



Smart Energy, Sustainable Future

**FIRST REQUEST FOR PROPOSAL (RFP1)
TO APPOINT LICENSED ELECTRICITY IMPORTERS
(WITH REFERENCES TO RFP2)**

1 Jul 2022
Version 1.4

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Document History

Version No.	Version Date	Summary of Changes
1.0	12 Nov 2021	-
1.1	14 Jan 2022	<ul style="list-style-type: none"> ▪ Standardised reference to “Conditional Approval” for RFP award and “MWac” for import capacity ▪ Addition: <ul style="list-style-type: none"> • Paras 4.46, 7.8(d), 7.17, 7.20 and 9 • Footnote 1, 3, 5, 7, 12, 16, 19 and 20 • Form E, Form F and Annex C ▪ Amendments: <ul style="list-style-type: none"> • Paras 2.10, 2.18, 2.19, 2.28, 3.3, 4.7, 4.8, 4.10, 4.40, 4.55(c), 7.9(a), 7.9(e), 7.12(e)(iii), 7.38 and 8.5 • Table 6 • Footnote 18 • Form of Submission ▪ Deletion: <ul style="list-style-type: none"> • Section 7.8(f) in version 1.0
1.2	25 Feb 2022	<ul style="list-style-type: none"> ▪ Addition: <ul style="list-style-type: none"> • Footnote 21 ▪ Amendments: <ul style="list-style-type: none"> • Paras 2.16, 7.18, 7.19, 7.20, 7.21 and 9.2
1.3	24 Mar 2022	<ul style="list-style-type: none"> ▪ Amendment: <ul style="list-style-type: none"> • Sections 2.12 and 7.21
1.4	1 Jul 2022	<ul style="list-style-type: none"> ▪ Addition: <ul style="list-style-type: none"> • Para 1.9 ▪ Amendments: <ul style="list-style-type: none"> • Paras 1.7, 1.8, 2.1, 3.6(b), 4.17, 4.21, 4.23, 4.24, 4.27, 4.29, 4.32, 7.11, 7.12e(iii) • Table 3, 4 and 6 • Reference from “Bid” to “Proposal”, “Reserve Winner” to “Alternate” and “Reserve Winning” to “Alternative” • Annex C in Paras 7.15 to 7.20 ▪ Deletions:

		<ul style="list-style-type: none">• Para 3.6b, Section 8 and 9, Form of Submission, Form A to F (moved to RFP2 document), Annex B▪ Intentionally left blank:<ul style="list-style-type: none">• 1.10, 1.11, 2.4 – 2.6, 2.9, 2.11 – 2.28, 7.1 – 7.6, 7.18, - 7.44
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CONTENTS

SECTION 1: Introduction	5
SECTION 2: Overall RFP Design.....	7
SECTION 3: Cardinal Requirements.....	10
SECTION 4: Selection Criteria.....	12
SECTION 5: Option for Contingent Capacity.....	29
SECTION 6: Alternative Proposals	31
SECTION 7: Instructions for Pre-Submission and Submission of Proposals	33
Annex A: Potential sites for Electricity Imports	46

SECTION 1: INTRODUCTION

1.1 Singapore's energy sector has come a long way. Over the last 50 years, Singapore has moved from oil to natural gas for cleaner power generation. With climate change as a global existential threat, Singapore is doing our part to reduce emissions for a more sustainable future.

1.2 The power sector, which accounts for around 40% of Singapore carbon emissions, will have a key part to play. Singapore is transitioning to greener energy sources and harnessing the four Switches – natural gas, solar, regional power grids and low-carbon alternatives – to transform our energy supply. These will allow us to reduce the power sector's emissions and ensure that our power system remains secure, reliable and sustainable.

1.3 Regional power grids are our third “switch”, and will enable Singapore to access low-carbon energy beyond our shores and diversify our energy sources, while supporting regional decarbonisation efforts and providing economic opportunities for our regional neighbours that could supply such electricity.

1.4 To prepare for future electricity imports and ensure that our regulatory approach is appropriately calibrated, the Energy Market Authority (“**EMA**”) has embarked on small-scale trials and pilots of electricity imports with different partners and technologies. The trials allow EMA to assess and refine the technical and regulatory frameworks for importing electricity into Singapore.

1.5 EMA intends to allow up to 4GW of total imports by 2035, which is expected to make up around 30% of Singapore's total supply by 2035.

1.6 EMA seeks to import electricity that is reliable, competitive and low-carbon. Such imports will need to arrive in a timely manner. This new supply of electricity imports is expected to be delivered via new interconnectors and supply projects.

1.7 On 12 Nov 2021, EMA launched the first Request for Proposal to select the most competitive and viable projects suitable for Singapore, and thereby allocate import rights and reserve scarce landing points for electricity imports infrastructure. EMA has received significant interest from project developers to develop low-carbon energy sources for export into Singapore. EMA had also announced in 2021 that EMA will launch a second RFP by around 2Q 2022.

1.8 From 1 Jul 2022, EMA will launch the **BOTH** the second RFP **AND** combine RFP1 and RFP2. This will reduce potential overlaps and confusion, and provide more time and flexibility for interested participants to prepare their proposals¹. Hence, the final deadline for RFP1 and RFP2 will be 29 Dec 2023.

1.9 As EMA's general requirements for imported electricity remains unchanged, this RFP1 document continues to describe the **requirements** for competent entities ("**Importers**") to import and sell electricity in Singapore via new interconnectors between Singapore and various source countries, for delivery by 2035. Delivery refers to the commencement of flow for electricity imports. The **process** for applying to supply imported electricity is set out in the RFP2 document. Hence, both RFP1 and RFP2 documents should be read together.

1.10 [Intentionally left blank]

1.11 [Intentionally left blank]

¹ The import capacity under approved electricity imports trials and pilot projects will not count towards the capacity to be proposed for **RFP**, though the capacities could be from the same development.

SECTION 2: OVERALL RFP DESIGN

2.1 EMA invites interested parties to participate in the RFP2 (each a “Participant”) by submitting proposals (each a “Proposal”) to import electricity into Singapore. Please refer to RFP2 document which describes the process.

2.2 EMA plans for the orderly entry of imports into Singapore, so that Singapore’s electricity demand is met while managing the impact on the existing electricity market. The projected demand for electricity imports is as set out in Table 1 below:

Table 1 - Projected cumulative demand for electricity imports

Year	2025	2030	2035
Projected cumulative demand for imported electricity (MWac)	300 to 500	2200 to 2500	3500 to 4000

2.3 EMA caveats that the actual demand for electricity imports may differ from the projections. This is because Singapore’s electricity demand and supply situation depends on various factors such as economic growth, population, temperatures, prevailing supply capacity and consumers’ demand for low-carbon electricity.

2.4 [Intentionally left blank]

2.5 [Intentionally left blank]

2.6 [Intentionally left blank]

2.7 To ensure diversity of supply and a competitive market outcome, EMA expects to award multiple Participants. The RFP awarded to Participants may have varying commencement dates, ramp-up rates and timelines as may be required by EMA to progressively meet demand.

RFP Requirements

2.8 EMA will adopt the following approach:

- a. Cardinal Requirements – These are essential requirements which are set out in Section 3. Failure to comply with the Cardinal Requirements may result in disqualification of the Proposal.
- b. Selection Criteria – For Proposals that have met the Cardinal Requirements, EMA will assess the Proposals using the Selection Criteria set out in Section 4.

2.9 [Intentionally left blank]

2.10 Each Participant's Proposal shall include and state the proposed licenced **Import Capacity**, i.e. the maximum instantaneous power that is delivered to Singapore, measured at the point of injection (i.e. the Importer's SP Power Assets meter) into Singapore's grid (expressed in megawatts or gigawatts) that the Participant proposes to import under this RFP.

Timeline for RFP Process

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2.12 [Intentionally left blank]

2.13 [Intentionally left blank]

2.14 [Intentionally left blank]

2.15 [Intentionally left blank]

Bid Bond and Performance Bond

2.16 [Intentionally left blank]

2.17 [Intentionally left blank]

2.18 [Intentionally left blank]

2.19 [Intentionally left blank]

2.20 [Intentionally left blank]

2.21 [Intentionally left blank]

Land for electricity import infrastructure

2.22 [Intentionally left blank]

2.23 [Intentionally left blank]

2.24 [Intentionally left blank]

2.25 [Intentionally left blank]

Negotiations after Initial Bids

2.26 [Intentionally left blank]

2.27 [Intentionally left blank]

2.28 [Intentionally left blank]

SECTION 3: CARDINAL REQUIREMENTS

3.1 Cardinal Requirements are imposed on Proposals to ensure that they meet essential legal and regulatory requirements, credibility requirements and project design requirements. Failure to comply with the Cardinal Requirements may result in disqualification of the Proposal.

