA or SLA.

11.3 The Single Buyer shall inform the affected Bidding NEDA Participant via the MPI where a Bid has been rejected and the reason it was rejected. A rejected Bid shall not be considered for the purposes of the Least Cost Dispatch Methodology (a methodology for developing the Dispatch Schedules such that the lowest cost marginal Generating Facility is forecast to be dispatched first to meet demand followed by the next lowest cost marginal Generating Facility until all demand is met).

## **12. MODIFICATIONS TO AVAILABILITY**

12.1 A NEDA Participant may modify its Delivery Obligation for a Trading Day by notice to the Single Buyer in accordance with the MPI before Gate Closure for that Trading Day.

12.2 After Gate Closure, a NEDA Participant shall modify the Availability of a Generating Facility downwards or upwards (provided that the maximum Availability shall be limited to the Availability included in its Bid) via the MPI:

12.2.1 one (1) hour prior to the relevant Half-Hour Period of the relevant Delivery Obligation; or

12.2.2 where it is not possible to comply with clause 12.2.1 above, as soon as reasonably practicable prior to the relevant Half-Hour Period of the relevant Delivery Obligation,

and any failure to modify a Generating Facility's Availability in accordance with this section 12 shall be subject to the provisions of section 19.

12.3 Any other Bid information may only be modified with the express consent of the Single Buyer.

12.4 Where after Gate Closure a NEDA Participant notifies a reduction or an increase in the Availability of a Generating Facility in respect of any Half-Hour Period of the relevant Trading Day, Settlement shall be on the basis of the actual capacity dispatched by the Grid System Operator.

## **13. SCHEDULING AND DISPATCH**

13.1 The Single Buyer shall schedule the NEDA Participants based on a Least Cost Dispatch Scheduling Methodology such that the lowest marginal cost Generating Facility is forecast to be dispatched first to meet demand followed by the next lowest marginal cost Generating Facility until all demand is met as prescribed in the Single Buyer Rules.

13.2 The Single Buyer shall prepare and submit the Day Ahead Dispatch Schedule to the Grid System Operator by 12.00 on the Working Day preceding the commencement of the Trading Day.

13.3 In preparation of the Day Ahead Dispatch Schedule, the Single Buyer shall take into account the Start-Up Costs in the Bids submitted by Expired PPA/SLA Generators and Large Merchant Generators with two-shifting Generating Facilities which are capable of starting-up from zero output and shutting down to zero output within twenty-four (24) hours (the "**Fast Start Generators**").

13.4 The Grid System Operator may provide feedback to the Single Buyer on the Day Ahead Dispatch Schedule by 15.00 on the Working Day preceding the commencement of the Trading Day.

13.5 The Single Buyer shall prepare, finalise, revise and publish on the MPI the relevant sections of the Day Ahead Dispatch Schedule, which shall take into account the feedback provided by the Grid System Operator, by 17.00 on the Working Day preceding the commencement of the Trading Day.

- 13.6 On the Trading Day, the Grid System Operator will issue dispatch instructions to the NEDA Participants in accordance with the Day Ahead Dispatch Schedule or the latest least cost dispatch schedule produced by the Grid System Operator in accordance with Least Cost Dispatch Scheduling Methodology, taking into account, and subject to:
- 13.6.1 real-time Grid System conditions;
  - 13.6.2 its obligations under its Licence and the Malaysian Grid Code; and
  - 13.6.3 the latest Bids received from NEDA Participants prior to Gate Closure and the latest Availability declared by NEDA Participants.

#### **14. DEFAULT BID**

- 14.1 The Default Bid for a relevant Bidding NEDA Participant shall be:
- 14.1.1 for PPA/SLA Generators, the Heat Rates and VOR set out in the relevant PPA/SLA as recorded in the Registration Data;
  - 14.1.2 for Expired PPA/SLA Generators, the Heat Rates and VOR specified in the Registration Data; and
  - 14.1.3 for Large Merchant Generators, the default Price Quantity Pairs submitted in the Registration Data,
- as may be amended from time to time, provided such amendment has taken effect.

#### **15. MONTHLY CAP**

- 15.1 A Monthly Cap is the cap on the price, Heat Rate and VOR that Bidding NEDA Participants shall not exceed in the Bids and published by the Single Buyer.
- 15.2 Large Merchant Generators bidding Price Quantity Pairs shall not include prices in their Bids that are higher than the Monthly Cap. Where Bids include prices that are higher than the Monthly Cap, the Bid shall be rejected via the MPI.
- 15.3 Expired PPA/SLA Generators shall not include Heat Rates or VOR in their Bids that are higher than the Monthly Cap. Where Bids include Heat Rates or VOR that are higher than the Monthly Cap, the Bid shall be rejected via the MPI.
- 15.4 The Monthly Cap shall be published by the Single Buyer on the MPI one (1) Week prior to the start of the Month to which the Monthly Cap relates.
- 15.5 The Single Buyer shall calculate the caps by identifying the most expensive PPA/SLA Generator that:
- 15.5.1 is available for dispatch during the relevant Month according to the Three Month Ahead Load Forecast; and
  - 15.5.2 operates on primary fuel,
- using a simple merit order stack (the “**Reference Generator**”).
- 15.6 Using the Reference Generator’s Heat Rate, VOR and fuel price, the Single Buyer shall calculate:
- 15.6.1 the weighted average fuel price for the previous Month ( the “**Average Fuel Price**”);
  - 15.6.2 the price cap for the purposes of the Monthly Cap, which shall be the maximum of:

- (a) the Reference Generator's Heat Rate;
- (b) multiplied by the Average Fuel Price; plus
- (c) the Reference Generator's VOR.

**16. SYSTEM MARGINAL PRICE**

- 16.1 The Single Buyer shall publish the **Forecast System Marginal Price**, which is the price of the most expensive Marginal Generator included in the Day Ahead Schedule to meet the Day Ahead Load Forecast in a Half-Hour Period, based on the current draft of the Day Ahead Dispatch Schedule on the MPI by 12.00 hours on the Working Day preceding the commencement of the Trading Day.
- 16.2 The **Marginal Generator** for the purposes of the calculation of the Forecast System Marginal Price and the Actual System Marginal Price shall be:
- 16.2.1 a Centrally Dispatched Generating Facility;
  - 16.2.2 not ramping up or down at the Maximum Ramp Up Rate of Generating Facility or Maximum Ramp Down Rate of Generating Facility;
  - 16.2.3 not generating at Minimum Stable Load or maximum load;
  - 16.2.4 not a Hydro Plant;
  - 16.2.5 not Renewable Plant;
  - 16.2.6 not a testing unit;
  - 16.2.7 running under normal industry conditions;
  - 16.2.8 not a constrained generator due to transmission or fuel constraint;
  - 16.2.9 not subject to gas curtailment; and
  - 16.2.10 running on primary fuel (i.e. not running on back-up fuel).
- 16.3 Price Takers shall be paid for the energy delivered to the Grid Owner by a Generating Facility at the delivery point as measured by approved meters ( the "**Metered Output**" ) at the higher of the Forecast System Marginal Price and the **Actual System Marginal Price**, which is the price of the most expensive Marginal Generator dispatched by the Grid system Operator to meet the actual demand in a Half- Hour Period.

**PART VI**  
**SETTLEMENT**

**17. SETTLEMENT**

- 17.1 This section on Settlement shall not apply to Settlements for PPA/SLA Generators or Part PPA/SLA Generator in relation to their PPA/SLA contracted capacity, which shall be governed by the terms of their respective PPAs and SLAs, including in relation to Heat Rates and VOR that are Bid lower than the PPA/SLA Heat Rates and VOR.
- 17.2 The Single Buyer shall use information provided by NEDA Participants as part of Registration or contained in Bids for Settlement. It is the responsibility of each NEDA Participant to ensure that any information affecting them is accurate and to notify any identified discrepancies to the Single Buyer as soon as reasonably practicably.
- 17.3 Dispatched Generators shall be paid:
- 17.3.1 subject to the Monthly Cap, prices for Metered Output as follows for each type of NEDA Participant:
- (a) PPA/SLA Generators, at lower of the PPA/SLA Heat Rates and VOR or Heat Rates and VOR as Bid;
  - (b) Expired PPA/SLA Generators, the Heat Rates and VOR as Bid;
  - (c) Large Merchant Generators, the price determined by reference to the Price Quantity Pair as Bid ("**Price as Bid**"); or
  - (d) Price Takers, the higher of the Forecast System Marginal Price and the Actual System Marginal Price, capped at the Registered capacity; and
- 17.3.2 if the relevant NEDA Participant is a Fast Start Generator and it has been issued with a dispatch instruction by the Grid System Operator to start-up, it shall be paid:
- (a) its Start-Up Costs as Bid; or
  - (b) in the event of a Cancelled Start Event, its Registered Start-Up Costs where it has complied with its obligations under section 20.
- 17.4 Each NEDA Participant shall send an invoice to the Single Buyer (or, in the case of Price Takers, to TNB Distribution) for amounts owed to the NEDA Participant by the Single Buyer in respect of each relevant Billing Period within seven (7) Working Days after the end of the relevant Billing Period, which shall:
- 17.4.1 be based on the pricing principles and formulae set out in Appendix C and the Metered Output in each Half-Hour Period provided in clause 17.3;
- 17.4.2 specify the Trading Data (in a format as shall be specified by the Single Buyer from time to time) for that NEDA Participant for each relevant Trading Day,
- ("Settlement Invoice").**
- 17.5 For the purpose invoicing under clause 17.4, Large Merchant Generators (excluding Part PPA/SLA Generator) and Price Takers shall use the meter reading obtained from the MPI.
- 17.6 Subject to clause 17.8 and 17.9 and section 18, the Single Buyer (or TNB Distribution acting as the agent of the Single Buyer) shall pay the amounts owed to the NEDA Participant in relation to the Billing Period

within thirty (30) Days of receipt of the hard copy Settlement Invoice by the Single Buyer (or, in relation to Price Takers, by TNB Distribution).

