BATTERY ENERGY STORAGE SYSTEMS BIDDING ALGORITHM HACKATHON

CALL FOR PARTICIPATION

3 November 2026

Updated: 13 November 2026

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BATTERY ENERGY STORAGE SYSTEMS (BESS) BIDDING ALGORITHM HACKATHON

Introduction

1. Singapore's Energy Storage Systems (ESS) Vision seeks to unlock greater value from every ESS resource by enabling ESS to contribute wherever and whenever they provide value. EMA is therefore exploring how BESS can deliver greater system value through participation in the Singapore Wholesale Electricity Market (SWEM).

2. EMA is launching a BESS Bidding Algorithm Hackathon, inviting energy companies, traders, technology firms, researchers and other innovators to develop algorithms that maximise BESS market revenue while meeting operational requirements. This competition aims to identify innovative bidding strategies and encourage greater industry interest in commercially viable ESS solutions in Singapore.

Objective

3. Participants are invited to develop a bidding algorithm for a hypothetical 100MW/100MWh BESS, with an operating state-of-charge (SOC) range of 5%–95% and round-trip efficiency of 85%. The algorithm should maximise market revenue across energy and ancillary services, subject to the above prescribed BESS operating limits and applicable SWEM market rules.

Hackathon Prize

4. The top three winning entries will be awarded cash prizes of:
    - First Prize: S$10,000
    - Second Prize: S$7,000
    - Third Prize: S$4,000

Datasets and Information Participants Will Receive

5. EMA will provide relevant market data and information required for the hackathon, such as energy and ancillary service prices, pre-dispatch market information and other information necessary for developing and evaluating the algorithms.

6. Participants may supplement EMA's datasets with external data, such as weather forecasts. Such external data must correspond to the same period as the EMA-provided data and must not contain information beyond the applicable data cut-off. EMA will specify the applicable data cut-off when the datasets are provided. Participants must disclose the sources of all external datasets used.

Submission and Evaluation Requirements

7. Participants must submit the following by the stipulated submission deadline:

    a. Bidding algorithm: Executable source code (preferably in R/Python), including all necessary dependencies, configuration files and instructions for EMA to independently execute the algorithm and reproduce its outputs. The algorithm must be capable of generating bid quantities and prices for Energy, Regulation, Primary Reserve and Contingency Reserve for each trading period. Energy storage offers for charging (negative MW) and discharging (positive MW) must comply with the requirements set out in Section 3.1.2 of EMC's Rule Change Paper RC383, available here.

    b. Algorithm description: An explanation of the bidding strategy, methodology, key assumptions, treatment of BESS operating constraints and any requirements that are/can be fully automated and those that still require human intervention.

    c. External datasets and software: Details of any external data sources, software libraries, third-party components used in developing the algorithm, including any applicable licensing restrictions, and an explanation of how these were used in the algorithm.

8. Participants shall ensure that their submissions are complete, executable and reproducible by EMA independently without requiring access to undisclosed proprietary tools or services.

9. EMA may subsequently request additional data, information or clarifications from participants to support the testing and evaluation of the submitted algorithms.

Evaluation and Selection

10. EMA shall independently execute and assess the submitted algorithms by simulating the market outcomes arising from the bids generated by each algorithm. Simulated outcomes are for evaluation purposes only and may not reflect actual market outcomes. Submissions shall be evaluated based on the total net market revenue generated by the BESS, subject to compliance with prescribed BESS operating limits and applicable market rules.

11. All evaluation and selection decisions shall be made by EMA at its sole discretion and shall be final and binding. EMA shall not be obliged to disclose its evaluation datasets, detailed assessments, scores or reasons for its decisions.

Competition Timeline (Updated 13 November 2026)

12. The competition will be conducted accordingly to the following schedule:

Activity	**Timeline**
Registration opens	3 November 2026
Registration closes	17 November 2026, 12.00 noon
Release of datasets	By end November 2026
Submission deadline	By end December 2026
Notifications to winning submissions	Q1 2027 (indicative)

13. All times indicated are in Singapore time (SGT). EMA reserves the right to adjust the competition timeline where necessary and will inform registered participants of material changes.

Terms and Conditions

14. This hackathon is open to individuals, teams and organisations. Each participating team or organisation must designate one lead registrant to register on its behalf. EMA will liaise exclusively with the lead registrant competition-related matters.

15. By registering for the hackathon, participants shall be deemed to have read, understood and accepted the terms and conditions set out in this Call for Participation.

16. Registration will only be confirmed upon EMA's issuance of an acknowledgement to the lead registrant. Submission of competition entries will likewise be acknowledged by EMA. EMA reserves the right, at its sole discretion, to decline or reject any registration or participation in the hackathon without being obliged to provide reasons for its decision.

17. Any cash prize shall be disbursed solely to the lead registrant. EMA shall not be responsible for any disputes relating to the distribution of the prize among team members or within an organisation.

18. Participation in the hackathon does not guarantee an award or any subsequent engagement by EMA.

19. EMA reserves the right to disqualify submissions that do not meet the hackathon requirements, withhold prizes if no suitable submissions are received, or amend, suspend or cancel the hackathon where necessary.

20. Participants shall retain ownership of the intellectual property in their submitted algorithms and associated materials. By participating in the competition, participants grant EMA and its appointed parties a non-exclusive, royalty-free right to use, test and evaluate their submitted algorithms for a period of 12 months from the submission deadline. EMA may explore further development or deployment of selected algorithms, subject to mutually agreed arrangements where necessary.

21. Participants shall not disclose any information obtained through the hackathon, including any non-public market or operational data, without EMA's prior written consent.

Invitation to Participate

22. Interested participants are invited to register through this link by 12.00 noon on 17 November 2026 (SGT).

23. For any queries or clarifications regarding the hackathon, please contact EMA at EMA_Energy_Storage@ema.gov.sg.