Cardinal Requirements – Legal & Regulatory Requirements

3.2 Each Participant must be a **Singapore-incorporated company** that will be granted and hold the Licence if selected by EMA under this RFP. Where the Participant is a consortium, the consortium can meet this requirement through the incorporation of a special purpose vehicle company in Singapore.

3.3 EMA has established a cap of 25% on the generation capacity market share (“**25% Market Share Cap**”) to prevent structural increase in electricity generation market concentration in respect of Keppel Merlimau Cogen Pte Ltd, SembCorp Cogen Pte Ltd, PacificLight Power Pte Ltd, Tuaspring Pte Ltd. With regard to Senoko Energy Pte Ltd, Tuas Power Generation Pte Ltd and YTL PowerSeraya Pte Ltd, EMA has imposed the higher of either the 25% Market Share Cap or their respective MWac licensed capacity cap, until the current expiry date of their respective Generation Licence. Beyond the current expiry dates, their respective MWac licensed capacity cap will be terminated and the 25% Market Share Cap will apply². Electricity imports by these gencos or related parties will be counted towards these gencos’ market share for the purposes of determining if they are compliant with their respective Market Share Cap³.

3.4 Proposals shall comply with the Section 4.8 and 6.8 of the Transmission Code⁴.

Cardinal Requirements – Credibility

3.5 Technical and Professional Capability – The Participant (or entities related to the Participant) must demonstrate its organisational capability in the management and delivery of power generation or transmission projects by providing project examples of similar scale and complexity in the past five years. Relevant experience may be

² Refer to Final Determination Paper on Review of the Vesting Contract Regime dated 30 September 2016:

<https://www.ema.gov.sg/cmsmedia/Consultations/Electricity/Final%20Determination%20Paper%20-%20Review%20of%20Vesting%20Contract%20Regime%202016%20final.pdf>

³ The import capacity being proposed will be added to the numerator and denominator for the calculation of whether the Participant’s market share would breach the 25% generation market share cap. Actual market share would be calculated at the time of issuance of licence. If the Genco is part of a Consortium, the full capacity will be counted towards the Genco’s market share.

⁴ This includes any subsequent updates to the Transmission Code.

drawn from other sectors, in which case similarities and differences in approach should be explicitly explained and expected mitigation strategies set to cope with significant differences should also be highlighted for EMA's consideration. For avoidance of doubt, the Participant may enter into partnership(s) with experienced entities to meet this requirement.

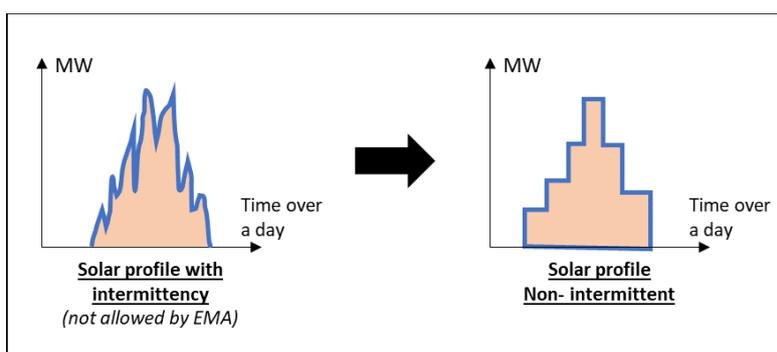
Cardinal Requirements – Project Requirements

3.6 Projects shall comply with the following capacity size requirements:

- a. Import Capacity of not less than 0.6 GW if the Proposal seeks to use the landing sites stated in **Annex A**. Import Capacity shall not be less than 0.3 GW if the Participant propose to use its own private landing sites in its Proposal.

3.7 Imported electricity shall be non-intermittent. This means that imported electricity shall be constant and stable during each half-hourly dispatch period. Dispatched supply can change from one period to another in accordance with the market dispatch schedule as per Electricity Market Rules. See **Figure 2** below for an illustration of non-intermittent supply. Participants should note that EMA has a preference for power supply that is available throughout a 24-hour day, as stated in our load factor requirement in paragraph 4.4(d).

Figure 2. Illustration of non-intermittent supply



3.8 Proposals with electricity supply from any coal-fired or nuclear power generation will not be accepted.

SECTION 4: SELECTION CRITERIA

4.1 Proposals will be evaluated based on the following selection criteria.

- a. **Ability to Supply** refers to the Proposal's ability to deliver on time, within specifications, and to provide consistently reliable electricity supply. It is further divided into the following areas:
 - i. Singapore Deliverability Expertise
 - ii. Technical Feasibility
 - iii. Design Phase
 - iv. Construction Phase
 - v. Operations, Maintenance and Decommissioning
 - vi. Financial Deliverability
- b. **Carbon Emissions** refers to the Proposal's expected carbon emissions during operations.
- c. **Competitiveness** refers to the Proposal's economic competitiveness relative to competing Proposals. This includes a consideration for the quantities of electricity sold to offtakers, the offtake risk borne by the Participants, and any form of revenue support that a Proposal may seek to ensure bankability and reduce its expected project cost and sales price. The Proposal shall also demonstrate the robustness and accuracy of its cost and price estimates and assumptions.
- d. **Diversity of Supply** refers to EMA's intention to ensure that the complete portfolio of Winning Proposals comes from diversified sources, to help ensure resilient supply for Singapore. EMA will award a combination of Proposals with a strong consideration for source diversity.

Ability to Supply

4.2 Ability to Supply refers to the Proposal's ability to deliver on time, within specifications, with no adverse impact to security and reliability of Singapore's grid when connected and to provide consistently reliable electricity supply.

4.3 Proposal shall fully comply with the Transmission Code⁵. If the Proposal is unable to fully comply with the Transmission Code, Participants must provide strong technical justifications and propose alternative solutions or mitigation measures. EMA

⁵ This includes any subsequent updates to the Transmission Code, which will include a requirement for an Importer with a solar PV project to control its ramp rate within the limit stipulated by the Power System Operator.

will only decide on any exemption request from the Transmission Code on a case-by-case basis after the Final Proposal submission.

4.4 The technical design of the Proposal will cover the following areas:

- a. Generation Specifications: This covers the technology and capacity of the generation units that produce the imported electricity. The parameters will include address of generation unit, generation efficiency, lifespan, planned and unplanned outage rates. For renewable and/or intermittent generation, this shall also include the expected renewable resource potential, proposal on how to ensure non-intermittency is met (e.g. use of energy storage solutions, and specifications of such energy storage solutions, etc).
- b. Transmission Specifications: This covers the technology and capacity of the transmission infrastructure used to transmit the imported electricity. This covers both onshore grid infrastructure and offshore interconnectors, for HVAC or HVDC infrastructure (if applicable). The parameters will include landing point and HVDC location, route of interconnectors, proposed technology, capacity of infrastructure, relevant design specifications, expected lifespan, relevant grid connection studies, planned and unplanned outage.
- c. If the generation and transmission capacity is contracted from third parties, instead of newly built as part of this Proposal, technical parameters of such capacity should also be stated. The Importer is expected to demonstrate that there is clear commercial intent by the third party capacity owner to allow this capacity to be used for the Proposal.
- d. Supply Profile – This is the expected quantity of electricity that is generated throughout the day and over the project life. EMA notes that during initial years, the cost of generation and storage technology may make it too costly for projects from low-carbon sources (e.g. solar, wind) to produce electricity on a constant basis. Hence, EMA can consider Proposals that have a lower load factor in its initial years, but such Proposal must have a firm commitment to ramp-up in later years. EMA will require projects that are able to achieve a quarterly load factor of 75% five years after commencement of commercial operations⁶. This helps ensure that Singapore will enjoy a consistent supply of imported low-carbon electricity.

⁶ For avoidance of doubt, this means that a 1000MWac project will need to generate at least 1.656TWh of electricity in a quarter with 92 calendar days. (i.e. 1000MWac x 24 hours x 92 days x 75% load factor). EMA reserves the right to revise the enforcement interval from quarterly periods to a more frequent interval (e.g. monthly).

4.5 The Participant's ability to supply and the associated feasibility of proposed projects will be assessed through the Ability to Supply sub-criterion. The intention of this assessment is to enable informed decision making by providing EMA with the assurance that the projects eventually shortlisted for Conditional Approval, and the benefits that they will provide to consumers, are realistic. The deliverability assessment will provide the EMA with confidence that the Participant has undertaken sufficient due diligence to develop a Proposal that is reliable and robust, and that they have the capacity (or arrangements in place) to deliver it.