- 17.7 The Single Buyer (or, in relation to Price Takers, TNB Distribution) shall issue a letter to the relevant NEDA Participant for each relevant Billing Period as soon as reasonably practicable after payment of the amounts owed to the NEDA Participant in relation to the Billing Period by the Single Buyer (or TNB Distribution acting as the agent of the Single Buyer) (“**Settlement Letter**”). The Settlement Letter shall state the amount assessed as payable, including where the Single Buyer (or, in relation to Price Takers, TNB Distribution) disagrees with any information specified in a Settlement Invoice, specifying the amount in dispute and the undisputed amount. For the avoidance of doubt, the amounts paid by the Single Buyer (or, in relation to Price Takers, TNB Distribution) under this clause 17.7 shall be the amount specified in the Settlement Invoice, unless modified by the Settlement Letter.
- 17.8 If any amount in a Settlement Letter is different to the Settlement Invoice, such amount shall be considered to be not agreed and Settlement shall be carried out according to the Single Buyer’s (or TNB’s Distribution) assessment of the amount owed in the Settlement Letter. Any dispute in relation to a Settlement Invoice shall be raised promptly by the NEDA Participant and in any event within three (3) Months of the date of the Settlement Letter and if the dispute is not raised within that time then the Settlement Letter is taken to have been agreed. Disputes shall be resolved in accordance with Single Buyer Rules.
- 17.9 Interest will be charged on overdue amounts (including any amounts that are the subject of a dispute and subsequently found to be payable) on a daily basis at a default rate which is one (1) percentage points per annum above the base rate of Maybank. Interest accrues on a simple (and not compounded) basis and accrues daily from and including the first Working Day after the due date for payment up to but excluding the date paid.

**18. SET OFF**

- 18.1 Where the Single Buyer (or TNB Distribution acting as agent of the Single Buyer) is under an obligation under the Single Buyer Rules to make any payment to a NEDA Participant, the Single Buyer or TNB Distribution may (but shall not be obliged to) set off such payment against any amounts the relevant NEDA Participant owes the Single Buyer (or TNB Distribution) in pursuant to the NEDA Rules provided that it is in accordance with and not in violation of the provisions in the PPA/SLA and any other commercial agreements between the NEDA Participant and the Single Buyer or TNB Distribution .
- 18.2 The obligations of the relevant NEDA Participant in respect of any such amounts referred to in clause 18.1 shall be deemed to be satisfied and discharged to the extent of any set-off in accordance with this section 18.

**PART VII**  
**NON-DISPATCH**

**19. FAILURE TO MEET DISPATCH BY GENERATOR**

- 19.1 Where a Merchant Generator has successfully Bid into NEDA Go-Live and NEDA Trial Run but is subject to a Failure to Meet Dispatch during a Half-Hour Period, the Grid System Operator shall issue a GSO Non-Compliance Notice to the Merchant Generator and the Single Buyer.
- 19.2 The Single Buyer may conduct an investigation into a Failure to Meet a Dispatch.
- 19.3 The Single Buyer may, following an investigation, impose such conditions as it considers appropriate in the circumstances on continued participation in NEDA by the relevant Merchant Generator. Where the Single Buyer determines that the Merchant Generator should make a payment to the Single Buyer, it shall notify the Merchant Generator and the Single Buyer in writing. Such payment shall not exceed RM 150 (Ringgit One Hundred and Fifty Only) for each MW shortfall in its Delivery Obligation as set out in the GSO Non-Compliance Notice. Such amount shall be set off from the next invoice from that Merchant Generator in accordance with section 18.

**20. NON-DISPATCH BY GSO**

- 20.1 A Fast Start Generator shall be paid its Registered Start-Up Costs by the Single Buyer where:
  - 20.1.1 the Grid System Operator has issued a dispatch instruction for the NEDA Participant to provide its Delivery Obligation; and
  - 20.1.2 the Grid System Operator cancels such dispatch instruction after the commencement of start-up of the Generating Facility in accordance with the dispatch instruction given earlier,  
(the “Cancelled Start Event”).
- 20.2 Following a Cancelled Start Event, the Fast Start Generator shall submit an invoice for the Registered Start-Up Costs incurred due to the Cancelled Start Event to the Single Buyer as part of its Settlement Invoice for that Billing Period issued in accordance with section 17 and 18.



**APPENDIX A**

**BIDDING AND DISPATCH SCHEDULE**

**Timeline of Bidding and Dispatch**

<b>Time</b>	<b>Task</b>
<b>D-2 1000hrs</b>	Bidding opens for NEDA Participants ( please refer to Bidding Window in section 10)
<b>D-1 1000hrs</b>	Generators with PPA/SLA submit Day Ahead Declaration. Gate Closure for NEDA Participants to submit Bids for Trading Day. Grid System Operator submits Transmission and Generation Outage Plans. Single Buyer updates Day Ahead Load Forecast.
<b>1030hrs</b>	Nominated gas supplier submits Daily Update Gas Report.
<b>1100hrs</b>	Single Buyer updates dispatch model for all inputs.
<b>1200hrs</b>	Single Buyer prepares Day Ahead Dispatch Schedule and submits it to Grid System Operator for validation. Single Buyer publishes forecasted half-hourly SMP based on current draft of the Day Ahead Dispatch Schedule.
<b>1400hrs</b>	Participants who are price-takers submit their Planned Generation Schedule to Single Buyer.
<b>1500hrs</b>	Grid System Operator provides feedback on Day Ahead Dispatch Schedule.
<b>1700hrs</b>	Single Buyer finalizes the Day Ahead Dispatch Schedule. Single Buyer sends the finalized Day Ahead Dispatch Schedule to Grid System Operator. Single Buyer makes available to Generator the Day Ahead Dispatch Schedule for each of its generation unit. Single Buyer publishes Day Ahead Load Forecast.

## APPENDIX B

### KEY INFORMATION PUBLISHED BY THE SINGLE BUYER

#### 1. KEY INFORMATION

1.1 The following information shall be published by the Single Buyer on the MPI:

1.1.1 at 12.00 hours one (1) Working Day before each Trading Day, the Forecast System Marginal Price based on the indicative Day Ahead Dispatch Schedule;

1.1.2 at 17.00 hours one (1) Working Day before each Trading Day:

(a) the Day Ahead Load Forecast used for the Day Ahead Dispatch Schedule; and

(b) the NEDA Participant-specific Day Ahead Dispatch Schedule;

1.1.3 on the last Working Day of each Week:

(a) the Week Ahead Load Forecast for the following Week; and

(b) one (1) Week in arrears, the Actual System Marginal Price;

1.1.4 on the first Working Day of the last Week before the end of each Month, the Price/Heat Rate/VOR caps for the upcoming Month; and

1.1.5 whenever required:

(a) any Generation, Grid System or Distribution System constraints; and

(b) any suspension of NEDA,

(each of 1.1.1, 1.1.2(a), 1.1.2(b), 1.1.3(a), 1.1.3(b), 1.1.4, 1.1.5(a) and 1.1.5(b) being a “**Key Information Item**”).

## APPENDIX C

### SETTLEMENT FORMULA

#### Settlement Formulas

For avoidance of doubt, all following calculation formulas shall consider the following input:

#### INTERMEDIATE CALCULATIONS

All intermediate calculations under this Appendix C shall be without rounding and the final product shall be rounded to the second (2<sup>nd</sup>) decimal place and a figure of five (5) or more in the third (3<sup>rd</sup>) decimal place shall result in a rounding up of the second (2<sup>nd</sup>) decimal.

#### C1. PPA/SLA holders

In accordance with the formula provided in the PPA/SLA.

#### C2.Expired PPA/SLA holders and Large Merchant Generators

#### Energy Payment

<b>ENERGY PAYMENT</b>	<b>EP = PB x MO</b>
-----------------------	---------------------

where:

- EP = the Energy Payment (in RM) for the Generating Facility in such Billing Period.  
PB = the applicable Price as Bid (in RM/kWh) as determined in accordance with Calculation Guidelines as per the applicable Price Quantity Pair; and  
MO = the metered output (in kWh) delivered from the Generating Facility in such Billing Period.

#### Calculation Guidelines

For the purpose of determining the Energy Payment for the Billing Period (i.e. EP), the principles outlined above are applied as follows:

#### Energy Payment for each day in a Billing Period

- (a) NEDA Participant shall provide TNB with a schedule, set out in a format similar to the following table, for the Generating Facility for each day of a Billing Period.

Index i	Period	Applicable Time (Peak / Off Peak)	Metered Output (MO) (in kWh)	Applicable Block	Applicable Load Level (MW)	Applicable Price as Bid, PB (RM/kWh)	Energy Payment EP (RM)
1	0:00 – 0:30						
2	0:30 – 1:00						
3	1:00 – 1:30						
4	1:30 – 2:00						

	↓						
48	23:30 – 24:00						

(b) For the Generating Facility, the Energy Payment for each Trading Day of a Billing Period is determined as follows:

$$EP(\text{daily}) = \frac{\sum_{i=1}^{48} (PB_i \times MO_i)}{1,000,000}$$

- MO<sub>i</sub> = the Metered Output (in kWh) from the Generating Facility during the Half-Hour Period i;
- i = an index referring to each Half-Hour Period of each Trading Day of the Billing Period;
- PB<sub>i</sub> = the applicable Price as Bid for the Half-Hour Period i (in RM/kWh) as determined in applicable Price Quantity Pair;

Price Quantity Pair =

Price Quantity Pair	Date	Applicable Period	Applicable Time	Block	Load (MW)	Price as Bid (RM/kWh)
	1-Aug-16	Peak /Off Peak	0800-2159hrs (Peak) / 00:00 – 07:59 & 22:00 – 23:59 (Off Peak)	1	0 – 49.99	0.123
				2	50 – 99.99	0.124
				3	100 -149.99	0.125
				4	150 -199.99	0.126
				5	200 – 249.99	0.127
				6	250 – 299.99	0.128
				7	300 – 349.99	0.129
				8	350 – 399.99	0.130
				9	40 – 449.99	0.131
10				450 -500	0.132	

**C3.Price Takers**

**Energy Payment**

<b>ENERGY PAYMENT</b>	<b>EP = SMP x MO</b>
-----------------------	----------------------

where:

- EP = the Energy Payment (in RM) for the Generating Facility in such Billing Period;
- SMP = higher of the Actual System Marginal Price and Forecast System Marginal Price based on the Day Ahead Dispatch Schedule (in RM/kWh) in such Billing Period as determined in accordance in the Calculation Guidelines;
- MO = the metered output (in kWh) delivered from the Generating Facility in such Billing Period.

