



# **CENTRALISED PROCESS TO ENSURE SUFFICIENT GENERATION CAPACITY**

## ***CONSULTATION PAPER***

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# CENTRALISED PROCESS TO ENSURE SUFFICIENT GENERATION CAPACITY

## *CONSULTATION PAPER*

### **Background**

1 In Oct 2022, the Ministry of Trade and Industry (“MTI”) announced that the Energy Market Authority (“EMA”) would be introducing guardrails to strengthen the existing competitive market structure and ensure that Singapore is well-positioned to navigate the energy transition.

2 In particular, to ensure that we have sufficient generation capacity in time to come, MTI announced that EMA would be planning and coordinating capacity building at the system level, via a Centralised Process. This Consultation Paper sets out the details of this Centralised Process.

### **Consideration for Introducing Centralised Process**

3 Over the past two decades, investments in new power generation technology and capacity have been driven by the commercial considerations of power generation companies (“Gencos”). These considerations include Gencos’ own business plans and their outlook for electricity demand. While this approach has generally served us well by increasing innovation and efficiencies in operations, it does not provide sufficient assurance that there will be sufficient generation capacity at the system level.

4 While high electricity prices typically signal to companies that capacity is tight and new plantings are needed, these signals are generally too late as it takes around four to five years to build a combined cycle gas turbine (“CCGT”) generating unit on a greenfield site. This may result in periods of insufficient generation capacity, which increases the risks of volatile electricity prices and blackouts. On the other hand, periods of sustained high prices on the Singapore Wholesale Electricity Market (“SWEM”), increases the risk of uncoordinated multiple plantings, leading to excess capacity. Such prolonged cycles of over and under-supply make it challenging for private generation companies to make long-term investment decisions in generation capacity.

5 This is further exacerbated by the energy transition, where rising carbon taxes, higher financing costs and concerns about asset stranding may discourage investments in new thermal generation units which will still be needed to meet growing electricity demand and maintain a secure and reliable power system in the near and medium-term.

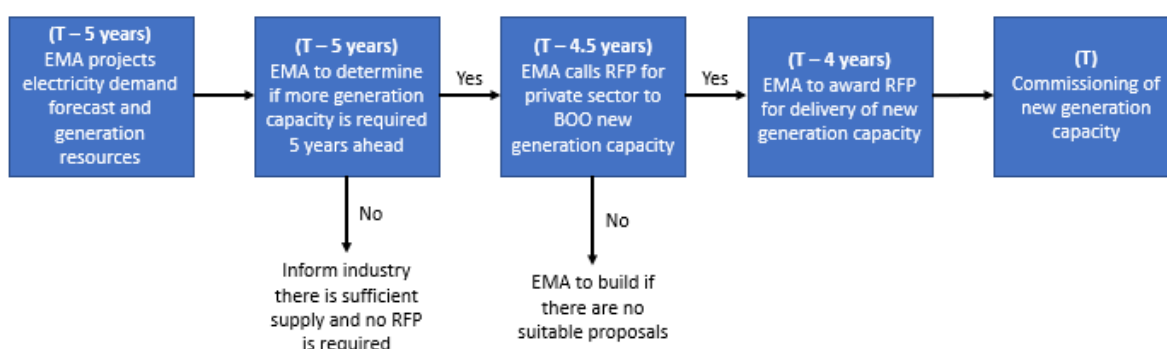
6 To ensure that there is sufficient generation capacity to serve demand in a secure and reliable manner, EMA will be introducing a Centralised Process to coordinate the planting of new generation capacity in Singapore by the private sector.

## Framework for Centralised Process

7 Under the Centralised Process, EMA will continue to provide a rolling 10-year electricity demand forecast (“EDF”).<sup>1</sup> All Gencos are also required (under the Transmission Code) to provide a notice period of at least 5 years to retire any licensed generating units, mainly the CCGTs.<sup>2</sup> Together with EMA’s projection of other generation resources (e.g. solar photovoltaic, waste-to-energy facilities, power import), as well as demand response, **EMA will determine the amount of generation capacity needed to meet system needs 5 years ahead.**

8 Should the 5-year forward projection show insufficient generation capacity to meet the projected demand and RRM, EMA will conduct a Request for Proposal (“RFP”) for the private sector to build, own and operate (“BOO”) the required new generation capacity.