4.6 Under the Ability to Supply sub-criterion, Proposals are evaluated based on their project's technical design, the technical proposal to build the project and ensure smooth operations, and the financial proposal to secure the funds necessary for this project. The Ability to Supply sub-criterion comprises the following elements, covering the totality of the project lifecycle:

- a. Singapore Deliverability Expertise
- b. Technical Feasibility
- c. Design Phase
- d. Construction Phase
- e. Operation & Maintenance
- f. Financial Deliverability

4.7 Components 4.6 (a) to (e) are described in **Table 2** below.

Table 2. Ability to Supply Award Sub-Criterion

Sub-Criteria	Sub-Criteria Definition
Singapore Deliverability Expertise	To assess Participants' experience and capabilities for the delivery of imports into the Singapore market.
Technical Feasibility	To assure EMA that proposed project's performance parameters are compliant with technical and regulatory requirements, feasible and designed to integrate effectively into Singapore's transmission grid. To demonstrate non-intermittency and declared Import Capacity, thus guaranteeing the security and reliability of supply to Singapore.
Design Phase	To understand and validate the Participant's approach to developing the project, identifying and managing project risk
Construction Phase	To determine the Participant's approach to planning the execution of the project, assessing requirements for effective project delivery and assurance that requirements of stakeholders (e.g. permit authorities) are addressed.
Operation & Maintenance	To analyse and review the approach for operating the system, planning for operations phase risks to maintain availability and reliability requirements, as well as planning for decommissioning.

4.8 The element 4.6 (f) will examine the following aspects of the Proposal:

- a. Financing strategy: This covers the Participant's description of their intended financing strategy for the project and the steps that the Participant has taken to progress this strategy at the time of submitting their Final Proposals. For example, the latter may include the extent of engagement with providers of debt and/or equity funding. Consideration will also be given to any supporting analysis of the intended financing strategy that the Participant has conducted. For example, this may include analysis of alternative approaches that the Participant has considered in order to arrive at its intended approach.
- b. Implementation of the financing strategy: This considers the Participant's ability to implement the intended financing strategy, with reference to the quality of their planning. In particular, consideration will be given to:
 - (i) The Participant's understanding of the key milestones required to implement their intended financing strategy. To demonstrate their understanding, Participants will be required to submit a description of the conditions precedent required to reach a final investment decision (FID) and financial close (FC), the required timing for these conditions to be achieved, and how these conditions align with the project design and construction phases' schedule. Examples of conditions precedent include financial approvals, regulatory approvals, contractual agreements, and other key milestones.
 - (ii) The Participant's plan to achieve FID/FC. This should describe how Participant will ensure that the identified conditions precedent will be achieved by the proposed dates. The plan should also identify and address the key risks and uncertainties related to the implementation of this plan.
 - (iii) Evidence of the Participant's ability to successfully implement the plan to achieve FID/FC. For example, this may include evidence of the Participant's track record of securing finance for projects of similar size and complexity.
- c. Insurance strategy: This considers whether the Participant has a satisfactory understanding of the insurance requirements for its project and how to put these in place. Participants should describe the proposed insurance arrangements for the import project and provide a high-level explanation of the process to be followed to procure this.

4.9 When assessing the Proposals, EMA will consider the following, together with supporting evidence:

- a. The comprehensiveness of responses provided in each Proposal;
- b. Feasibility of the project, including planning made for the design, delivery, operations and decommissioning;
- c. The robustness of activity planning and expectations of outcomes;
- d. Explanation of the arrangements for assurance of development, delivery and operations phases;
- e. Demonstration of comprehensive understanding of the project complexity and that risks are being appropriately managed; and
- f. Demonstration that adequate actions have been implemented to address uncertainty and potential optimism bias.

Carbon Emissions

4.10 Under Carbon Emissions, Proposals are assessed based on the expected annual carbon emissions output (tCO₂e/MWh) of their supply sources, with substantiation and assumptions. To calculate the annual carbon emissions output, the tCO₂e is measured at the source, while the MWh is measured at the point of injection (i.e. the Importer's SP Power Assets meter) into Singapore's grid cumulatively on an annual basis. Proposals shall, for each year in its project life, state and substantiate the expected annual carbon emissions of their project using methodologies that are commensurate with international standards for the respective energy source. Proposals with cleaner sources of generation types will be assessed favourably.

4.11 Renewable Energy Certificates (“RECs”) or equivalent forms of proof of generation, will be required by the EMA to verify that electrons imported in Singapore come from low-carbon sources. It is expected that consumers buying low-carbon electricity from importers will also buy the RECs (or equivalent proof) associated with the electrons to justify that their purchased electricity is from a low-carbon source. Where the Importer imports electricity into Singapore that is generated from low-carbon generation sources, the Importer shall submit relevant RECs in respect thereof annually to the EMA for verification. The RECs submitted must be in accordance with the Singapore REC standard⁷ or an internationally recognised standard that is verified by accredited platforms or providers and approved by the EMA.

⁷ Visit [Singapore Standards webpage](#) for more information on RECs.

4.12 EMA will only consider the carbon emissions arising from direct production of electricity for the electricity imported under the Proposal. As most renewables do not produce electricity on a 24/7 basis, supply can be considered to have zero carbon emissions if the Participant demonstrates that sufficient RECs are produced by the import project over a year, such that the total electricity (in MWh) imported can be considered to have zero net carbon emissions. EMA is not prepared to consider the use of RECs purchased from other sources of generation that do not supply electricity to Singapore via this Proposal.

4.13 Proposals seeking to use non-standard low-carbon generation sources (e.g. use of biofuels, waste heat) must include a report from a credible expert that explains why this aspect of their Proposal is zero-carbon according to internationally accepted standards. EMA has the right to reject these sources as zero-carbon if EMA does not deem the report to be sufficiently credible, or if the Proposal does not align with the objectives of our electricity import strategy.

4.14 EMA will prefer Proposals that achieve an annual emission factor of zero tCO_{2e}/MWh. EMA notes that during initial years, some Proposals may need to rely on carbon-emitting technology to complement the generation of low-carbon electricity, to provide reliable and competitive supply to Singapore. As EMA's longer-term vision is for electricity imports to only come from low-carbon sources, imports projects are expected eventually to fully come from low-carbon sources. Hence EMA will also require Proposals to minimally achieve an annual emission factor that is no higher than 0.15tCO_{2e}/MWh within five years of commercial operations. For avoidance of doubt, Proposals that achieve an annual emission factor that is lower than 0.15tCO_{2e}/MWh will receive a better score in this selection criteria.

4.15 For avoidance of doubt, REC ownership and trade will be determined on a commercial basis, unless otherwise stated by EMA. Participants should note that under this RFP, EMA has the right to require the RECs of electricity receiving Revenue Support (see paragraphs below for more details), to be transferred to EMA or an EMA-designated entity.

Competitiveness of supply

4.16 Under the Competitiveness selection criterion, Proposals will be evaluated on the basis of:

- a. Quantities of electricity sold via Commercial PPAs;
- b. Quantities of electricity where the Proposal would bear merchant risk;
- c. Quantities and cost of the requested Revenue Support per expected unit of electricity delivered;
- d. The degree of confidence that the assumptions underpinning the requested Revenue Support are robust, such that the Proposal accurately reflects the Revenue Support the Participant will require to deliver its project as described in the Proposal.

For avoidance of doubt, the RFP considers that a Proposal's Import Capacity may only be divided into the three categories stated in sub-para (a), (b), and (c) above, such that " $(a)+(b)+(c) = \text{Proposal's Import Capacity}$ ". There shall be no double-counting of quantities.

Requirements in relation to Commercial PPAs

4.17 Many potential Participants have indicated to EMA that they are confident of selling some of their imported quantities directly to interested buyers via commercial PPAs ("**Commercial PPAs**"). Such Commercial PPAs refer to the retail contracts that the Participants' retail business or retail partner have executed to sell imported electricity to consumers. **For the avoidance of doubt, contracts signed with a retailer will not be considered as a Commercial PPA.** EMA encourages such Commercial PPAs to take place as it allows willing buyers and sellers to commercially agree on the terms of supply during a competitive RFP process. Commercial PPAs that are firm will serve as a strong signal that a Participant has secured the confidence of consumers.

4.18 EMA will require Participants that claim to have the support of consumers, to demonstrate this show of support in the form of binding commercial PPAs that are submitted to EMA for review. Beyond the quantities of electricity sales specified in the Commercial PPAs, other contractual details in the Commercial PPAs are not being evaluated under the Competitiveness criterion. Nonetheless, the EMA requires Participants to submit a complete and unredacted copy of the Commercial PPAs for EMA's reference and verification.