**Calculation Guidelines**

For the purpose of determining the Energy Payment for the Billing Period (i.e. EP), the principles outlined above are applied as follows:

Energy Payment for each day in a Billing Period

- (a) NEDA Participant shall provide TNB with a schedule, set out in a format similar to the following table, for the Generating Facility for each day of a Billing Period.

Index i	Period	Applicable Time (Peak / Off Peak)	Metered Output (MO) (in kWh)	Forecast SMP (RM/kWh)	Actual SMP (RM/kWh)	Applicable SMP, Ei (RM/kWh)	Energy Payment EP (RM)
1	0:00 – 0:30						
2	0:30 – 1:00						
3	1:00 – 1:30						
4	1:30 – 2:00						
	↓						
48	23:30 – 24:00						

- (b) For the Generating Facility, the Energy Payment for each Trading Day of a Billing Period is determined as follows:

$$EP(\text{daily}) = \frac{\sum_{i=1}^{48} (SMP_i \times MO_i)}{1,000,000}$$

- (c) The terms used in this section shall have the meanings set out below in respect of the Generating Facility for which the fuel payment is being determined:

- MO<sub>i</sub> = the Metered Output (in kWh) from the Generating Facility during the Half-Hour Period i;
- i = an index referring to each Half-Hour Period of each Trading Day of the Billing Period;

SMP<sub>i</sub> = the applicable SMP for the Half-Hour Period i (in RM/kWh);  
SMP = higher of the Actual System Marginal Price and Forecast System Marginal Price based on the Day Ahead Dispatch Schedule.

## APPENDIX D

### REGISTRATION PROCESS

- 1.1 The Registration Process shall be as follows:
- 1.1.1 the Single Buyer shall make the Registration forms available on the MPI homepage;
  - 1.1.2 the Applicant shall return the completed Registration forms (in hard copy and soft copy) to the postal and electronic addresses specified by the Single Buyer from time to time, together with the Registration Data;
  - 1.1.3 the Single Buyer:
    - (a) shall verify the Registration Data requiring verification by consulting with the Grid System Operator and other relevant parties within three (3) Months of receipt of the Registration Data; and
    - (b) may choose to verify any other Registration Data provided by the Applicant to the extent it considers appropriate,
- (“**Verification**”);
- 1.1.4 the Single Buyer may request that the Applicant provide any further information required by the Single Buyer in order to progress the Verification and the Applicant shall provide such information within ten (10) Working Days of such a request;
  - 1.1.5 following Verification, the Single Buyer shall make a recommendation to the Energy Commission (with a copy of such recommendation to the Applicant) to either:
    - (a) confirm the Registration Data of the Applicant (“**Verification Confirmation**”); or
    - (b) propose that the Energy Commission reject the Registration of the Applicant, stating the reasons why such rejection is recommended (“**Verification Rejection**”);
  - 1.1.6 within twenty (20) Working Days following a Verification Rejection (or such longer time period as may be agreed by the Single Buyer), the Applicant may provide such further information to the Single Buyer in order to allow the Single Buyer to review its Verification recommendation. The Single Buyer shall review its Verification recommendation on the basis of such new information as soon as reasonably practicable and in any event within three (3) Months of receipt of such information. The Single Buyer shall also review its Verification recommendation where directed to do so by the Energy Commission;
  - 1.1.7 on receipt of a Verification Confirmation, the Energy Commission shall issue a Registration Decision to the Single Buyer in respect of the relevant Applicant;
  - 1.1.8 on receipt of the Registration Decision from the Energy Commission, the Single Buyer shall within twenty (20) Working Days send the relevant NEDA Agreement to the Applicant for execution;
  - 1.1.9 the Applicant shall return the executed relevant NEDA Agreement to the Single Buyer as soon as reasonably practicable and in any event within three (3) Months and shall provide the Single Buyer with an estimate of the date on which it will be ready to participate in NEDA, which date shall be at least six (6) Months and not more than twelve (12) Months from the date of

execution of the relevant NEDA Agreement (or such longer or shorter period agreed by the Single Buyer) ("**Estimated Participation Date**");

- 1.1.10 following receipt of the relevant NEDA Agreement duly executed by the Applicant, the Single Buyer shall issue a notice of the date of accession of the Applicant and therefore the date on which the Applicant becomes a NEDA Party;
- 1.1.11 prior to the Estimated Participation Date, the Single Buyer shall notify the new NEDA Participant of the commissioning and operational testing of the NEDA processes and equipment required to be carried out by the new NEDA Participant prior to that date and both parties shall use reasonable endeavours to meet the Estimated Participation Date;
- 1.1.12 the Single Buyer shall issue a firm participation notice confirming the date on which the commissioning and operational testing have been concluded and the NEDA Participant shall participate in Bidding pursuant to NEDA from the Bidding Window on that date ("**Firm Participation Date**"); and
- 1.1.13 for the purposes of Applicants participating in the Trial Run, the Verification process, execution of the NEDA Agreements and the commissioning and operational testing shall run concurrently with the Trial Run. Except where the Applicants notify a later date, the Firm Participation Date and date for accession to NEDA for Applicants that have successfully participated in the Trial Run and that have executed the relevant NEDA Agreement shall be the Go-Live Date.
- 1.1.14 For the existing PPA/SLA Generators and other NEDA Participants who are currently connected and supplying energy to the Grid System or Distribution System, the Generating Facilities shall be deemed to have fulfilled the requirements for commissioning and operation testing in clause 1.1.13 above and the information provided in the PPA/SLA or in the latest verification/certification tests conducted in accordance with the PPA/SLA shall be deemed to be valid for the purpose of Registration.

1.2 The **Registration Data** shall comprise:

- 1.2.1 confirmation from the Applicant that the relevant Generating Facility has:
  - (a) sufficient fuel arrangements in place to enable participation in NEDA up to its full Export Capacity, including where an Expired PPA/SLA Generator is not utilising Own Fuel that it is in receipt of Power Sector Gas;
  - (b) accurate metering installed and operational, and confirmed as adequate for Settlement purposes by the Single Buyer in accordance with the Metering Guidelines;
  - (c) an interconnection point with capacity for export onto the Grid System or Distribution System for its full Export Capacity;
  - (d) for Grid System connected Generating Facilities, submitted an endorsement from the Grid Owner that it has successfully completed a power system study and received a commissioning test certificate from the Energy Commission;
  - (e) for Distribution System connected Generating Facilities, submitted an endorsement from TNB Distribution that it has successfully completed a power system study; and
  - (f) no material on-going disputes and is not in default under any material agreement required for the ongoing operation of the Generating Facility; and
- 1.2.2 the technical information included in the Registration form;



- 1.2.3 contact details for communication, service and notification in respect of the Applicant;
- 1.2.4 bank details for Settlement and other financial operations in respect of the Applicant; and
- 1.2.5 confirmation the Applicant has the corporate authority to bind the relevant Generating Facility and to become a NEDA Party.

- 1.3 All Applicants shall bear their own cost in relation to Registration including any upgrades to their systems or software requirements.
-

# NEDA Registration Form

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All Applicants (existing and expired PPA/SLA Generators, Part-PPA/SLA Generators, Merchant Generators and Price Taker) who wish to participate in the **NEDA Trial Run** in accordance with the proposed new bidding process under New Enhanced Dispatch Arrangement (NEDA) Rules shall complete the NEDA Registration Form and submit it to Single Buyer (SB) which is representing Suruhanjaya Tenaga (ST) in the **Registration Process** for the purpose of NEDA including Trial Run.

The completed application form shall be returned to the following address with a scanned copy emailed to ST and SB to the corresponding address:

Single Buyer  
Level 9, Menara PNS, Tower 7, Avenue 7  
No 8, Jalan Kerinchi  
59200Wilayah Persekutuan Kuala Lumpur

Email:[neda-sb@tnb.com.my](mailto:neda-sb@tnb.com.my)  
Website:[www.singlebuyer.com.my](http://www.singlebuyer.com.my)  
Phone: (03) 2245 8000  
Fax: (03) 2241 1854

A scanned copy of the completed registration form shall also be emailed to ST at the following address:

Suruhanjaya Tenaga  
Email:[neda@st.gov.my](mailto:neda@st.gov.my)

Upon receiving a **Verification Confirmation** notice from SB, the data submitted during the **Registration Process** will be considered as **Registration Data**. If there is any deviation from the **Registration Data**, the Applicant is required to immediately submit amendments to the **Registration Data**. Where in the opinion of the ST or SB that the information is insufficient, ST or SB may request additional data from the Applicant.

General guideline for completing the form:

1. Please ensure that **all** fields under "Submitted Data" column are clearly filled.
2. If the item is **not relevant**, please fill in the "Submitted Data" column as "Not Applicable" or "N/A".
3. Failure to comply with no. 1 and 2, the submission is considered as **incomplete** and may not be considered for NEDA registration application.
4. If there are any additional notes, please use the "*Remarks*" column. Otherwise, leave as blank.
5. If in doubt, please refer to the relevant sections of the NEDA Rules, Guide on Trial Run, NEDA Registration Process Guideline, Single Buyer Rules (SBR), Malaysian Grid Code (MGC) and Malaysia Distribution Code (MDC) for definitions of terms and further information.
6. Information in **Part 3** of this document, if not available, need not be submitted for the purpose of the Trial Run. However, such information must be submitted before the NEDA "Go-Live" date.

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## DISCLAIMER

It is the responsibility of the Applicant to submit accurate data in relation to its Generating Facility. The Applicant also has the responsibility of immediately notifying any changes to information submitted for Registration during the Registration Process or the Registration Data once it has become a NEDA Participant.

ST and SB shall not be held responsible for any consequences which arise from its actions on the basis of such information supplied by any Applicant.

ST and SB may disclose the information submitted to the specialists, experts or consultants it may engage in the course of verification process and the Applicant has no objections for such submission.

ST and SB may reasonably request additional data to represent correctly the technical parameters or other relevant information in relation to such Generating Facility.