**Figure 1: Proposed Centralised Process**



9 Interested participants can participate in the process and the most competitive proposal will be awarded a licence to build, own and operate the new capacity. If no new capacity is required in that year, EMA will inform the industry accordingly.

10 **If there is no private sector interest to BOO the required new generation capacity or the RFP proposals submitted are assessed to be unsuitable, EMA will step-in to build the generating unit(s).** EMA will consult the industry on the operating parameters of an EMA-owned/operated unit in due course.

11 To prevent potential excessive over-capacity that may arise from unilateral private commercial investment decisions outside of the Centralised Process, **EMA will require any proposed new generating unit, or any proposed increase in the capacity of an existing generating unit, of 100 MW or more to participate in the**

<sup>1</sup> EMA projects electricity demand considering various factors such as projected population, temperature, Gross Domestic Product (“GDP”) growth rates, as well as projected demand from new and high-growth sectors such as semiconductors, data centres, electric vehicles and agri-tech. The EDF is published in the Singapore Energy Market Outlook (“SEMO”) which is available at EMA’s website.

<sup>2</sup> EMA will be amending the Transmission Code requirement for Generation Licencees to submit a written request to EMA for approval not later than 31 March of the year that is 5 years prior to the year of the intended retirements of the generation unit (e.g. for generation unit intending to retire in 2029, written submission to EMA would be 31 March 2024).

**Centralised Process except for the following types of generation facilities (“Excluded Facilities”):**

- a. Generating units with name-plate generation capacity of less than 100 MW, regardless of whether it is directly connected for direct supply into the power grid, or embedded within a consumer’s premises to generate electricity for onsite consumption with potential export of excess electricity into the power grid;
- b. For avoidance of doubt, electricity import facility/projects which EMA will select via the separate ongoing RFP process;
- c. Energy storage system (“ESS”) given its technical limitations which prevent it from constantly injecting into the power grid;
- d. Solar photovoltaic (“PV”) generation facility given that its energy supply is intermittent and limited to day-light hours;
- e. Generating units that are substantially contracted to provide ancillary services under the Electricity Market Rules; and
- f. Research and development (“R&D”) and testbed projects<sup>3</sup> which are typically small in scale and will be selected under separate processes.

**Specifications for RFP**

**Timeline**

12 If new generation capacity is required within 5 years, an RFP will be conducted around June/July, and interested participants will be required to submit their proposals to EMA within 3 months of the launch of the RFP, i.e. September/October. EMA will award the RFP between October and December. The RFP winner will be required to commission the new generation capacity within 4 years of the RFP award.

**Cardinal Requirements**

13 Proposals that do not meet the following cardinal requirements will be disqualified for further evaluation:

- a. **Time to market:** The Participant must demonstrate its ability to deliver the new generation capacity within the timelines stipulated in the RFP.
- b. **Legal and regulatory requirements:** The Participant must be a Singapore-incorporated company that will hold, if granted, the generation licence if selected by EMA through the RFP. If the Participant is a consortium, the consortium can meet this requirement through the incorporation of a special purpose vehicle company in Singapore.

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<sup>3</sup> E.g. ammonia, geothermal and fuel cell technologies.

- c. **Financial Ability and Experience:** The Participant must demonstrate its ability to finance the proposed generation business and have the capability and experience to perform the duties under the Electricity Act and the electricity licence.
- d. **Impact on Existing Generation Capacity:** Proposals should not result in a reduction in the overall installed generation capacity, i.e. proposals which involve replacing existing generating units with new ones will be disqualified if the proposed retirement was not approved by EMA as part of the framework for retirement of generation units.
- e. **Emission Standards:** Demonstrate ability to meet prevailing Tier 1<sup>4</sup> requirements under the Emission Standards Framework.

