MEDIA RELEASE

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$12 Million in Partnerships to Develop Local Energy Solutions

Singapore's energy sector is evolving in the adoption of energy storage systems to complement the harnessing of solar energy. Digital technologies are also increasingly making their mark in the energy sector. To support these developments, the Energy Market Authority (EMA) aims to develop relevant capabilities within local research entities and enterprises; and catalyse R&D efforts for innovative solutions.

2. Dr Tan Wu Meng, Senior Parliamentary Secretary for the Ministry of Trade and Industry & Ministry of Foreign Affairs, today announced two new EMA partnerships amounting to $12 million:

a. EMA-PSA Singapore: To transform PSA's port operations and help reduce overall energy usage and carbon emissions. The partnership includes a joint R&D grant call for innovative solutions in smart grid technologies and energy management; and

b. EMA-Shell Singapore: To nurture local energy start-ups and help them translate their solutions for the market. This partnership aims to provide capability building and funding for solutions in emerging areas such as distributed power generation, energy storage systems, and the Internet of Things.

3. On the significance of these partnerships, EMA's Chief Executive Mr Ngiam Shih Chun said: "EMA is pleased to expand the portfolio of our industry partnerships. Today we are partnering both PSA and Shell Singapore to develop our energy sector in the areas of energy storage and in digitalisation. Energy storage solutions are critical to support our clean energy ambitions by allowing us to better integrate solar energy. Digitalisation efforts will also play an important role in making our power systems smarter, more efficient and resilient."

<u>EMA–PSA Partnership for Smarter Electricity Use in Singapore Sea Ports</u>

4. EMA and PSA Singapore will jointly launch R&D grant calls in smart grids and energy management systems for the container ports at the Pasir Panjang Terminal. These efforts will involve integrating renewable energy sources like solar with smart control networks and energy storage solutions. With this smarter use of electricity, the ports aim to reduce their overall energy use and carbon footprint.

5. Industry partners and the research community can also co-develop and test-bed innovative energy solutions with PSA Singapore, while tapping on PSA's global networks for

access to international markets. The EMA-PSA R&D Grant Call is open for applications at www.ema.gov.sg/Grant_Calls.aspx and will close on 17 July 2019.

6. Mr Ong Kim Pong, Regional CEO Southeast Asia, PSA International, said: "Sustainability plays a vital role in the development of our port. As we continue to expand with more automated electric cranes and equipment, power demand forecasts and energy monitoring will become increasingly important. Implementing smart grids and developing innovative energy solutions will enable us to better manage and optimise our energy usage, leveraging integrated intelligent real-time communications, Internet of Things, renewable energy storage and digital technologies to obtain substantial energy savings and reduce our carbon footprint. PSA is pleased to partner EMA in encouraging the co-development of innovative, future-proof energy management solutions to reshape the entire port energy chain for the better."

(Details of the Grant Call are in ANNEX A below.)

EMA-Shell Partnership to Nurture Local Energy Enterprises

7. This partnership aims to develop enterprises in the energy sector in areas such as renewable energy, distributed power generation and energy storage systems. EMA and Shell will jointly set up an enterprise development programme to incubate promising local starts-up and help translate their solutions to the market. These start-ups will have the opportunity to work alongside Shell and EMA to develop and testbed their solutions. Application details for the programme will be released at a later date.

8. Ms Aw Kah Peng, Chairman of Shell Companies in Singapore said: "Shell believes innovation and collaboration are vital in an energy transition world where opportunities to create more and cleaner energy solutions abound. We began the IdeaRefinery 2 years ago as an initiative to support energy start-ups in Singapore and are delighted that EMA is joining us in this endeavour, to further strengthen the Singapore energy ecosystem."

ANNEX A

DETAILS OF EMA-PSA JOINT GRANT CALL

No.	Description
Problem Statements	
1.	EMA and PSA are seeking innovative and cost effective solutions to enable improved electricity network reliability and efficiency, reduce contracted capacity/ peak demand, and predictive condition monitoring and fault diagnostics. The proposed solution should form a centralised platform for network management (i.e. a Smart Grid Management System (SGMS)) in Pasir Panjang Terminal. The proposed solution, where applicable, shall have the ability to facilitate data analytics, machine learning and artificial intelligence to be incorporated to the following applications: • Remotely monitor and diagnose problems in the electrical network and reduce troubleshooting / restoration time. • Automate network maintenance scheduling, and optimise maintenance processes and manpower. • Perform energy and power demand forecasting. • Reduce demand and improve energy efficiency by highlighting areas of anomalies and proposing energy saving solutions. • Control and Integration of distributed energy resources (e.g. an integrated Battery Energy Storage System (BESS)) to perform peak shaving (to reduce maximum demand cost), participate in frequency regulation and power optimisation. • Forecasting of energy price for strategic electricity procurement. • Ensure that proposed solutions is resilient against potential cyber threats, intrusion and attack.
2.	EMA and PSA are seeking innovative and cost effective solutions in the designing and deployment of distributed energy resources (DERs), which includes a Battery Energy Storage System (BESS), for market participation and energy optimisation in Pasir Panjang Terminal. The proposed solution should address the following: • DERs to be economically planned and sized based on PSA's operational needs, while ensuring optimised energy use, maintaining grid stability and high-levels of renewable integration. • Proposed solutions should include, but not be limited to, BESS of at least 2 MWh. For details, please visit www.ema.gov.sg/Grant_Calls.aspx