Request for Revenue Support

4.19 EMA has received industry feedback that imports from low-carbon sources typically have a much higher upfront capex requirement compared to fossil-based generation. Potential importers have asked EMA for some form of revenue support (“**Revenue Support**”) that would provide better revenue certainty, which could in turn reduce project risk and financing costs accordingly.

4.20 EMA may choose to provide Revenue Support. This RFP will allow Participants to state their requests for Revenue Support within the parameters defined by the EMA, if they consider that this is required to develop their project.

4.21 Notwithstanding Paragraph 4.20, all participants should seek to develop their Proposals independently of Revenue Support. All things being equal, proposals that do not request for Revenue Support, or Revenue Support with a lower cost, quantity and duration relative to other Proposals, will be considered more favourably. Proposals which request for Revenue Support for quantities exceeding the quantities sold via Commercial PPAs, and/or which are proposing a higher Revenue Support Price than that in the Commercial PPAs, will be viewed less favourably.

4.22 In this RFP, the EMA will allow Participants to submit requests for two forms of Revenue Support: A two-way Contract-for-Differences (“**CfD**”) or a Performance Contract (“**PC**”).

4.23 Revenue Support in the form of CfD: The CfD will enable the Importer to be paid at a specified fixed strike price expressed in \$/MWh (“**CfD Strike Price**”), for a committed amount of electricity delivered each half-hourly dispatch period (“**CfD Quantity**”). Participants may request for a CfD contract duration of up to 25 years, but should provide a base option of a contract duration of 15 years. Specifically, the CfD will pay the difference between the strike price and the Importer’s nodal price for each half-hourly period, on the amount of delivered electricity.

4.24 Proposals seeking this support shall provide a range of CfD Strike Prices for varying CfD Percentage Quantities, in the form of **Table 3** below. Participants that seek CfD support must provide a CfD Strike Price for the 50% CfD Percentage Quantity option. Participants may also suggest other combinations of CfD Strike Price and CfD Percentage Quantity for EMA’s consideration. Participants should also state their nominated CfD duration, up to the maximum duration of 25 years, with 15 years as a base option (this applies to all CfD Strike Price and CfD Percentage Quantity combinations).

Table 3. Table of requested CfD strike prices and quantities

CfD Percentage Quantities (expressed as %) <i>This % will be applied on the Importer’s prevailing maximum Import Capacity, to determine the CfD Quantity for each half-hourly dispatch period.</i>	0%	50%	Others, please specify: x%, y% etc
Strike Price for such Quantities (\$/MWh)	S ₀ (see footnote 8)	S₅₀	S _x , S _y
CfD contract duration (years) <i>(15 years as base option, capped at 25 years)</i>	Duration in years		

4.25 For each half-hourly dispatch period, the CfD settlement formula will be applied on the Importer’s delivered quantities for that half-hour dispatch period (“**Metered Electricity Quantities**”):

$$CfD\ payment[\$] = (CfD\ Strike\ Price - Nodal\ Price)[\$/MWh] \times CfD\ Quantity[MWh]$$

$$CfD\ Quantity[MWh] = Min\{(Metered\ Electricity\ Quantities\ [MWh] \times CfD\ Percentage\ Quantities[\%]), (CfD\ Percentage\ Quantities[\%] \times Import\ Capacity[MWac] \times 30min[h])\}$$

4.26 If the settlement formula results in a negative value, the Importer will pay its CfD counterparty instead.

4.27 Revenue Support in the form of Performance Contract (“PC”): Under the PC arrangement, the Importer will receive support payments (“**PC Payment**”) expressed in \$/MWh (“**PC Price**”) for a committed amount of electricity delivered each half-hourly dispatch period (“**PC Quantity**”). **Participants may request for a PC contract duration of up to 25 years, but should provide a base option of a contract duration of 15 years.** The PC payment will supplement the revenues earned by the importer when it sells into the electricity market (typically the nodal price for each half-hourly period), regardless of changes in nodal price. Note that PC Quantities will still bear the price risk arising from changes in nodal price.

4.28 Participants will be required to nominate a nodal price beyond which no PC support payment is required (“**Nodal Price Cap**”).

⁸ For CfDs or PCs with 0% quantities, no quantities of electricity are covered under the CfD/PC contract, hence the contract price is not enforceable. This means that the price S₀ or P₀ should reflect the Proposal’s view of its future sales price into Singapore when bearing merchant risk.

4.29 Proposals seeking PC support shall provide a range of PC prices for varying PC Percentage Quantities, in the form of **Table 4** below. Proposals shall also state the Nodal Price Cap for each PC Price and PC Percentage Quantity combination. Participants that seek PC support must provide a PC Price for the 50% PC Percentage Quantity option. Participants may also suggest other combinations of PC Strike Price and PC Percentage Quantity for EMA’s consideration. **Participants should also state their nominated PC duration up to the maximum duration of 25 years, with 15 years as a base option** (this applies to all PC Price and PC Percentage Quantity combinations).

Table 4. Table of requested PC prices and quantities

PC Percentage Quantities (expressed as %) <i>This % will be applied on the Importer’s prevailing maximum Import Capacity, to determine the PC Quantity for each half-hourly dispatch period.</i>	0%	50%	Others, please specify: x%, y% etc
PC Price for such Quantities (\$/MWh)	P ₀ (see footnote 7)	P₅₀	P _x , P _y
Nodal Price Cap, beyond which PC Price does not apply (\$/MWh)	N.A.	N₅₀	N _x , N _y
PC contract duration (years) (15 years as base, capped at 25 years)	Duration in years		

4.30 For each half-hourly dispatch period, the PC settlement formula will be on the Importer’s Metered Electricity Quantities:

If Nodal Price ≤ Nodal Price Cap,

$$PC\ Payment\ [\$] = PC\ Price[\$/MWh] \times PC\ Quantity[MWh] \times Scaling\ Factor$$

$$Scaling\ Factor = Min\{1, \frac{(Nodal\ Price\ Cap[\$/MWh] - Nodal\ Price[\$/MWh])}{PC\ Price[\$/MWh]}\}$$

$$PC\ Quantity[MWh] = Min\{(Metered\ Electricity\ Quantities\ [MWh] \times PC\ Percentage\ Quantities[\%]), (PC\ Percentage\ Quantities[\%] \times Import\ Capacity[MWac] \times 30min[h])\}$$

Or

If Nodal Price > Nodal Price Cap, PC Payment = \$0

4.31 The CfD and PC settlement formula only applies on metered electricity quantities that are delivered into Singapore, capped at the respective CfD quantity or PC quantity⁹. For Proposals that cannot reasonably generate at maximum capacity at all times (e.g. a solar farm), the settlement formula can be adjusted to accommodate a reasonably expected supply profile.

4.32 All CfD Strike Prices and PC Prices should account for the right of EMA to require the RECs of electricity receiving Revenue Support, to be transferred to EMA or an EMA-designated entity. **Participants should indicate the assumed price of RECs.**

4.33 Proposals may provide EMA with requests for Revenue Support in the form of CfDs and/or PCs. The two forms of support shall not be commingled, hence a request for CfD support is mutually exclusive from a request for PC support. A Proposal seeking both methods of Revenue Support must accept that EMA may only choose one method.

4.34 For each Winning Proposal, EMA has the discretion to choose a single price-quantity combination of any Revenue Support method that results in the best outcome for Singapore. EMA may choose combinations that differ between Winning Proposals. Winners shall have the right to enter into the relevant contracts to secure such Revenue Support with a counterparty that EMA will appoint. EMA does not intend to consider requests for other forms of Revenue Support.

4.35 EMA reserves the right not to award any Revenue Support, even if the price offers with Revenue Support are lower.

4.36 EMA also reserves the right to reduce the quantity of Revenue Support during commercial operations if a Participant fails to fully deliver on its Proposal.

Revenue Support in relation to Delivery Date and carbon trajectory options

4.37 Proposals that seek Revenue Support shall provide additional versions of **Table 3** and/or **Table 4**, with the following adjustments:

- a. Proposed date when project begins commercial operations to import electricity (“**Delivery Date**”) – State how the prices would change should the Delivery Date be accelerated or delayed for 1 year and for 2 years, if such changes are possible.

⁹ Example: Assume an Importer with 600MWac import capacity, that has sold 100MWac via Commercial PPAs, and seeks 50% CfD support (i.e. 300MWac of CfD quantity.) If the Importer’s Metered Electricity Quantities is only 150MWac throughout a half-hourly period, then the CfD support will only apply to 75MWac for that half-hourly period.

- b. Decarbonisation trajectory – State how the prices would change should the date when a Proposal achieves an emission factor of 0.15 tCO₂e/MWh or lower, be accelerated for 1 year and for 2 years, if such changes are possible.