### Evaluation Criteria

14 Proposals that meet the Cardinal Requirements will be further evaluated based on the following evaluation criteria:

- a. **Market Considerations:** EMA will take into account the impact of the Proposals on market competition (e.g. impact on the market's Herfindahl Hirschman Index ("HHI")), and the proposed terms for retail/vesting contracts (e.g. MW quantity and cost);
- b. **Technical Capabilities of Generating Unit:** EMA will consider the technical capabilities of the proposed generation facility such as ramp-up rate, fuel changeover capability and the generation technologies used. EMA may take into account the past track records of the participant (e.g. reliability of existing units, if any) as part of the evaluation process; and
- c. **Strategic Considerations:** These include the impact of the new generating unit on the broader energy network.

15 EMA does not intend to provide any revenue support as part of this Centralised Process.

### Performance Bond

16 The RFP winner(s) will be required to furnish a bond ("Performance Bond") in favour of EMA for a sum of up to S\$100 million for the project delivery. The Performance Bond sum will be progressively returned upon completion of stipulated project milestones. An illustration of the performance bond milestones is in **Figure 2**.

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<sup>4</sup> Please refer to this link for details on the proposed Emission Standards Framework: [https://www.ema.gov.sg/cmsmedia/Consultations/Consultation-Paper-Emission-Standards-for-Power-Generation-Units\\_08\\_Feb\\_2023.pdf](https://www.ema.gov.sg/cmsmedia/Consultations/Consultation-Paper-Emission-Standards-for-Power-Generation-Units_08_Feb_2023.pdf)

**Figure 2: Illustration of Performance Bond**



17 EMA reserves the right to forfeit the Performance Bond in whole, or in part, if the RFP winner fails to meet any of the milestones.

### Others

18 As part of the RFP, EMA may, where applicable, inform interested participants of information that may be relevant to the planting of new generation capacity. This includes availability of utility land, feasibility studies that had been previously conducted, etc.

### Need for Generation Capacity in 2028

19 Based on EMA's current EDF, power system peak demand is projected to grow at a compounded annual growth rate of 4% - 6%, with the demand reaching between 10.1GW and 11.7GW by 2028. This is largely driven by growth in electricity-intensive sectors such as semiconductor and data centres. Based on the current estimated amount of generation capacity in the system by 2028, EMA foresees that additional generation capacity will be needed in 2028. EMA will finalise these projections and intends to launch a RFP under the Centralised Process in 2H 2023 for the new generation capacity required in 2028. More details will be released in due course.

### Request for Comments

20 EMA would like to invite written comments on its proposal to introduce a Centralised Process to ensure sufficient generation capacity, as and when the new capacity is required. Please submit all written comments via email to: [Ong Guang Yong@ema.gov.sg](mailto:Ong_Guang_Yong@ema.gov.sg) and [Kwok Sher Wei@ema.gov.sg](mailto:Kwok_Sher_Wei@ema.gov.sg)

21 All submissions should reach EMA **by 5pm on 8 May 2023** in the format shown in the Appendix. You are requested to submit a soft copy of your submission in both PDF and Microsoft Word format. EMA will acknowledge receipt of all submissions via email within two business days.

22 For clarifications, please address to Mr Ong Guang Yong at [Ong Guang Yong@ema.gov.sg](mailto:Ong_Guang_Yong@ema.gov.sg) and Ms Kwok Sher Wei at [Kwok Sher Wei@ema.gov.sg](mailto:Kwok_Sher_Wei@ema.gov.sg)

23 Please note that EMA will not consider anonymous submissions. EMA reserves the right to make public all or part of any written submissions made in response to this Consultation Paper and to disclose the identity of the source. Any part of the submission, which is considered by respondents to be confidential, should be clearly marked as "Confidential". Such comments, together with justification on the

need to maintain confidentiality, should be separately attached as an appendix. EMA will take this into account in the disclosure of the information submitted.



**Appendix – Format for Submission of Comments**

**CONSULTATION PAPER – CENTRALISED PROCESS TO ENSURE SUFFICIENT GENERATION CAPACITY**

**Comments submitted by:**

Name :  
Designation :  
Company :  
Email :  
Contact No. :

S/No.	Please indicate in each cell in this column, the section/paragraph to which your comment refers	Comments
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2		
3		
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Any other comments		