ST and SB shall not be liable for any claims, demands, cost, actions, losses and damages suffered by any party (including the Applicant) whatsoever arising out of and in connection with NEDA including claims, demands, cost, actions, losses and damages which may arise as a result of the ST's and SB's reliance on or use of the information provided by the Applicant. The Applicant agrees to indemnify ST and SB from and against all claims, demands, actions and proceedings brought against the ST and SB.

# Main Application Form

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## APPLICANT DETAILS – PLEASE PRINT CLEARLY

Company / Business Name: \_\_\_\_\_

Company Registration Number: \_\_\_\_\_

Registered Business Address: <sup>i)</sup> \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Phone Number: \_\_\_\_\_ Fax Number: \_\_\_\_\_

Email Address: \_\_\_\_\_

**(Preferred Mailing Address, if different than above)**

Other Address: <sup>ii)</sup> \_\_\_\_\_  
\_\_\_\_\_

Phone Number: \_\_\_\_\_ Fax Number: \_\_\_\_\_

Email Address: \_\_\_\_\_

## SITE DETAILS – PLEASE PRINT CLEARLY

Site Name: <sup>iii)</sup> \_\_\_\_\_

Site Description: \_\_\_\_\_

State/District/Mukim: \_\_\_\_\_ Registered Land Owner: \_\_\_\_\_

Lot Number: \_\_\_\_\_ Map: \_\_\_\_\_

Note: Map to be supplied by Applicant shall be in the format that complies with Grid Owner's Corporate Geospatial Information System (CGIS) (e.g. AutoCAD with Cassini Coordinates).

**Please do not leave any item as an empty field. Fill in "N/A" if it is not applicable**

**PART 1: General Registration Data Requirement**

**PART 1.1: Category Data**

Registration Data	Submitted Data	Remarks
Registration Category (please tick ONE only)		
Centrally Dispatched Generating Facility:		
PPA/SLA Generator	<input type="checkbox"/>	
Expired PPA/SLA Generator	<input type="checkbox"/>	
Large Merchant – Co-generation Plant	<input type="checkbox"/>	
Large Merchant – Franchise Utility	<input type="checkbox"/>	
Large Merchant – Part PPA/SLA Generator	<input type="checkbox"/>	
Large Merchant – New Build Generating Facility	<input type="checkbox"/>	
Non-Centrally Dispatched Generating Facility		
Price Taker – Co-generation Plant	<input type="checkbox"/>	
Price Taker – Small Renewable Plant	<input type="checkbox"/>	
Price Taker – Small Franchise Utility	<input type="checkbox"/>	
Price Taker – New Build Generating Facility	<input type="checkbox"/>	

**PART 1.2: Bank Data (for payment by SB)**

Registration Data	Submitted Data	Remarks
Bank Name		
Bank's Address		
Account Number		

**PART 2: Detailed Registration Data Requirement**

**PART 2.1: PPA/SLA Generator Data**

Registration Data	Submitted Data	Remarks
As per PPA/SLA		

**PART 2.2: Expired PPA/SLA Generator Data**

Registration Data	Submitted Data	Remarks
Facility name		
Unit number		
License Registration number		
Date of : (dd/mm/yyyy)		
Estimated Participation Date		
Retirement (if applicable)		
Generating Unit Type		
Steam coal	<input type="checkbox"/>	
Steam gas	<input type="checkbox"/>	
Open cycle gas turbine	<input type="checkbox"/>	
Combined cycle gas turbine	<input type="checkbox"/>	
Nuclear	<input type="checkbox"/>	
Others (please specify)	<input type="checkbox"/>	
Fuel		
Primary		
Alternate		
For combined cycle gas turbine, please state your plant's configuration		
1GT + 1ST	<input type="checkbox"/>	
2GT + 1ST	<input type="checkbox"/>	
3GT + 1ST	<input type="checkbox"/>	
Others (please specify)	<input type="checkbox"/>	
<b>Technical Parameters tested by Independent Engineer as approved by ST</b>		
Rated/Nameplate Facility capacity (main fuel)		
Max Generation Output* (MW)		
Min Generation Output* (MW)		
Rated/Nameplate Facility capacity (alternate fuel)		
Max Generation Output* (MW)		
Min Generation Output* (MW)		
Technical Heat Rate* (refer to Part 2.2.1)		

Registration Data	Submitted Data	Remarks
Tested Date (dd/mm/yyyy)		
Independent Engineer's Name/Company		
Ramp Rates of Generating Facility		
Maximum Ramp Up Rate* (MW/min)		
Maximum Ramp Down Rate * (MW/min)		
Minimum Up Time* (hours)		
Minimum Down Time* (hours)		
<b>Default Bid Data</b>		
Default Heat Rate	Refer to Part 2.2.2	
Default Variable Operating Rate	Refer to Part 2.2.2	
Start-up Cost (RM per start-up)		
<b>Fuel Arrangement</b>		
Gas Supply Agreement (GSA)		
Effective date (dd/mm/yyyy)		
End date (dd/mm/yyyy)		

\*Parameter tested by Independent Engineer as approved by ST

**PART 2.2.1: Technical Heat Rate (except for PPA/SLA Generators)**

Band	Load (MW)	Heat Rate (kJ/kWh)
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

**PART 2.2.2: Default Heat Rate and VOR (except for PPA/SLA Generators)**

Bidding Period :		Off Peak Bidding Period
VOR (RM/kWh):		
Band	Load (MW)	Heat Rate (kJ/kWh)
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Bidding Period :		Peak Bidding Period
VOR (RM/kWh):		
Band	Load (MW)	Heat Rate (kJ/kWh)
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Note: To specify Load (MW) in two (2) decimal places. Please refer to Registration Form sample in the MPI.



**PART 2.3: Large Merchant (“Cogeneration Plant” /“Franchise Utility”/“Part-PPA/SLA Generator” / “New Build Generating Facility”) Data**

Description of Data	Submitted Data	Remarks
Facility name		
Unit number		
Licensing (Type and Registration Number)		
Generating License		
Other co-existing Licenses (if any)		
Date of : (dd/mm/yyyy)		
Estimated Participation Date		
Rated/Nameplate Generating Facility capacity		
Max (MW)		
Min (MW)		
Excess capacity to be registered under NEDA (MW)		
<b>Technical Parameters tested by Independent Engineer as approved by ST</b>		
Ramp Rates of Generating Facility		
Maximum Ramp Up Rate* (MW/min)		
Maximum Ramp Down Rate * (MW/min)		
Minimum Up Time* (hours)		
Minimum Down Time* (hours)		
<b>Default Bid Data</b>		
Default Price Quantity Pair (refer to Part 2.3.1)		
Start-up Cost (RM per start-up)		
<b>Fuel Arrangement</b>		
Effective date (dd/mm/yyyy)		
End date (dd/mm/yyyy)		

\*Parameter tested by Independent Engineer as approved by ST

**PART 2.3.1: Default Price and Quantity Heat Rate (except for PPA/SLA Generators)**

Bidding Period:		Off Peak Bidding Period
Band	Quantity (MW)	Price (RM/kWh)
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Bidding Period:		Peak Bidding Period
Band	Quantity (MW)	Price (RM/kWh)
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Note: To specify Load (MW) in two (2) decimal places. Please refer to Registration Form sample in the MPI.

**PART 2.4: Price Takers (“Cogeneration Plant” / “Small Franchise Utility” / “Small Renewable Plant” / “New Build Generating Facility”) Data**

Description of Data	Submitted Data	Remarks
Facility name		
Date of : (dd/mm/yyyy)		
Estimated Participation Date		
Licensing (Type and Registration Number)		
Generating License		
Other co-existing Licenses (if any)		
Export Capacity to be registered under NEDA(MW)		

### PART 3: List of Documentation

All copies must be certified true copies.

No.	Item	If Yes, Please tick
1	A copy of Power System Study report	
2	A copy of generation License as registered with ST	
3	A copy of acceptance letter from TNB Metering	
4	A copy of Gas Supply Agreement (for Generating Facility under Power Sector Gas)	
5	Proof of approval from TNB & PETRONAS (for Generating Facility under Power Sector Gas)	
6	A copy of fuel supply agreement (for own fuel)	
7	A copy of test report by Independent Engineer (for technical parameters)	
8	A copy of certificate of incorporation, notice of incorporation, (certificate of confirmation of incorporation issued by, the Registrar of Companies evidencing that you have been duly incorporated under the Companies Act of Malaysia)	
9	A copy of audited financial statements for the last 3 years	
10	Credit support (if required)	
Other additional supporting documentations (please list below):		

# Declaration Form

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Name: \_\_\_\_\_ on behalf of Company: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

1. I/We declare that I/we have read and understood the terms and conditions set out in the disclaimer.
2. I/We declare that all information provided in this application and in documents submitted is true and correct.
3. I/We declare that I/we have obtained the corporate authority which consents to the submission of this application for participation in NEDA and to participate in NEDA.
4. I/We are not under external administration (including receivership, liquidator) or under a similar form of administration under any laws applicable to it in any jurisdiction.
5. I/We are not a party to any on-going litigation, arbitration and material disputes and the Generating Facility is not in default under any material agreement required for the on-going operation of the Generating Facility.
6. I/We understand that SB may check the company's background, and I authorize SB to do so.
7. I/We authorize SB (representing TNB) to collect, receive, store, transfer and use any information provided herein, in the power purchase agreement or service level agreement (as the case may be) or any information obtained in connection with this application, and to disclose such information to relevant parties for the purposes of NEDA.
8. I/We confirm that the Generating Facility has a sufficient interconnection point with capacity for export onto the Grid System or Distribution System to enable it to participate in NEDA up to its registered capacity without jeopardizing the network.
9. I/We confirm that I/we have sufficient land rights and fuel in respect of the Generating Facility to allow for the on-going operation of the Generating Facility under NEDA.
10. I/We understand that SB may reject the application if information required for a valid assessment is not available to SB.
11. I/We confirm that ST and SB (representing TNB) shall not be liable for any claims, demands, cost, actions, and all losses and damages suffered by us arising from or in connection with NEDA.
12. I/We undertake to indemnify and keep indemnified ST and SB (representing TNB) against any loss or liability that may be suffered by ST and SB arising from claims brought against ST and SB as a result of all our (including our agents, directors, contractors, sub-contractors, employees) actions or omissions howsoever arising.

