

chargEV UNVEILS ADVANCED BATTERY ENERGY STORAGE SYSTEM TECHNOLOGY FOR EV CHARGING INFRASTRUCTURE

KUALA LUMPUR, 12 JULY 2024

chargEV, the pioneer and leading Charge Point Operator (“CPO”) in Malaysia and a business of Yinson GreenTech, recently unveiled its Battery Energy Storage System (“BESS”) for electric vehicle (“EV”) charging infrastructure development at The International Gallery, KLGCC Resort.

At the event, chargEV successfully completed the inaugural live product demonstration of the BESS, which will support two 120kW DC fast chargers with 4 charging plugs and one 22kW AC charger with 2 charging plugs, offering a total of 6 charging bays for the community when operational. Esteemed guests included Tuan Mohammed Rashdan bin Mohd Yusof, Chairman of Suruhanjaya Tenaga (Malaysia’s Energy Commission), Ir. Dr. Sanjayan Velautham, Chief Operating Officer, Suruhanjaya Tenaga and Datuk Lai Shu Wei, Chief Marketing and Sales Officer of Sime Darby Property.



Inaugural live product demonstration of chargEV’s BESS at The International Gallery, KLGCC Resort

(From left to right: ST Chua, Managing Director of chargEV; Eirik Barclay, Chief Executive Officer of Yinson GreenTech; Lim Chern Yuan, Group Chief Executive Officer of Yinson Holdings Berhad; Tuan Mohammed Rashdan bin Mohd Yusof, Chairman

of Suruhanjaya Tenaga; Datuk Lai Shu Wei, Chief Marketing & Sales Officer of Sime Darby Property; Ir. Dr. Sanjayan Velautham, Chief Operating Officer of Suruhanjaya Tenaga; Wan Yin Chan, Chief Financial Officer of Yinson GreenTech)

chargEV's BESS, developed for Malaysia's unique power profile, will address existing power supply limitations by integrating an energy storage buffer between the energy grid and the charging station. The stable and optimised power supplied through the BESS allows EVs to be charged faster while also providing peak-shaving benefits to site owners.

Designed, developed, and assembled in Malaysia by the chargEV team to comply with the highest international standards, this energy management technology will complement chargEV's end-to-end solution for site owners, ensuring a seamless charging ecosystem. Bringing these elements together, chargEV presents a comprehensive energy solution for Malaysia towards meeting the government's sustainability goals, which include installing 10,000 EV charging stations in the country by 2025¹.

"Unlike other energy storage solutions that are currently available in the market, our BESS works in harmony with our charging stations, allowing us to create a low harmonic distortion solution that can provide uninterrupted power supply to EV chargers even in the event of temporary grid outages," said SengTeong Chua, Managing Director of chargEV. "At chargEV, we believe our role is not just to install charging stations for site owners but to work as a partner of Suruhanjaya Tenaga in developing and implementing innovations that complement the energy grid while we scale up our offerings to meet the growing demand for reliable and efficient EV charging across the country."

Datuk Lai Shu Wei, Chief Marketing and Sales Officer of Sime Darby Property said: "We are pleased to partner with chargEV to enhance mobility and connectivity within our premier township. This initiative underscores our dedication to a sustainable future and provides our KLGCC Resort homebuyers with an elevated lifestyle experience. Moreover, partnering with industry leaders such as chargEV enables us to offer EV drivers convenient access to fast, on-the-go and reliable charging solutions."

A Promising Future for Electrification

chargEV's integrated BESS solution will enable unprecedented deployment of fast charging systems across Malaysia by supplementing the energy grid, especially in sites that have previously been deemed unsuitable due to a lack of power supply. This includes facilities along highways, suburban areas and high traffic urban locations, which are considered as high priority areas for the development of EV infrastructure. The technical details of the chargEV BESS are outlined in **Annex A**.

The BESS is a critical development for chargEV's sustainable innovation journey. In the long term, the technology opens up new avenues for integrating renewable energy sources in powering Malaysia's EVs, and it will also be able to provide a second life for EV batteries through reconditioning as part of the BESS. In the immediate future, the company plans to work closely with current charging site owners to provide more charging stations or upgrade existing stations to include fast charging capabilities through integration with the BESS. It also hopes to work closely with Suruhanjaya Tenaga to continue developing comprehensive energy management solutions across Malaysia.