Cost uncertainty – Local backup costs

4.38 The Guide describes how the reliability of electricity imports will be ensured through the use of local backup capacity. Such backup capacity is required to be on standby, and activated to generate replacement electricity if an imported supply is disrupted. Importers do not need to provide their own backup supply, as EMA will procure a centralised pool of backup from the market.

4.39 EMA is consulting the industry on the specific technical solutions that can be used to provide such backup in a reliable and cost-effective manner. The expected capacity and cost of such backup is not known at this stage, as it depends on (i) the specific backup technologies that will be adopted, (ii) the finalised portfolio of imports arising from this RFP, and (iii) the cost of procuring such backup supply.

4.40 EMA intends for the fixed cost of local backup capacity to be borne by Importers to be charged on an upfront basis, based on the projected MWh output of the project. This is on top of the prevailing cost to procure reserves based on the Modified Runway Model for the first 600MWac of imports¹⁰. Hence, for the purposes of this RFP, Participants are advised to assume that the cost of backup is a fixed rate of \$15/MWh. The final rate will be advised when the backup capacity is procured from the market, which may be near the Delivery Date of various electricity imports projects. Participants are also advised that the fixed cost of backup may change over time due to changes in the cost of backup solutions, as well as changes in the total quantities of backup required, amongst other factors.

4.41 Proposals that seek Revenue Support should state their requested CfD Strike Price and/or their requested PC Price with the fixed backup cost of \$15/MWh. During commercial operations, EMA will automatically incorporate the actualised fixed backup cost into the CfD Strike Price and/or PC Price, such that CfD or PC Quantities receiving Revenue Support are isolated from changes in the fixed backup cost.

4.42 For quantities of electricity proposed to be sold under Commercial PPAs, Participants are advised to negotiate with their consumers to ensure that changes in the fixed cost of backup is adequately accounted for. For quantities proposed to be sold under the Baseline Offer (see paragraph 4.49), Participants shall itemise the fixed

¹⁰ Please refer to the Guide to Electricity Imports available at <https://www.ema.gov.sg/electricity-imports.aspx> for more information.

backup cost separately from its price offer, and allow the all-in price to be adjusted to incorporate changes in the fixed cost of backup.

4.43 For the variable cost of local backup that is incurred by backup providers when they are activated during an imports supply disruption, EMA intends for such cost to be recovered from the wholesale market in the first instance. To the extent that such providers are unable to recover their variable costs from the wholesale market, the unrecovered portions will be charged to the Importer(s) that caused the shortage event that led to the backup capacity being activated.

Cost uncertainty – Other costs

4.44 The Participant is expected to be responsible for all of its project costs and for managing these costs such that the project remains viable under the CfD or PC Revenue Support requested in its Final Proposal. Nonetheless, EMA notes the feedback from some industry players that there may be uncertainty in certain project costs components that may be challenging to estimate during the RFP submission. Proposals may therefore:

- a. State the cost components for which the Participant wishes to seek a future adjustment to the CfD Strike Price and/or PC Price if the actual value of cost component differs from the estimated value reflected in the CfD Strike Price and/or PC Price requested in the Final Proposal.
- b. State the estimated range of value for these cost components.
- c. Include the estimated value of these cost components in the requested CfD Strike Prices and PC Prices.
- d. Set out a justification for why a future adjustment to the CfD Strike Price and/or PC Price is reasonable. The justification should focus on the benefit to Singapore for putting in place such an adjustment mechanism.

4.45 If adequate justification is provided, EMA may choose to allow such costs to be separately itemised, such that the Revenue Support price proposals offered by the Proposal do not have to account for these uncertainties. Once such cost components are made more certain, a reconciliation shall be conducted to ensure that the actual cost is incorporated. Such cost uncertain components may be either partially or wholly recovered via Revenue Support, if EMA deems it reasonable to do so.

4.46 For the purpose of evaluating the Proposals, EMA may include the maximum value of the respective cost component(s) in the requested revenue support which require future adjustments. All things being equal, a Proposal with less cost components that require future adjustments would be considered more favourably to a Proposal which has more.

Quantities that take Merchant Risk and Requirement for Baseline Offer

4.47 Electricity that is not covered by Revenue Support nor sold through Commercial PPAs, are assumed to be sold through the wholesale market and paid the relevant nodal price for each half-hourly period. As the nodal price may change between each half-hourly period, such quantities are deemed to be bearing merchant risk (“**Merchant Risk**”). Quantities that are sold under Commercial PPAs, or receiving Revenue Support, may also eventually become Merchant Risk quantities once these Commercial PPAs or Revenue Support expire.

4.48 The Importer is solely responsible for the commercial risk arising from either Commercial PPAs or Merchant Risk quantities.

4.49 After the Conditional Approval Date, Winners will be required to make a standing offer for their Merchant Risk quantities to interested customers, which shall be sold via future Commercial PPAs. EMA will require such Merchant Risk quantities to be offered to the market in the form of a Baseline Offer (“**BO**”) for a specified offer period of 5 years (“**Offer Period**”). The initial Offer Period will be from the start of the Conditional Approval Date, with subsequent Offer Periods in consecutive periods of 5 years each. The Baseline Offer will be in the form of a term sheet for the sale and supply of imported electricity made available to customers within each 5-year Offer Period.

4.50 The Importer (through its retail arm/partners) shall offer to sell electricity to interested customers at the terms stated in their prevailing BO. For avoidance of doubt, Importers will be able to enter into bespoke terms with customers that differ from the BO terms, provided that customers have been made aware of deviations from the BO terms (including where these are less favourable).

4.51 The BO shall minimally comprise the following:

- a. Sales price of electricity - For avoidance of doubt, this price should include the price of RECs that may be bundled with the sales of electricity;
- b. Contract duration (e.g. minimum contract duration); and
- c. Quantity requirements (e.g. minimum quantities)

4.52 The BO may also include other terms that the Participant deems relevant (e.g. credit support required from consumers, termination charges etc).

4.53 Revisions to the 5-yearly BO shall be subject to EMA's approval. Prices shall be reasonably competitive, taking into account market conditions and prevailing project costs. All terms, except for sales price, shall be equal to or comparatively better than the prevailing BO.

Robustness of assumptions

4.54 In addition to evaluating the relative cost to Singapore of the Revenue Support requested, the Competitiveness criterion will also consider the degree of confidence that the assumptions underpinning the requested Revenue Support are robust, such that the Proposal accurately reflects the Revenue Support the Participant will require to deliver its project as described in the Proposal.

4.55 To support this part of the evaluation, the Proposal shall provide sufficient information to demonstrate that the key assumptions underpinning its Revenue Support request are robust. This information should include:

- a. Project financial model: Provide a financial model that clearly shows how the Revenue Support request (including price / quantity variations) has been developed. The financial model should clearly and transparently show how the underlying input assumptions flow through to the Revenue Support request.
- b. Project lifecycle cost breakdown: Either separately, or as part of the project financial model, a detailed breakdown of the development, construction, operation and decommissioning phase costs. The project cost breakdown should include a three-point estimate for the cost assumptions, reflecting the range of uncertainties around project costs.
- c. Assumptions book: A detailed assumptions book, setting out the rationale and supporting data sources for the assumptions applied in the project financial model, including the annual forecast for Uniform Singapore Energy Price (USEP).

Evaluating Competitiveness

4.56 The selection criteria of Competitiveness will evaluate Proposals as stated in **Table 5**:

Table 5. Selection Criteria under Competitiveness

Criteria	Remarks
(1) Commercial PPAs	<p>This criterion assesses the downstream contracted quantity of electricity sold to consumers via Commercial PPAs. Proposals are expected to substantiate their contracted demand in the form of binding agreements (such as full-fledged contracts and binding term sheets) to only electricity offtakers in Singapore. Proposals are expected to ensure commercial arrangements are aligned with the terms of this RFP. Proposals shall state the sales price of electricity sold under the Commercial PPAs.</p> <p>Quantities sold under Commercial PPAs will not qualify for Revenue Support, as these are entered into under their own commercial arrangement. EMA does not have a minimum duration requirement for quantities sold under Commercial PPAs. Proposals shall describe how quantities sold under Commercial PPAs will be treated after the PPAs have expired.</p>
(2) Revenue Support	<p>This criterion assesses the competitiveness of the Participant's request for Revenue Support.</p> <p>The overall score will reflect the cost to Singapore of the requested Revenue Support in the context of the total volume of energy that the project will deliver. The cost of revenue support will be a function of the CfD Strike Price or PC Price, and the PC or CfD Quantity (i.e. the percentage of metered electricity imports that will receive the support price), over the specified support duration.</p>
(3) Merchant Risk	<p>This criterion assesses the quantities that are neither sold via Commercial PPAs, nor seek any form of Revenue Support. Such quantities are bearing merchant risk by default when sold into the Singapore Wholesale Electricity Market.</p> <p>Participants shall offer these quantities to interested consumers via the BO. The BO shall be submitted to EMA in the Participant's Final Proposal for assessment.</p>
(4) Price Robustness	<p>This criterion assesses the robustness of the key assumptions underpinning the revenue support request. The overall score will reflect the degree of confidence that the Proposal accurately reflects the Revenue Support the Participant will require to deliver its project as described in the Proposal.</p>

Diversity of Supply

4.57 EMA has consistently adopted a policy for our energy sources to be diversified, to ensure a resilient supply of energy for Singapore. EMA will award a combination of

proposals based on the strong consideration of source diversity. EMA may reject Proposals that do not meet our diversification objective due to concentration risk.