-----For SB use only-----

## Final Checklist

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No.	Item	Please tick	Remarks
1	NEDA Registration Form is duly completed		
2	Declaration Form is duly signed		
3	Proof of key requirements of the following are attached:		
	i. Power System Study		
	ii. License		
	iii. Metering		
	iv. Fuel		
	v. Technical Parameter Test report		
	vi. Credit support (if required)		
	Other additional supporting documentations are attached (please list):		
	i.		
	ii.		
	iii.		
	iv.		
	v.		
	vi.		
	vii.		
	viii.		
	ix.		
	x.		
	xi.		
Checked by:		Date:	
Verified by:		Date:	

# **Attachment**

Summary Notes on Proposed Bidding, Scheduling, Dispatch and Settlement

# Summary Notes on Proposed Bidding, Scheduling, Dispatch and Settlement.



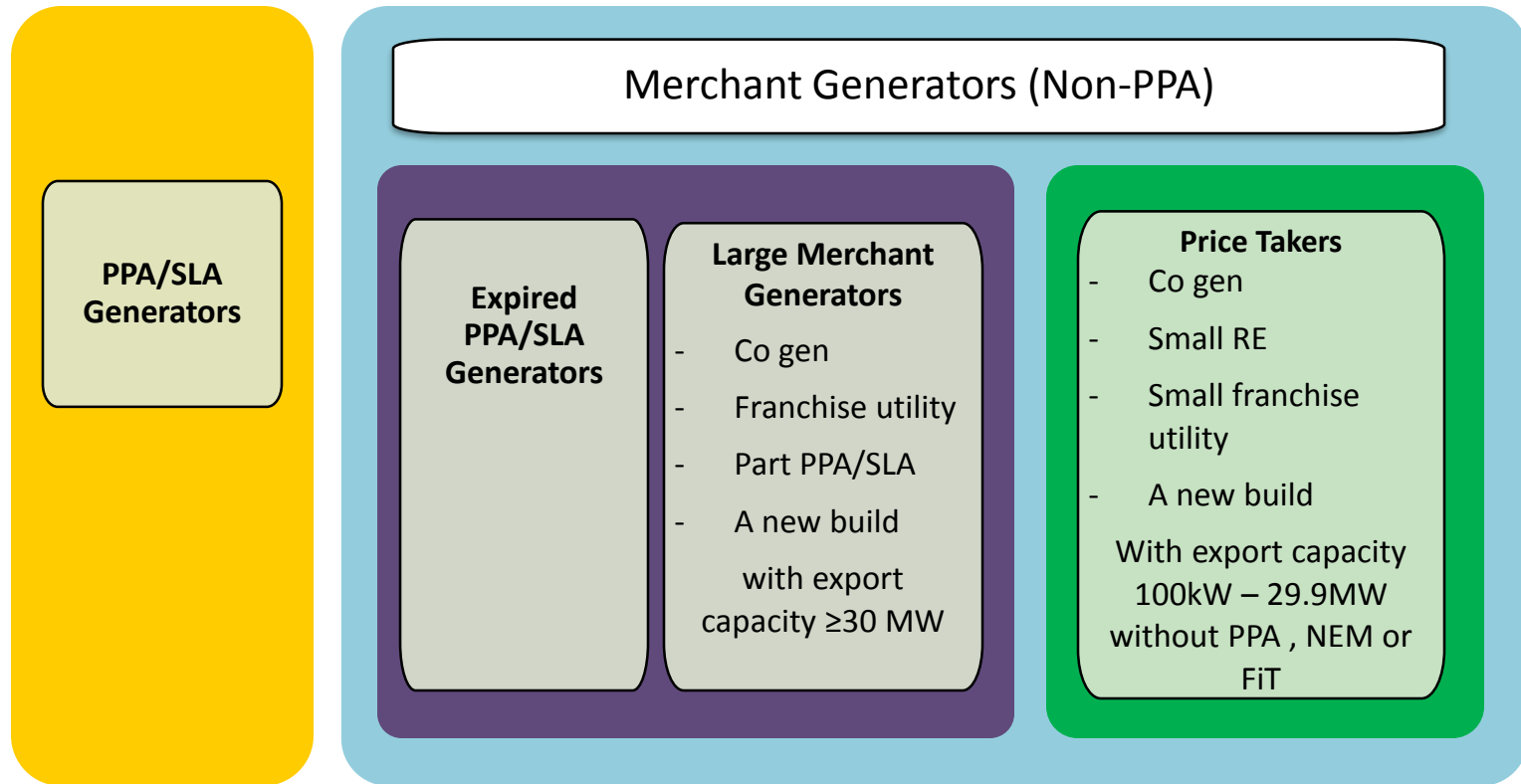
# Process of Trial Run

**During trial period**  
2 parallel work streams

Stream 1 Current practice: physical operations and settlement will continue to follow the existing processes and rules.

Stream 2 NEDA trial run: generators will submit bids and receive dispatch instructions but will not follow them in reality. This will have ***no impact*** on the physical operations and settlement.