References

¹[https://www.mida.gov.my/mida-news/miti-maintains-10000-ev-chargers-target-by-2025-2214-installed-so-far/#:~:text=As%20outlined%20in%202021%20under,current%20\(DC\)%20fast%20chargers](https://www.mida.gov.my/mida-news/miti-maintains-10000-ev-chargers-target-by-2025-2214-installed-so-far/#:~:text=As%20outlined%20in%202021%20under,current%20(DC)%20fast%20chargers).

###

ABOUT YINSON GREENTECH

"From land to sea, with an ecosystem for all, we spark a movement we call Positively Charged."

Yinson GreenTech ("YGT") energises the electric transition across diverse industries. We invest in fusing cutting-edge technologies with clean energy solutions, fostering a collaborative ecosystem that empowers businesses and communities to achieve their net-zero ambitions. At the heart of our strategy lies a robust digital backbone that seamlessly integrates our green solutions, optimises operations, and unlocks superior efficiency. This sets us apart by enabling data-driven decision-making and intelligent automation.

We put electrified transport into the hands of everyday users through our five businesses:

- chargEV – The pioneer and leading charge point operator with an extensive EV-charging station network for public and private usage across Malaysia and Singapore.
- marinEV – Pioneering the development of fully electric vessels for crew transfers and light cargo transfers
- drivEV – Empowering enterprises and businesses with electric fleet solutions
- rydeEV – Electrifying the micro-mobility space with electric two-wheelers (E2Ws), including battery-swapping technology and fast charging solutions
- digitalEV – Enabling seamless software support and integration for sustainable technologies across YGT's business units

We are a business of Yinson Holdings Berhad, a global energy infrastructure and technology company active in offshore energy with Yinson Production, renewable energy with Yinson Renewables, green technologies with Yinson GreenTech, sustainable investment and asset management with Farosson, and offshore marine with Regulus Offshore.

For more information about us, please visit ygt.yinson.com.

ABOUT chargEV

chargEV, a business of Yinson GreenTech, is the pioneer and leading charge point operator with an extensive EV charging station network for public and private usage across Malaysia and Singapore to make EV charging experiences seamless and frictionless for consumers and businesses.

We currently operate the largest charging network in Malaysia, with over 400 charging stations, and have roaming agreements in place that allow chargEV users to access the most comprehensive cross-border charging network through the chargEV app.

For more information about chargEV, visit chargev-ygt.com/.

Jointly issued by Imej Jiwa and That Marketing Guy on behalf of Yinson GreenTech

For media enquiries, please contact:

Malaysia Media

Jason Chiew

Jason@imejjiwa.com

+6017 980 4293

Singapore Media

Enxin Wong

enxin@thatmarketingguy.sg

+65 9225 9699

Aaina Gandhok

aaina@thatmarketingguy.sg

+65 8646 1686

Annex A

chargEV
Battery Energy Storage System (BESS) Product Factsheet

<p>Product Description</p>	<p>chargEV’s Battery Energy Storage System (BESS) is an advanced energy management solution, designed and assembled in Malaysia, and tailored for Malaysia’s unique power profile.</p> <p>Developed to provide fast and reliable EV charging services, the BESS integrates an energy storage buffer between the energy grid and charging stations, ensuring stability and efficiency even during high-demand periods.</p>
<p>Key Features</p>	<p><u>Power Supply Optimisation</u></p> <p>The BESS addresses existing power supply limitations in Malaysia, enabling site owners to offer fast charging services to consumers without overloading the grid.</p> <p>The BESS’ peak-shaving capabilities stabilise the relationship between charging stations and the energy grid, reducing strain during peak usage.</p> <p><u>Seamless Integration</u></p> <p>chargEV’s BESS complements our comprehensive end-to-end solution for site owners, facilitating easy deployment and ensuring seamless access for users.</p> <p>It also works harmoniously with charging stations to provide uninterrupted power, even during temporary grid outages, ensuring a reliable charging experience.</p> <p><u>High Output Capacity</u></p> <p>The BESS can deliver an output ranging from 120kW to 240kW with a 100-amp input supply. Currently, it is designed to deliver up to 120kW, which is significantly higher than the 60kW typically available in Malaysia. This ensures faster and more efficient charging for EV users.</p>
<p>Benefits</p>	<p><u>Grid Stability</u></p> <p>The BESS mitigates power fluctuations and overcomes grid reliability challenges for EV users, providing a stable and scalable power supply crucial for the growing demand for EV infrastructure.</p>