SECTION 5: OPTION FOR CONTINGENT CAPACITY

5.1 The option for Contingent Capacity will not be evaluated as part of the RFP award. EMA will explore the feasibility of this option during negotiation.

Rationale for Contingent Capacity

5.2 Electricity imports provide Singapore with the unique opportunity to quickly increase its access to electricity imports, as long as the import infrastructure is already in place with spare capacity available, without requiring long construction lead times. This quick access to renewable energy can be used to meet unexpected surges in electricity demand (e.g. due to economic growth) or unexpected shortage of energy supply (e.g. due to disruption to generation/imports supply).

5.3 Given the long duration needed to construct electricity imports infrastructure, EMA wishes to explore the possibility for Proposals to provide Contingent Capacity. **Contingent Capacity refers to the spare imports transmission capacity in an Importer's import infrastructure (e.g. interconnector and HVDC station) that can be used to transmit additional quantities of electricity imports at short notice.** Contingent Capacity does not require nor include the additional generation capacity that would use the spare imports transmission capacity.

5.4 As each Proposal is unique, the cost and benefit of Contingent Capacity will also be bespoke for each Proposal. This section spells out how EMA will request for Participants to specify the option for Contingent Capacity in its Proposal.

Request to provide Contingent Capacity Option

5.5 The Contingent Capacity that is sought from each Proposal shall be stated as two separate options. The first option is sized at an increase of 25% in Contingent Capacity. The second option is sized at an increase of 50% in Contingent Capacity. These are collectively termed "**Contingent Capacity Options**".

5.6 Contingent Capacity is primarily expected to come in the form of larger or additional interconnectors and HVDC stations (if applicable). Participants may specify how these options will change its proposals (e.g. changes to the technical solution, construction timeline, price, land requirements etc).

5.7 Each Contingent Capacity Option shall include the provision of a call option ("**Activation Option**") in favour of EMA for the additional supply of new imported electricity. The Activation Option shall allow EMA to call the appointed Importer for new electricity imports supply to be made available (e.g. through the construction of new generation capacity, or purchase of electricity from prevailing generation capacity) for either a temporary or permanent period. Participants shall specify the terms for this

Activation Option (e.g. notice period, quantities, expected price (or price formula), expected carbon attributes etc).

5.8 For the Contingent Capacity Option and their respective Activation Option, the impact on the Proposal's price competitiveness shall be stated as (i) an absolute dollar cost (Singapore dollars) comprising the capital and operating cost of providing this option, and (ii) a separate annual fee that the Proposal may seek from EMA. The Importer may receive this annual fee if EMA requires the Contingent Capacity Option to be implemented. Payment of this annual fee shall stop when the Activation Option is activated, as the importer shall recover the cost of the Activation Option and the remaining cost of the Contingent Capacity Option, through its sales of additional imported electricity into the Singapore market.

5.9 To aid EMA's evaluation of such Contingent Capacity, the Proposal may assume that the activation of these options may happen at the 5th year to 10th year after commercial operations begins.

5.10 EMA also recognises that Participants may face constraints such that it is unable to offer either one or both Contingent Capacity Options, or may only be able to offer capacity increases that differ from the 25% and 50% request. EMA clarifies that Contingent Capacity Options shall be provided by Participants on a reasonable endeavour basis. Failure to provide a Contingent Capacity Option will not result in disqualification.

5.11 As Contingent Capacity is a unique request, EMA anticipates that negotiations may be needed to customise the Contingent Capacity Options appropriately. (e.g. it is possible that a strict +25% option cannot be found, but a slightly smaller option could be created). When selecting a Winning Proposal, EMA may choose to take up either one of the Contingent Capacity Options at its discretion. EMA may also choose not to take up either Contingent Capacity Option.

SECTION 6: ALTERNATIVE PROPOSALS

6.1 Subject to this Section, EMA reserves the right, at any time after the RFP Award, to appoint such number of Alternates as EMA deems fit from the Participants with the next best proposals (in EMA's assessment), and reserves the right to activate any Alternate should an awarded Participant fails to proceed with or complete its Project, in accordance with the terms in this Section.

6.2 EMA will write to inform each selected Participant that it has been selected to be an Alternate on the basis of its Proposal, and request that the selected Participant replies to EMA in writing within five (5) business days therefrom stating whether it accepts its selection as an Alternate and agrees to the terms and conditions in relation to being an Alternate as set out in this Section.

6.3 Where a selected Participant replies in writing to EMA under paragraph 6.2 stating that it accepts its selection as an Alternate and agrees to the terms and conditions in relation to being an Alternate as set out in this Section (subject to paragraph 6.4), it shall undertake the following:

- a. That it will maintain the validity of its Alternative Proposal for a period of 2 years from the date of acceptance to be an Alternate, and will continue to provide a Proposal Bond during this period (it will furnish a fresh Proposal Bond to EMA if its earlier Proposal Bond has been returned).
- b. That it agrees that its Alternative Proposal may be activated by EMA at any time during the 2-year period, and will honour its Alternative Proposal and perform/deliver and complete the Project as contained in its Alternative Proposal (subject to sub-paragraph (c) below) if activated by EMA.
- c. That it agrees to work with EMA to further develop its proposal as may be required by EMA pursuant to paragraph 6.5 below.

6.4 In consideration of the Alternate maintaining the validity of its Alternative Proposal for the period of 2 years, EMA shall pay the Alternate the annual fee stated in the Alternate's Final Proposal to maintain the validity of its Alternative Proposal for the 2-year period, provided that the Alternate has stated such annual fee in its Final Proposal submission as a Participant.

6.5 During the period of 2 years referred to, EMA may require the Alternate to carry out necessary works to develop its proposal to meet the timeline stated in its Alternative Proposal, and shall reimburse the Alternate for the costs incurred in carrying out such works.

6.6 In the event EMA deems that the terms of the Alternative Proposal may need to be reasonably updated and adjusted in view of the outcome of the RFP, EMA is prepared to enter into good faith negotiations with the Alternate to reasonably update and adjust the Alternative Proposal accordingly.

6.7 Alternates may disclose their status as Alternates to third parties.

SECTION 7: INSTRUCTIONS FOR PRE-SUBMISSION AND SUBMISSION OF PROPOSALS

PRE-SUBMISSION – OFFICIAL POINT OF CONTACT

7.1 [Intentionally left blank]

7.2 [Intentionally left blank]

7.3 [Intentionally left blank]

PROCESS FOR SEEKING INFORMATION ON LANDING SITES

7.4 [Intentionally left blank]

7.5 [Intentionally left blank]

SUBMISSION OF FINAL PROPOSAL

7.6 [Intentionally left blank]

7.7 The Proposal shall minimally comprise the following sections:

- a. An Entity Section that specifies the Participant’s identity, relationships, experience and capabilities;
- b. A Technical Section that describes the technical aspects of the Proposal;
- c. A Commercial Section that describes the commercial aspects of the Proposal;
- d. A Carbon Section that describes the carbon emissions aspects of the Proposal;
- e. A Contingent Capacity Section that describes how the Technical, Commercial and Project Delivery Sections will change with an option to increase the import infrastructure transmission capacity; and
- f. Submission of Proposal Bond and relevant supporting documents.

7.8 The Proposal’s Entity Section shall contain the following:

- a. Structure and organisation of Participant, including information and details of all members of any consortium (collectively “**Consortium**”

Members", and each a "**Consortium Member**") using the format given in the **Form of Submission**, including **Form A, B and C**.