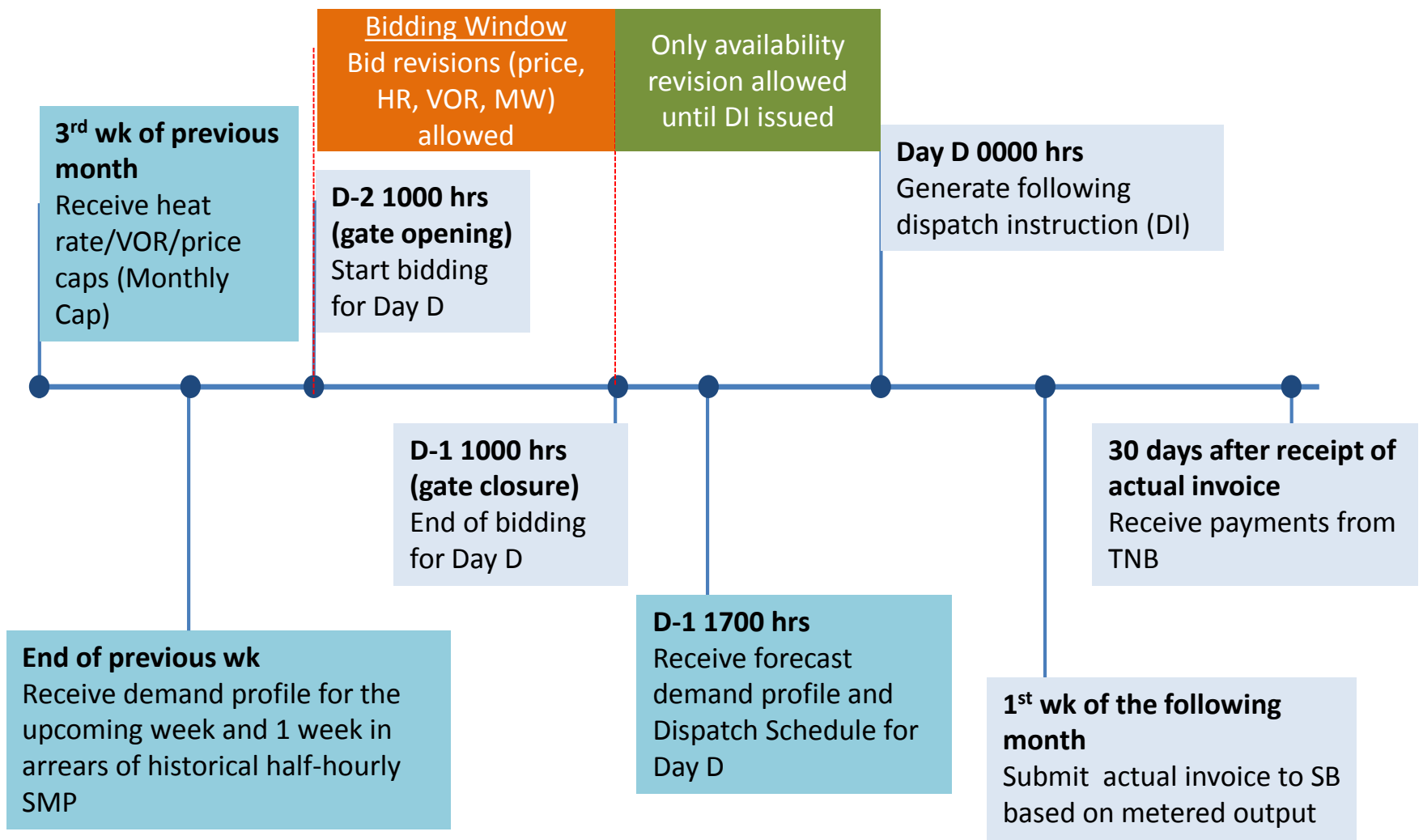
# Types of NEDA participants



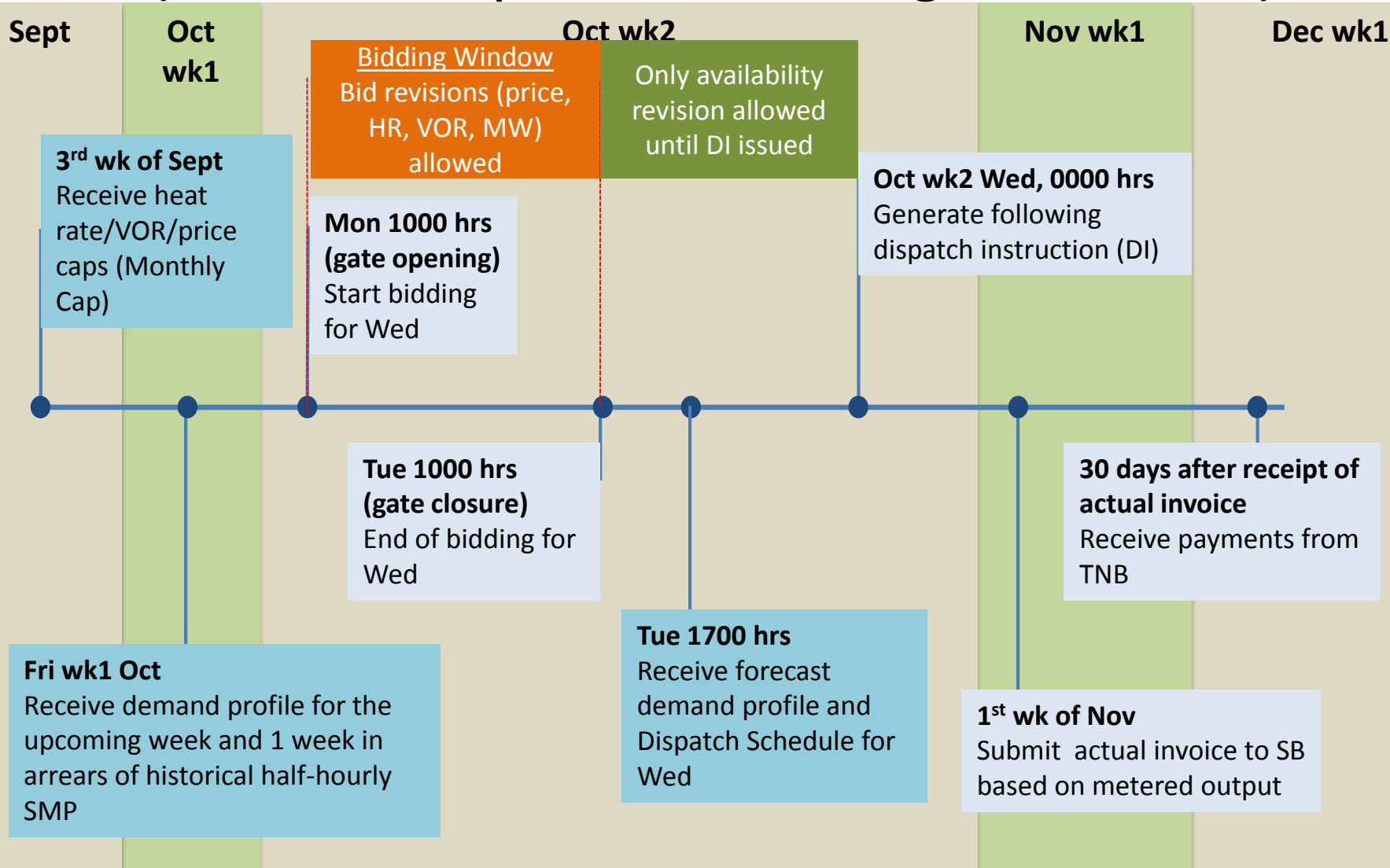
# How different types of NEDA participants participate

Participant types	Example	Bid	Cap	Paid at
1. PPA/SLA Generators	Existing IPPs	Heat rate and/or VOR	Own PPA/SLA value for heat rate & VOR	Pay as bid
2. Expired PPA/SLA Generators	YTL Pasir Gudang	Heat rate and/or VOR	Heat rate cap VOR cap	Pay as bid
3. Large Merchant Generators <ul style="list-style-type: none"> <li>- Co gen</li> <li>- Franchise utility</li> <li>- Part PPA/SLA</li> <li>- A new build</li> </ul> with export capacity $\geq 30$ MW	Pengerang	Price-quantity pair	Price cap	Pay as bid
4. Price Takers <ul style="list-style-type: none"> <li>- Co gen</li> <li>- Small RE</li> <li>- Small franchise utility</li> <li>- A new build</li> </ul> With export capacity 100kW to 29.9MW without PPA , NEM or FiT	NUR	Price taker, no price bid required (subject to appropriate metering being installed)		Higher of Forecast or Actual System marginal price (SMP)

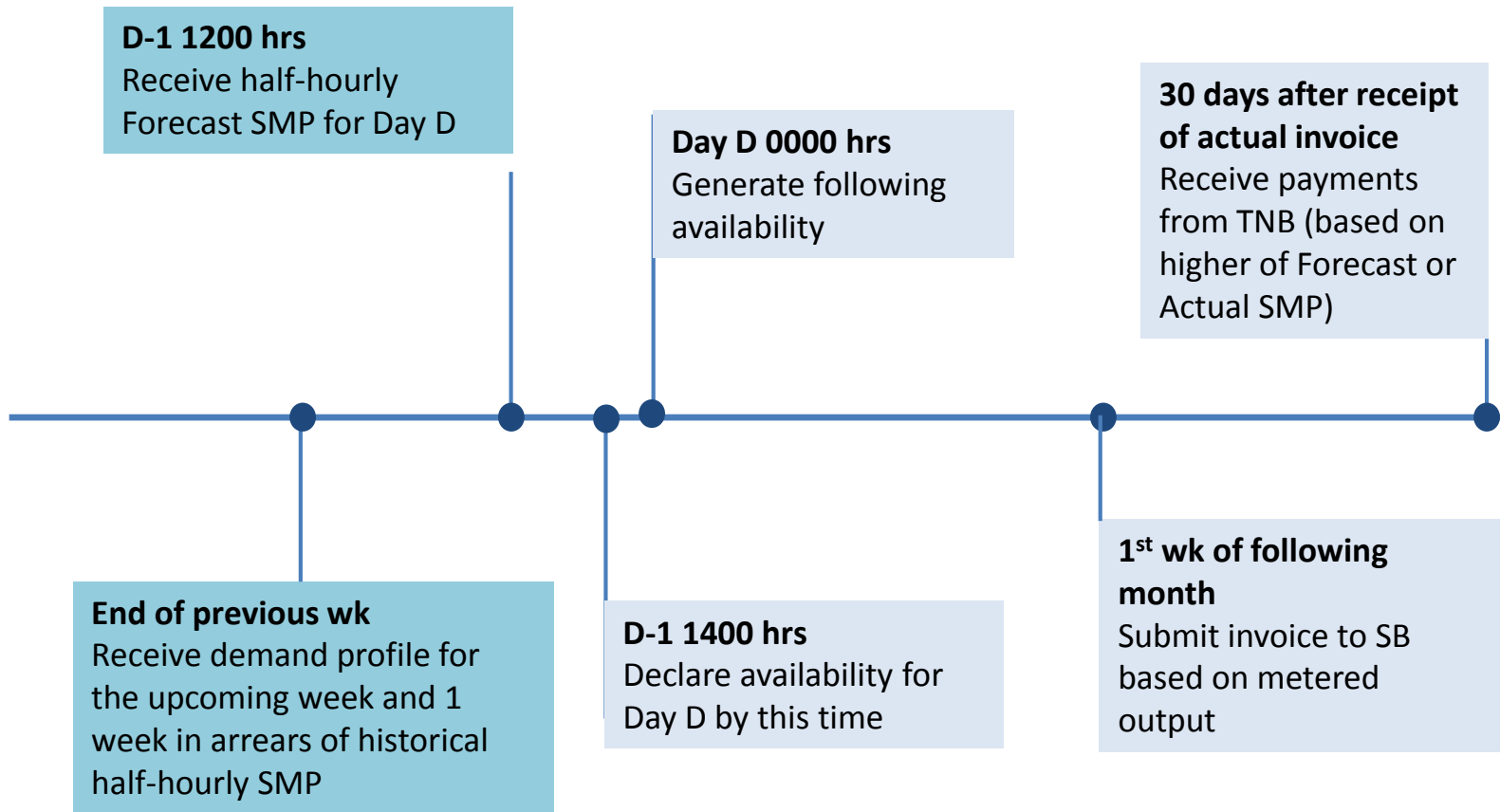
# Timeline for generators who bid (PPA/SLA, Expired PPA & Large Merchant)



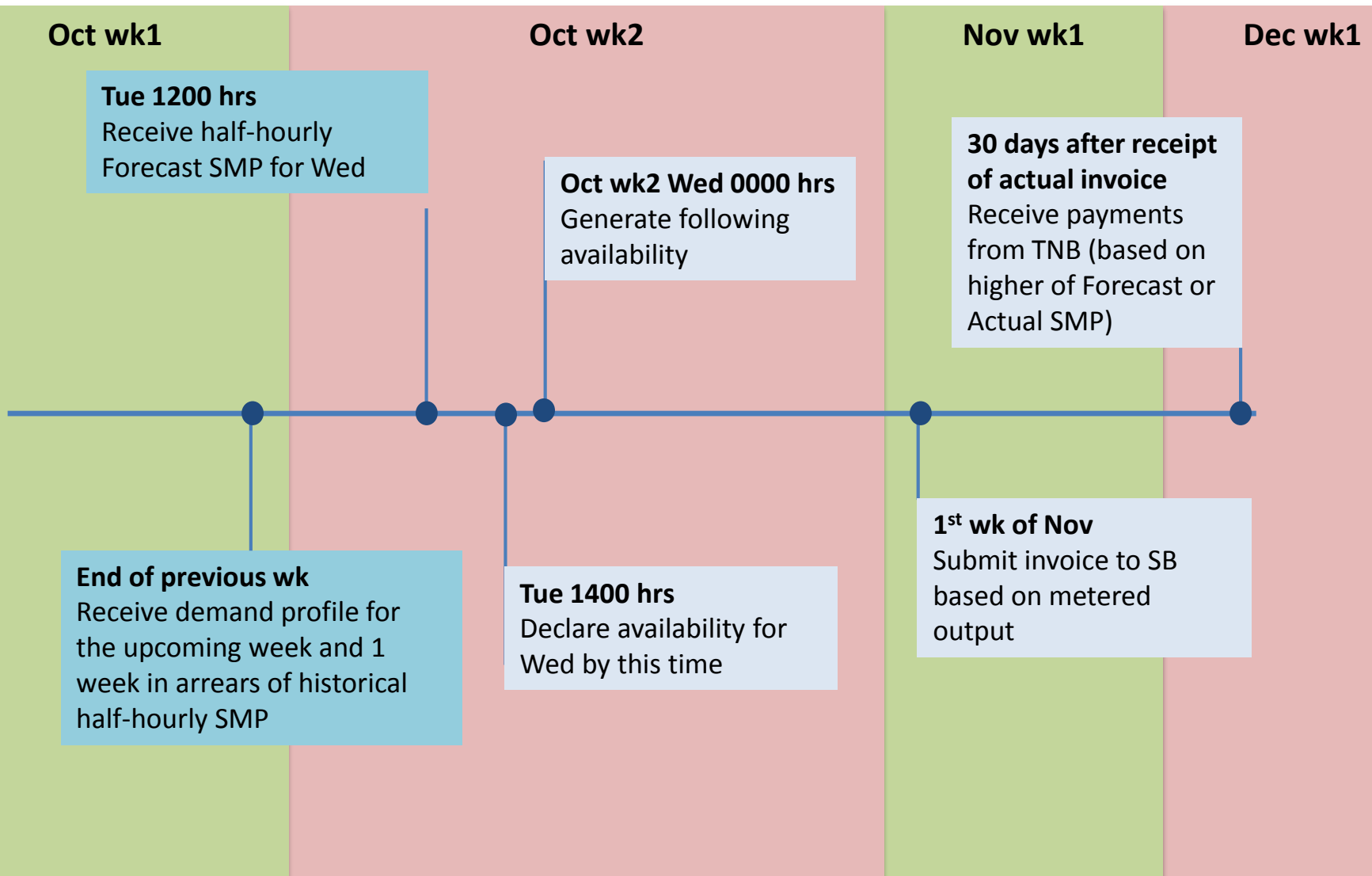
# Timeline for generators who bid (PPA/SLA, Expired PPA & Large Merchant)