	<p><u>Enhanced Charging Infrastructure</u></p> <p>Enables the deployment of EV chargers in sites previously deemed unsuitable due to power supply constraints, such as R&R facilities along highways and urban areas with high traffic but limited power supply.</p>
<p>Technical Specifications</p>	<p><u>Nominal Power and Energy</u></p> <p>250kW power, 430kWh energy, with a 10-year operational model retaining 80% battery capacity.</p> <p><u>Safety and Thermal Management</u></p> <p>Equipped with a failsafe battery and inverter thermal management systems, including fire alarm/detection/suppression.</p> <p><u>Rapid Response</u></p> <p>Capable of rapid response to EV charging load variations.</p> <p><u>Power Factor</u></p> <p>Charges and discharges at a minimum power factor of 0.85.</p> <p><u>Protocols Supported</u></p> <p>MODBUS TCP/IP, OCPP</p>
<p>Battery</p>	<p><u>Type</u></p> <p>430kWh Lithium-Ion (LFP) battery system.</p> <p><u>Safety</u></p> <p>High-performance safety with thermal stability.</p> <p><u>Charging/Discharging Rates</u></p> <ul style="list-style-type: none"> ● Charging: Min 0.2C, Max 1C. ● Discharging: Min 0.2C, Max 1C. <p><u>Self-Discharge Rate</u></p> <p><12% at 100% SOC, 35°C over 365 days.</p> <p><u>Cycle Life</u></p> <p>10 years with 2 cycles/day at 1C, 100% DOD, 35°C.</p>

<p>Battery Management System</p>	<p><u>Components</u></p> <p>Includes Battery Controller Unit(s) (BCU) and Uninterrupted Power Supply (UPS).</p> <p><u>Functions</u></p> <p>Active battery balancing, energy transfer, temperature, voltage, current monitoring, protection, alarms, and reporting.</p> <p><u>Features</u></p> <p>Self-diagnostic test and parameter settings.</p>
<p>Power Conditioning System</p>	<p><u>Operation Mode</u></p> <p>Grid-tied and off-grid operations.</p> <p><u>Isolation</u></p> <p>Internal galvanic isolation between AC & DC connection points.</p> <p><u>Commands</u></p> <p>Supports charge/discharge power setpoints, SOC reference, on/off commands, and mode operations.</p> <p><u>Capacity</u></p> <p>Supports at least 250kW discharge/input capacity.</p> <p><u>Safety Standards</u></p> <p>Complies with IEC 62909-1, EN62477-1, EN50178, UL9540, UL1741, IEEE 1547, IEEE 519, IEEE 2030</p>
<p>Energy Management System</p>	<p><u>Control</u></p> <p>Managed by a Power Management System (PMS) for local or remote operation, including microgrid management in islanding mode.</p> <p><u>Interface</u></p> <p>Human-Machine Interface (HMI) for local operation and remote supervision, providing visualisation, state alerts, analogue values, and setup.</p>

<p>Potential Applications</p>	<p><u>Urban Mobility</u></p> <p>Ideal for high-traffic locations where charging facilities are currently limited and power supply is lower, providing a reliable solution for urban EV users.</p> <p><u>Highway Rest & Refreshment (R&R) Areas</u></p> <p>Suitable for deployment at highway R&R sites, where fast charging is essential for long-distance travellers.</p> <p><u>Less Developed Areas</u></p> <p>Effective in regions with underdeveloped power infrastructure, providing reliable charging solutions and supporting regional development.</p>
--------------------------------------	---