- b. Participants comprising Consortium Members will need to satisfy the following requirements to be considered in the RFP selection process:
 - i. A consortium refers to a single entity, as in the form of a joint venture company incorporated in Singapore;
 - ii. Participant shall include copies of the consortium agreements duly signed by all Consortium Members;
 - iii. The consortium agreement must clearly stipulate which member/entity will be providing overall management of the Importer ("**Principal Member**"); the legal relationship among the Consortium Members; and each individual Consortium Member's responsibilities under the consortium agreement;
 - iv. The consortium agreement shall state the respective equity/shareholding percentage of each Consortium Member;
 - v. The Principal Member shall submit the Proposal on behalf of the consortium. Documentary proof must be provided that the Principal Member is authorised by the Consortium Members to submit the Proposal, receive instructions, give any information, accept any contract and act for and on behalf of all the Consortium Members; and
 - vi. Any change proposed to the structure of Consortium after submission of Proposals shall be subject to EMA's approval.
- c. Undertaking by Participant and all Consortium Members, if any, to Safeguard Official Information using the **Form D**.
- d. Participants and all Consortium Members shall provide more information on persons empowered to act in **Form E** and other information in **Form F**.
- e. Project team structure with identification of key members involved in the financing, development, implementation and operation/maintenance of the project, and their respective roles (including a description of relevant experience and curriculum vitae) of each member.

- f. Proof of Singapore-incorporated Company (Cardinal Requirement) - Details of the Participant to be licensed as an Importer if appointed by EMA, namely: (i) a certified true copy of the entity's Certificate of Incorporation; and (ii) certified true copies of relevant ownership documents, including documents lodged with the Accounting & Corporate Regulatory Authority ("**ACRA**") showing the shareholder structure, names and addresses of significant shareholders and the composition of the board of directors.

7.9 The Proposal's **Technical Section** shall contain the following information:

- a. All the deliverables listed in **Table 6** correspond to project information that the EMA would expect competent developers to create to progress their projects, independently of this procurement process requirements.
- b. Studies that demonstrate that the Proposal's potential socio-environmental impact at its production source and along its transmission route is mitigated and complies with the requirements of the relevant local jurisdiction. This includes relevant Environmental Impact Assessments ("**EIAs**") that demonstrate compliance with the source country's laws. If detailed studies are not available, then a high-level assessment shall be submitted, together with a plan for detailed assessment if appointed as a Winning Proposal.
- c. Proof that the Proposal is compliant with the cardinal requirement on capacity size requirements (Cardinal Requirement). This includes the project's generation and transmission capacity, transmission loss and the expected production of such capacity, accounting for the renewable resource availability (e.g. considering best/average/worst case irradiance data in the case of solar PV production). Substantiating data, calculations and assumptions shall be provided.
- d. The Proposal's ability to achieve the non-intermittency requirement (Cardinal Requirement). In the case of intermittent generation sources, the Proposal shall provide substantiating data, calculations and assumptions to demonstrate the expected intermittency of generation before and after mitigation measures, and how the mitigation measures will be designed and operated (e.g. size and control of Battery Energy Storage Systems).
- e. The Proposal's ability to achieve the quarterly load factor requirement with substantiating data, calculations and assumptions, as well as any firm commitments to expand its future production capacity (if applicable).

This should include remedial actions in the event that the annual load factor cannot be imminently met during commercial operations.

- f. Proof of compliance with the Transmission Code (*Cardinal Requirement for Sections 4.8 and 6.8 of the Transmission Code*) that demonstrates that the design of the project and the system design parameters and associated data comply with the technical and regulatory requirements stipulated in the Transmission Code.

Expected approach

7.10 To counter optimism bias and maximise the understanding of the proposed project's potential outcomes, EMA requires Participants to undertake scenario planning. This involves the definition of three scenarios: a reference case (most likely), an upward case (credible ideal scenario) and a downward case (credible worst-case scenario). Participants are asked to consider this approach whilst planning their projects and will be asked to provide details and assumptions associated to these scenarios both in terms of cost and schedule submissions.

7.11 Participants' responses for their Final Proposal shall be specific to their proposed projects, ensuring that the data provided is always contextualised around their proposal. If the maturity of the proposed project limits the extent of information that can be provided, Participants shall ensure that an adequate narrative outlining next steps and demonstrating consistency with their design phase plan is provided.

Table 6. List of Deliverables to demonstrate Ability to Supply (Technical Section)

L2 Sub-Criteria		L3 Sub-Criteria		List of deliverables (non-exhaustive)	
A1	Singapore Deliverability Expertise	A1.1	Previous Experience	A1.1.1	Compilation of Relevant Projects
		A1.2	Capabilities	A1.2.1	The Participant's Organisation
A2	Technical Feasibility	A2.1	Overall System Design	A2.1.1	Overall Project Summary
				A2.1.2	Single Line Diagram
				A2.1.3	Non-Intermittency Management
				A2.1.4	Energy Availability Analysis
				A2.1.5	Design Philosophy
				A2.1.6	Grid Connection Timeline
		A2.2	Constructability	A2.2.1	Route Options
				A2.2.2	List of Surveys
				A2.2.3	Key Construction Activities
		A2.3	Technologies	A2.2.4	Major Construction Constraints
				A2.3.1	Equipment Datasheets
		A2.4	Transmission Code Compliance	A2.3.2	Technology Readiness
A2.4.1	Transmission Code Compliance Capability				
A3	Design Phase	A3.1	Planning & Permitting	A3.1.1	List of Required Permits
				A3.1.2	Land Access Strategy
		A3.2	Regulatory	A3.2.1	Regulatory Requirement Overview
		A3.3	Design Phase Project Management	A3.3.1	Organisational Structure
				A3.3.2	Project Lifecycle
				A3.3.3	Governance Structure
				A3.3.4	Design Phase Key Risks
				A3.3.5	Lessons Learnt
A3.3.6	Stakeholder Management				

L2 Sub-Criteria		L3 Sub-Criteria		List of deliverables (non-exhaustive)	
		A3.4	Design Phase Plan	A3.4.1	Design Phase Schedule
				A3.4.2	Design Phase Schedule Uncertainty Analysis
		A3.5	Procurement & Contract Strategy	A3.5.1	Supply Chain Analysis
				A3.5.2	Procurement & Contract Strategy
A4	Construction Phase	A4.1	Construction Phase Project Management	A4.1.1	Delivery Model/Strategy
				A4.1.2	Construction Phase Key Risks
		A4.2	Construction Phase Plan	A4.2.1	Construction Phase Schedule
		A4.3	Safety, Health, Environmental & Quality (SHEQ)	A4.3.1	SHEQ Competence
A5	Operation & Maintenance (O&M)	A5.1	O&M Strategy	A5.1.1	O&M Strategy
		A5.2	Energy Availability	A5.2.1	Asset Failure Causation
				A5.2.2	Mean Time to Repair
		A5.3	Decommissioning Strategy	A5.3.1	Decommissioning Assumptions
A6	Financial Deliverability	A6.1	Financing Strategy	A6.1.1	Financing Strategy & Supporting Analysis
		A6.2	Implementation of the Financing Strategy	A6.2.1	Participant's Financing Track Record
				A6.2.2	FID/FC Requirement & Plan
		A6.3	Insurance Strategy	A6.3.1	Insurance Strategy

- 7.12 The Proposal's **Commercial Section** shall contain the following information:
- a. The requested duration of the Electricity Importer Licence, and the relevant justification for this duration.
 - b. Proof of Commercial PPAs – These are the Commercial PPAs executed between the Participant and its customers, inclusive of pricing terms. These shall be in the form of full-fledged retail contracts or term sheets, with any other necessary supporting document. For avoidance of doubt, Letter of Intents and correspondence expressing interest to procure electricity will not be considered. A summary table of the Commercial PPAs is required.
 - c. Request for Revenue Support – This shall comprise the information necessary to substantiate the Cost of Revenue Support Selection Criterion. The information shall include the form(s) of Revenue Support, and the information stated in **Table 3** and **Table 4** (where applicable).
 - d. Merchant Risk Quantities – This shall state the quantities that are not sold under Commercial PPAs, nor seek any form of Revenue Support. The Proposal should also state the BO as a separate term sheet that shall be made available to parties interested to purchase such electricity via a new commercial PPA.
 - e. Underlying assumptions – This shall comprise the information necessary to substantiate the Robustness of Assumptions Selection Criterion. If the Proposal shares any resource with other project(s) of EMA relating to electricity import or generation, Participants shall reflect the costs of the other project(s) and indicate how the costs are allocated between the Proposal and the project(s). The information shall include:
 - i. Project financial model: Provide an editable financial model (in Excel format) that clearly shows how the Revenue Support request (including price / quantity variations) has been developed. The financial model should clearly and transparently show how the underlying input assumptions flow through to the Revenue Support request.