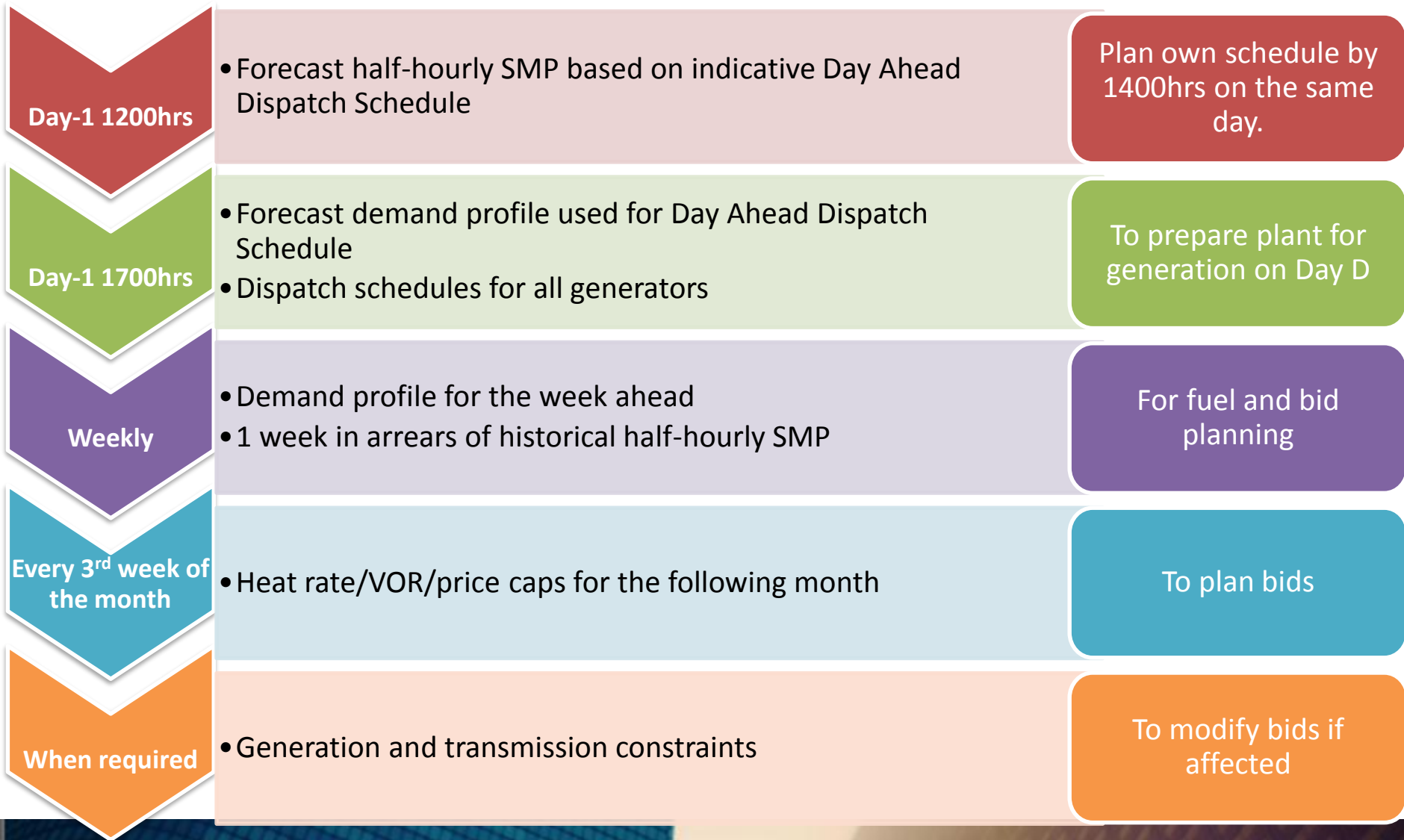
# Timeline for price takers



# Timeline for price takers



# Pre-bidding information published in MPI





# NEDA operations - Bidding

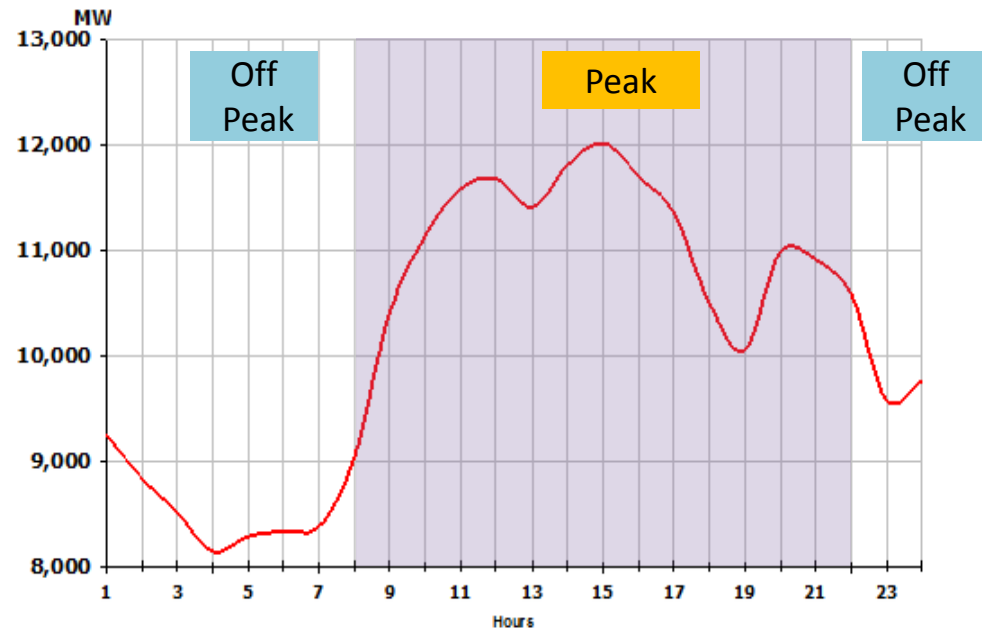
## Gate opening & closure

- Gate opening :10 am Day-2
- Gate closure : 10 am Day-1

Dispatch on	Gate Opening on	Gate Closure on
Monday from 00.00 hours	Thursday at 10.00 hours	Friday at 9.59 hours
Tuesday from 00.00 hours	Friday at 10.00 hours	Monday at 9.59 hours
Wednesday from 00.00 hours	Monday at 10.00 hours	Tuesday at 9.59 hours
Thursday from 00.00 hours	Tuesday at 10.00 hours	Wednesday at 9.59 hours
Friday from 00.00 hours	Wednesday at 10.00 hours	Thursday at 9.59 hours
Saturday from 00.00 hours	Thursday at 10.00 hours	Friday at 9.59 hours
Sunday from 00.00 hours	Thursday at 10.00 hours	Friday at 9.59 hours

## Bid periods

- 2 periods (peak and off-peak) comprising **10 bids each (i.e. 20 bids in total)**
  - Off Peak: 00.00 hrs - 07.59 hrs and 22.00 hrs - 23.59 hrs
  - Peak: 08.00 hrs- 21.59 hrs.

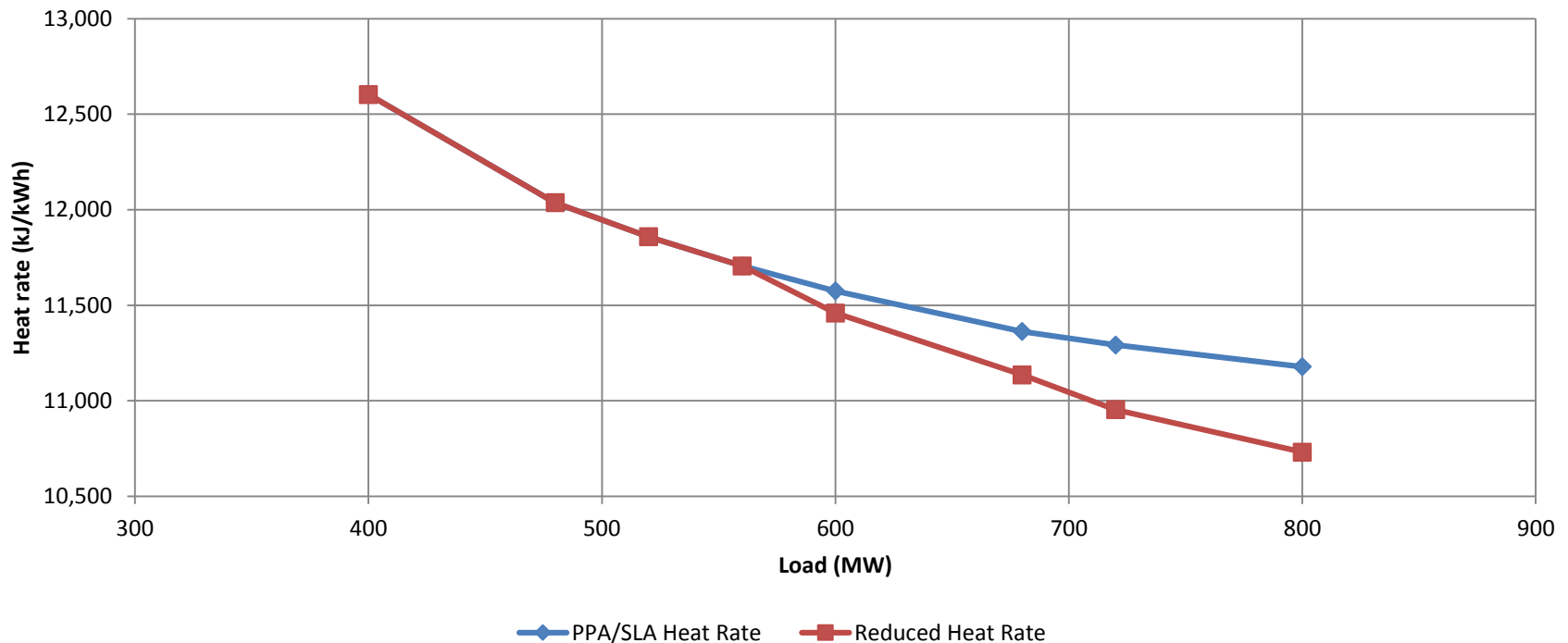


# NEDA Operations – Submission of bid (Heat Rate and/or VOR) for PPA/SLA Generators

PPA/SLA generators can submit heat rate and/or VOR offers that are lower than their PPA/SLA rates.

