Appendix: Battery Technologies and Application Solutions Showcased by APAS
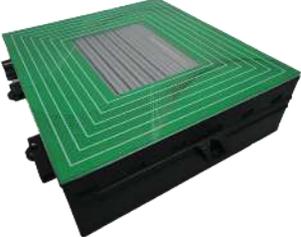
Image	Title	Description	Highlights	Application Areas
I. Battery Cell Technologies				
	High-Performance Sodium-Ion Battery	The high-performance sodium-ion battery features a stable poly-anionic phosphate cathode and a homogenised hybrid material for rapid sodium-ion storage, achieving up to 50C charge/discharge rates and over 8000 cycles at 10C. Cost-effective and safe, it's ideal for low-speed electric vehicles, power batteries, and large-scale energy storage.	- Higher C ratings (Charge and discharge rates) - Safer - Cost effectiveness	- Energy storage - Powertrain of low-speed electric vehicles
	Quasi-Solid-State Battery	Quasi-Solid-state batteries represent a revolutionary advancement in energy storage technology, replacing traditional liquid electrolytes with solid electrolytes. This fundamental structural transformation eliminates the risk of electrolyte leakage and thermal runaway, delivering exceptional energy density, superior safety performance, and an extended cycle life. As a result, solid-state batteries are poised to become the next-generation core power solution across electric mobility, energy storage, and high-end equipment sectors.	- Achieve a significantly smaller volume and lighter weight, enabling greater range and power output within the same physical footprint - With over 4,000 charge-discharge cycles, solid-state batteries substantially reduce long-term replacement and maintenance costs, delivering high-cost performance. Strong fast-charging capability, with an energy conversion efficiency exceeding 90% during discharge, solid-state batteries meet the demanding requirements of commercial and high-frequency usage scenarios - Enhanced Safety Performance - Monthly self-discharge rate is less than 5%, minimising energy loss during storage and standby periods, eliminating the need for frequent recharging - Battery packs can be tailored in	- Electric vehicles - Electric marine vessels - Industrial - Special-purpose equipment - Aerospace - Medical devices - Consumer electronics

			capacity, voltage, and dimensions to meet the specific requirements of diverse application scenarios and integration constraints	
	Pure Methanol Engine	Methanol (CH3OH) is one of the alternatives to fossil fuels and is now widely used in various fields. It can be used in internal combustion engines (ICE) in pure form or in mixed component form. These characteristics, combined with its properties as a liquid fuel, make it an efficient way to store and distribute energy. Combined with green hydrogen production and carbon capture technology, it can achieve artificial synthesis of green methanol, making it one of the most attractive sustainable energy alternatives. In recent years, the development of methanol internal combustion engines has made great progress, and emissions, energy consumption, performance, etc. are comparable to traditional fuel engines.	- 100% methanol fuel compatible without blending - Internal combustion enabling simple application - Emission, fuel consumption and performance equivalent to conventional fuel engine	- Methanol range extender for electric vehicles - Generator set for clean electricity generation

	Hydrogen Fuel Cell-electric Off-grid Genset	The hydrogen fuel cell-electric off-grid genset takes hydrogen gas as an energy source to provide electrical energy to EVs for driving or acts as the source of mobile energy. The genset transfers hydrogen energy into electrical energy by PEM Fuel Cell technology. The genset can be operated off-grid, producing electrical energy in a way of "zero-carbon", without pollutant and greenhouse gases. Only a small amount of heat and water will be generated during operation.	- Clean energy - Zero Carbon Emission - Off-grid operation	- Industrial site - Off-grid area - Areas with emission limitation
II. Battery Systems & Solutions				
	Explosion-Proof High-Energy Battery Systems	SRP Energy offers a comprehensive range of explosion-proof, high-energy battery systems engineered for demanding marine and portable power applications. These advanced energy solutions feature proprietary safety technology that prevents thermal runaway, delivering reliable power in the most challenging environments. With exceptional energy density and rugged construction, SRP Energy systems provide sustained performance where conventional batteries cannot operate safely.	- Ultra-Compact Design – 1/4 volume of traditional battery banks, saving valuable space - Extended Silent Operation – Enables noise-free, vibration-free power during anchorage - Ultimate Protection – Waterproof, anti-corrosion, shock-proof, and overheat-protected for extreme environments	- Marine Power Systems - Portable Energy Storage

	Light-Storage Integrated Energy Storage System	The light-storage integrated energy storage system combines photovoltaic power generation with solid-state battery storage technology, achieving seamless integration of solar energy collection, intelligent storage, and flexible dispatch. By incorporating advanced Battery Management Systems (BMS) and smart energy management algorithms, the system enables efficient conversion and optimised utilisation of renewable energy, providing users with a stable, clean, and reliable power supply solution.	- Supports real-time monitoring via mobile and computer terminals, allowing users to access power generation, storage, and consumption data anytime and anywhere - Based on photovoltaic output, user consumption habits, and peak/off-peak electricity tariffs, maximising overall economic and energy efficiency - Features an emergency switchover function	- Household self-consumption - Commercial building energy management - Off-grid areas - Emergency power supply
	Quasi-Solid Battery Pack	Quasi-Solid-state battery packs utilise advanced solid electrolyte technology, replacing the traditional liquid electrolyte to fundamentally eliminate the risk of electrolyte leakage and thermal runaway. Equipped with a self-developed Battery Management System (BMS), the pack provides enhanced active safety protection, intelligent monitoring, and precise control throughout the entire charge-discharge cycle, making it the ideal power solution for demanding marine and industrial applications.	- The self-developed Battery Management System (BMS) strengthens active safety protection, enabling real-time fault detection and prevention of overcharge, over-discharge, and thermal anomalies - It can be tailored in capacity, voltage, and dimensions to meet the specific requirements of diverse application scenarios and vessel types - Superior energy density compared to conventional lithium-ion batteries ensures longer operating range and sustained high-power output without compromising on weight or space - With over 4,000 charge-discharge cycles, the solid-state battery pack significantly reduces long-term replacement and maintenance costs	- Ecologically sensitive marine zones - High-end water recreation - Maritime patrol - Commercial fast-charging operations - Off-grid industrial energy storage

	Yacht Battery System	Designed specifically for the demanding marine environment, the yacht battery system integrates advanced solid-state battery technology with an intelligent Battery Management System (BMS) to deliver safe, reliable, and high-performance power for electric yachts. By eliminating the risks associated with traditional liquid electrolytes — including leakage, corrosion, and thermal runaway — this system is purpose-built to withstand the high-humidity, high-vibration, and salt-spray conditions inherent to open-water yacht operations.	- Equipped with rapid charging capability, the battery can be fully charged in just two hours - With over 4,000 charge cycles, it effectively reduces long-term replacement and maintenance costs - The system has passed rigorous certification by internationally recognised classification societies, meeting the highest standards for marine electrical safety and reliability - Battery capacity, voltage, and physical dimensions can be fully tailored to suit different yacht types, hull configurations, and operational profiles	- Tourist scenic area leisure sightseeing - High-end water entertainment - Eco-zone patrol - Water operations in ecologically sensitive areas - Short-distance ferry services