- ii. Project lifecycle cost breakdown: Either separately, or as part of the project financial model, a detailed breakdown of the development, construction, operation and decommissioning phase costs of the project. For the Final Proposal, the project cost breakdown should include a three-point estimate for the cost assumptions, reflecting the range of uncertainties around project costs.
- iii. Levelised cost of energy: Either separately, or as part of the project financial model, a breakdown of the average sale price defined as calculated as total net present revenue from selling imported electricity considering the levelised cost of energy, hurdle rate and other revenue adjustments (e.g. risk premia) divided by the total imported energy measured at the point of injection into Singapore's grid over the requested duration of the electricity importer licence that the Participant would require to develop the project.
- iv. Assumptions book: A detailed assumptions book, setting out the rationale and supporting data sources for the assumptions applied in the project financial model, including the annual forecast for USEP.

7.13 The Proposal's **Carbon Section** shall contain the following information:

- a. The expected annual carbon emissions of their project for each year of the project life. This should be substantiated with data, calculations and relevant assumptions, including information stated in the Technical Section. This information shall be used to assess the Proposal's annual emissions factor requirement (Selection Criteria) of Carbon Emissions.
- b. How the Participant will comply with EMA's approach to RECs as stated in this RFP document, including how the Licensee will submit relevant RECs in respect thereof annually to the EMA for verification.

7.14 The Proposal's **Contingent Capacity Section** shall contain the following information:

- a. The available Contingent Capacity Options (i.e. an increase in 25% or 50% of Contingent Capacity, or any other number as agreed with EMA).
- b. Technical solutions for achieving Contingent Capacity – This includes the technical design and build for the spare or upsized infrastructure that forms the Contingent Capacity. It also includes the technical solution for the generation capacity that is used to supply electricity for the Activation Option.
- c. Commercial solutions for achieving Contingent Capacity – This includes the commercial solutions that may relate to the spare or upsized infrastructure that forms the Contingent Capacity (e.g. purchasing spare

existing infrastructure to provide Contingent Capacity). It also includes the commercial solution for the generation capacity that is used to supply electricity for the Activation Option.

- d. Details relating to the Activation Option(s) – This specifies the notice period and process for the execution of the Activation option.
- e. Impact to Proposal – This specifies the change to the Technical, Commercial, Carbon and Project Delivery Sections of the proposal, for each Contingent Capacity Option that is provided. This includes stating the absolute cost of this option, as well as a separate annual fee that the Proposal may seek from Government, such that the figures cited in the Proposal's Commercial Proposal are isolated from the decision to adopt any Contingent Capacity Option.

General requirements

7.15 Participants are encouraged to provide concise information and minimise the quantity of information contained within any supporting evidence presented, for example by only including relevant extracts where appropriate.

7.16 Participants are required to provide a completed document checklist accompanying both their Initial and Final Proposal submissions using the attached template (*Submission Register.xls*). The completed Submission Register should not be password encrypted/protected nor contain the passwords to other documents.

7.17 The EMA reserves the right to request supporting detail in regard to the contents of any document provided within a Participant's Proposal submission in order to support its evaluation.

Proposal Submission – Technical, Commercial and Carbon Sections

7.18 Attachment A (*RFP_Attachment A_Submission Requirements.pdf*) contains further details on the requirements for the following sections of Participants' Final Proposal submissions. Participants shall review this in detail to ensure they fully understand the requirements set out.

- For the Technical Section, the requirements stated in Section 7.9 (a) and Table 6 of the RFP document.
- For the Commercial Section, the requirements stated in Section 7.12 of the RFP document.
- For the Carbon Section, the requirements stated in Section 7.13 of the RFP document.

7.19 Attachment A seeks to articulate the requirements for the Final Proposal, indicating what the EMA wishes to see from the Participants in these sections of their Final Proposals and the quality of the content to be included therein. Participants are reminded to consider the quantity of information requested, the stated length limits associated with each deliverable, and the format that the information is to be provided in.

7.20 Attachment A includes reference to the following attached templates that Participants must use when submitting the relevant part of their Final Proposal.

- *RFP_Template_A111.doc*
- *RFP_Templates_A222_A311_A334_A412_A521_A621_A622.xls*
- *RFP_Templates_B21_B31.doc*
- *RFP_Template_B51.xls*

7.21 Participants are to provide the following substantiating documentation:

- a. Submission of Proposal Bond (for Final Proposal only) – The proposal shall submit this Proposal Bond in favour of EMA, in the form of a bank guarantee.
- b. Any other information, plans or proposals that the Participant may deem relevant for the purposes of this RFP.

7.22 The Proposal and any other documents provided shall be in the English language. All monetary values shall be clearly specified and denominated in Singapore Dollars.

Mode of Submission

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Deadline for Submission

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Allowance for Clarifications

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Validity of Proposals

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Compliance with Instructions

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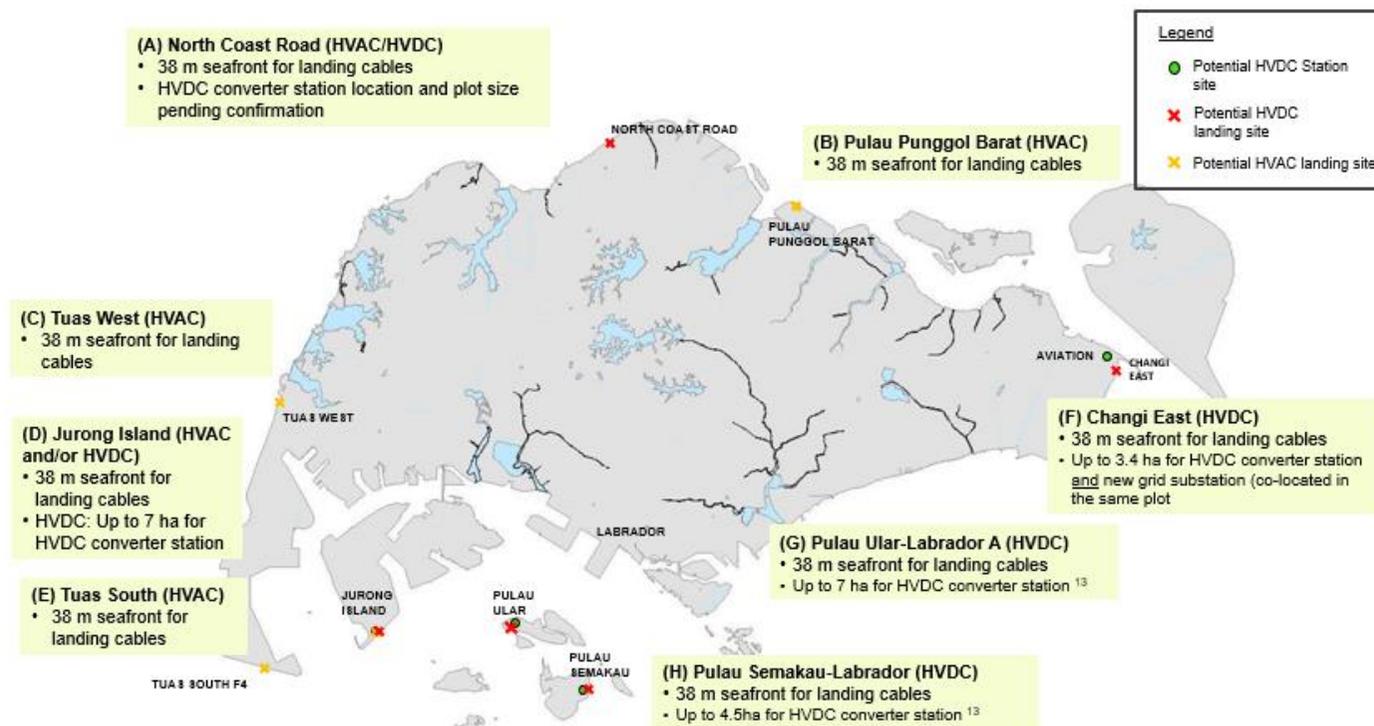
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ANNEX A: POTENTIAL SITES FOR ELECTRICITY IMPORTS

The diagram below shows the potential sites that may be reserved for the purposes of electricity imports¹¹. Participants may write to EMA to express interest in these sites, via the process specified in **Section 8**. As landing sites are scarce and may not suit the specific needs of a Participant's Proposal, Participants may also suggest the use of their own private landing sites¹².



¹¹ The allocation of the sites to the Winner is subjected to the approval of the relevant planning and technical agencies.

¹² The use of the private landing sites for landing electricity imports will be subjected to the approval of the relevant planning and technical agencies.

¹³ Singapore Power will be responsible for the connection of the HVDC converter station to the grid substation on the mainland.