- Heat rate bids submitted must follow the format of the PPA/SLA
- VOR bid: 1 bid for each period

**Example of PPA/SLA heat rate curve and reduced heat rate curve**



# NEDA Operations – Submission of Bid (Heat Rate and/or VOR) for Expired PPA/SLA Generators

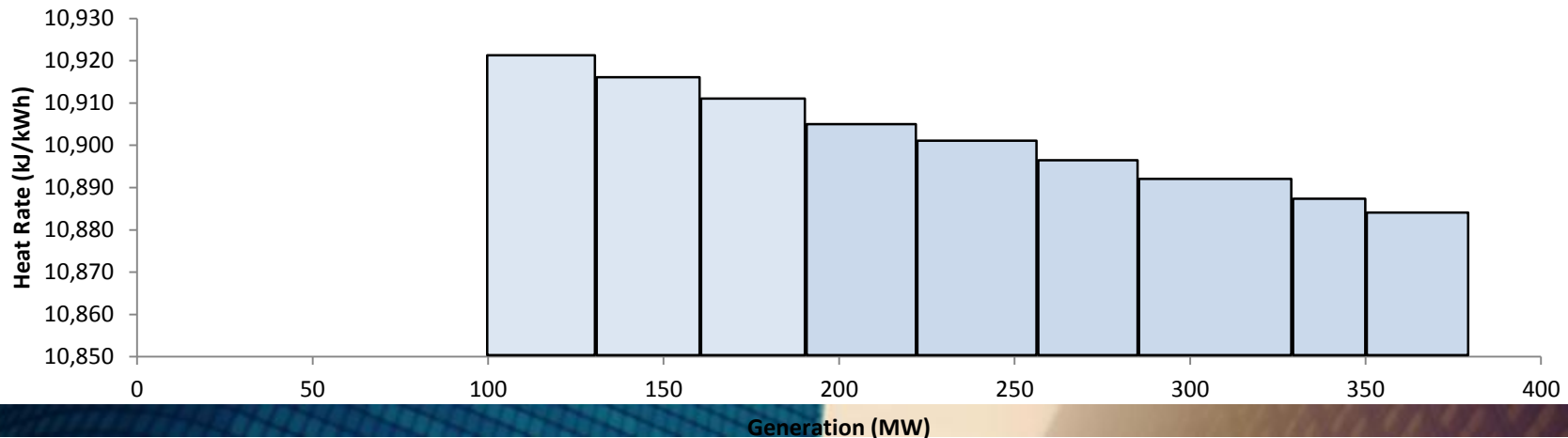
Bidding Period :		Off Peak Bidding Period
VOR (RM/kWh):		0.11
Band	Load (MW)	Heat Rate (kJ/kWh)
1	100.00	10,925.00
2	135.50	10,921.00
3	160.00	10,916.00
4	190.00	10,911.00
5	220.00	10,905.44
6	250.00	10,901.00
7	280.00	10,897.00
8	320.25	10,892.00
9	340.00	10,887.00
10	370.00	10,883.55

The 1<sup>st</sup> point corresponds to the minimum MW offered

The last point corresponds to the maximum MW offered

## Expired PPA/SLA holders bid heat rate and VOR:

- Heat rate table can contain up to 10 points
- VOR bid: 1 bid for each period
- Minimum block size is 10 MW

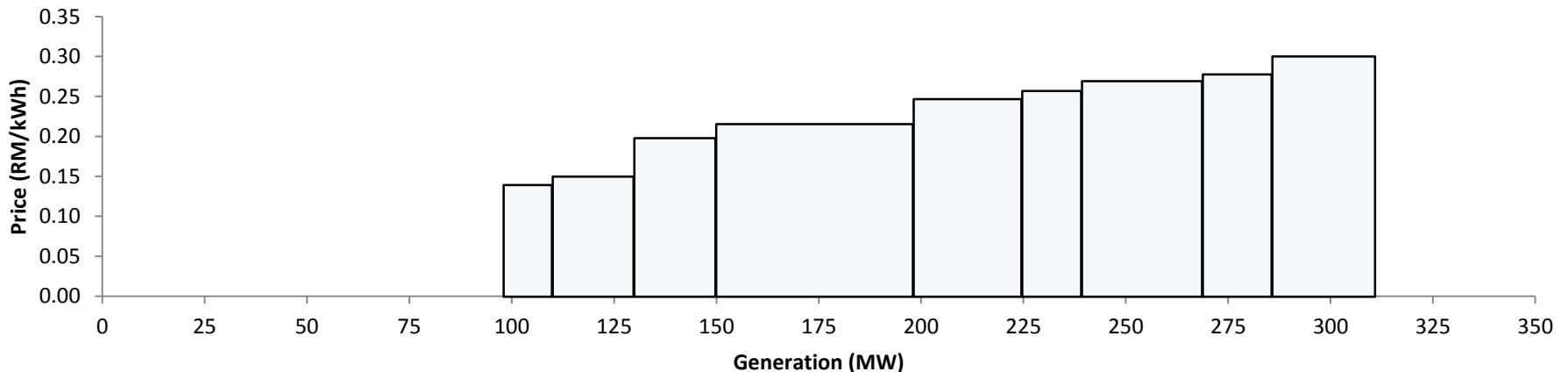


# NEDA operations – Submission of Bid (Price-quantity pair) for Large Merchant Generators

Bidding Period :		Peak Bidding Period
Band	Quantity (MW)	Price (RM/kWh)
1	100.00	0.11
2	110.00	0.14
3	131.40	0.15
4	150.00	0.20
5	200.00	0.22
6	225.65	0.25
7	240.00	0.26
8	270.00	0.27
9	285.50	0.28
10	310.00	0.30

The 1<sup>st</sup> point corresponds to the minimum MW offered

The last point corresponds to the maximum MW offered



## What are price quantity pairs?

- Price-quantity pairs (up to a maximum of 10 bids for each bidding period) are submitted by eligible Merchant Generators
- Bids are monotonically increasing (i.e. always increasing).
- **Minimum block size : 10 MW**

# Calculation of Monthly Cap (Price/Heat Rate/VOR Caps)

Bids by generators are subject to a cap. SB will publish the monthly caps (i.e. Price/Heat Rate/VOR caps) for the upcoming month by the third week of the previous month. There follows an illustration of how the caps are calculated.

## How to derive the Price/Heat Rate/VOR caps

1. Identify the most expensive centrally dispatched PPA/SLA thermal generator (G) on primary fuel available for dispatch, using a simple merit order stack
2. Calculate the caps as follows:
  - a. Calculated weighted average fuel price for the month
  - b. Price Cap =  $\text{MAX} (\text{Heat Rate}_G \times (a) + \text{VOR}_G)$
  - c. Heat Rate Cap =  $\text{Heat Rate}_G$
  - d. VOR Cap =  $\text{VOR}_G$

# Calculation of System Marginal Price (SMP)

- The SMP is defined as the price of the most expensive Marginal Generator scheduled to meet demand in the half-hour period
- Price Takers will be paid the higher of Forecast and Actual SMPs capped at the registered capacity.
  - **Forecast SMP:** based on Day-Ahead Dispatch Schedule produced at D-1 1200hr
  - **Actual SMP:** based on Actual Dispatch by GSO

A Marginal Generator is defined as a generator that is:

- a Centrally Dispatched Generating Facility;
- not ramping up or down at the Maximum Ramp Up Rate of Generating Facility or Maximum Ramp Down Rate of Generating Facility;
- not generating at Minimum Stable Load or maximum load;
- not a Hydro Plant;
- not Renewable Plant;
- not a testing unit;
- running under normal industry conditions;
- not a constrained generator due to transmission or fuel constraint;
- not subject to gas curtailment; and
- running on primary fuel (i.e. not running on back-up fuel).

Guide to Trial Run shall have an indemnity clause in relation to usage of PPA data e.g. to calculate SMP and Monthly Cap during trial period

# NEDA operations – Settlement

- Settlement for all participants is carried out monthly in arrears following receipt of the participant's actual invoice.

PPA/SLA holders	Expired PPA holders	Large Merchant generator	Price takers
<ul style="list-style-type: none"><li>• Payment at the lower of PPA/SLA heat rate+VOR or bid heat rate+VOR</li></ul>	<ul style="list-style-type: none"><li>• Payment at heat rate+VOR as bid</li><li>• Start up cost as bid for fast start generator</li></ul>	<ul style="list-style-type: none"><li>• Payment at bid price</li><li>• Start up cost as bid for fast start generator</li></ul>	<ul style="list-style-type: none"><li>• Payment at higher of Forecast or Actual SMP for the metered output</li></ul>

- If there are unresolved disputes, settlement will be carried out according to SB's assessment of the amount payable.