

BESS can help EV Mobility

With EV trends starting to bloom, many cases would start to appear where Mobile EV charging is required. In the domain of electric vehicle (EV) charging infrastructure, Battery Energy Storage Systems (BESS) can play a crucial role in the form of EV charge buffering.

EV Mobility

Some large spot events like G20, ASEAN summit, SEA games, Olympics, most commonly used EVs nowadays, as support for green climate movement. With a large number of EVs running around, there comes the need for chargers as well. These would need EV charger availability in ad-hoc kind of manner, where fast setup and fast dismantlement is needed.

In some countries where seasonal massive homecoming flow hits the road every periodic time of the year. Indonesian led *mudik* or Indian Diwali are just some example cases. When EV trends continue, a significant portion of those traffic will comprise of EVs. Again, having to install some permanent EV chargers along the highway and operate them for the whole year does not seem feasible.

Another case would be when a more and more operational fleet with high mobility is converting to EV, for example police department, or taxi operators. There will be cases where mobile charging support will be needed. Or maybe some business owners may think that they could install some EV chargers on their yard as an additional service for their customers, and help to boost the business, and somehow realize that their power infrastructure is not sufficient for such.

Mobile or buffered charging can alleviate those issues.

Battery backed EV charging

The widespread adoption of EVs presents a challenge for existing power grids and its subsequent power distribution equipment. High-powered EV chargers can significantly increase electricity demand in a short time, potentially exceeding the capacity of local grids or existing facility power distribution panels. BESS acts as a buffer, storing excess energy from the grid during offpeak hours or even from solar PVs, and release it on demand, hence avoiding necessary capacity upgrade for gridlines/distribution system to cater EV charging.

Charge Buffering

Electric Grid / Solar PV charge BESS slowly in lower power, and then when there is demand, releases the energy in high power in short periods.





Reduce Capex: Battery backed Charging is basically a way to avoid the necessity to install large support infrastructure for EV charging, for temporary or ad-hoc requirements. Instead of pulling huge cables, new

transformers, switchgears, and their ancillaries, we can deploy some movable units.

These compact and self-contained units are designed for rapid deployment. The smaller type can even be easily transported by truck, wagon, or LCT boat, reaching far away locations fast. Once on-site, The units can be quickly hooked up and activated, providing immediate EV charging.



Pic 3. Movable EV charger with 200kwh BESS and Dual 20kW EV charge outlet.

Rapid Deployment: Speed and simplicity of installation and dismantlement is essential for ad-hoc fast in & out deployment

Facilitating Fast Charging Full potential: When an EV is plugged in for a fast charge, the BESS can discharge the stored energy, providing the necessary power surge without overloading the grid/power distribution. This enables faster charging times for EVs, enhancing user convenience.

Minimum noise & emission: Without combustion engines, noise and pollutant emission can be significantly reduced.



At Renoz Energy we focus on delivering leading edge technology into battery energy storage application



BATTERY ENERGY STORAGE SYSTEM



Containerized BESS 250 kWh – 1.2 MWh / block 7 /10 / 20 / 40 ft insulated container Selectable module option (from PCS range) Grid forming / assisting

Transformer / transformer-less

Forced air w/ filtration / liquid cooling Air filtration & pressurization system For harsh environment (optional) SCADA/DER controlled CAN/RS485/Ethernet

ENERGY STORAGE RACK



Indoor LV Rack System 5 - 30 kWh / block 12 - 72 V DC mode Natural / forced air Rectifier / inverter / PCS (option) HV Rack System 30 - 50 kWh / block 240 - 584 VDC Forced air/natural cooling Rectifier / Inverter / PCS (option)





Distributed EV Charger 200 – 480 kW Capacity Multi outlet 100 – 1000 V charge 80 – 400 kWh Battery buffer Liquid / conventional Cooling Wheel /wagon /truck mounted 400Hz Ground Power Unit mode 2 - 72 V DC mode 220(1ph) / 400(3ph) V AC mode Forced air/liquid cooling



Movable EV Charger 20 – 160 kW Capacity 100 – 1000 V charge 80 – 240 kWh Battery buffer Liquid / conventional Cooling