

## “Integrated Renewable Energy System: Generation, Storage, and Trading” Advancing Global Energy Security and Sustainability

The global energy transition is accelerating, driven by urgent climate action and the outcomes of COP30<sup>1</sup>, which emphasized green landscape development, the increase of clean energy, and energy storage, aligning with the target of tripling global renewable energy capacity by 2030<sup>2</sup> to address the impacts of global warming and reduce greenhouse gas emissions. This shift coincides with the rapid growth of AI, data center, and industrial sectors, which require secure and environmentally responsible electricity supplies. These converging forces underscore the critical need for an integrated renewable energy system, spanning the entire energy value chain through the seamless combination of Renewable Power Generation, Battery Energy Storage Systems (BESS), and Energy Trading. Together, these capabilities are essential to meeting the world's growing continuous demand for clean, stable energy, and to driving a sustainable energy future.

While renewable generation from solar and wind continues to expand<sup>3</sup>, it still faces inherent challenges around grid instability and weather volatility. Several countries such as China, Japan, Australia, and the U.S. have recognized the role of Battery Energy Storage System (BESS) as essential infrastructure for ensuring grid reliability and balancing intermittent renewable energy.<sup>4</sup> The integration of energy trading platforms<sup>5</sup> has further expanded flexible access to renewables. At the same time, AI-driven integration—from predictive maintenance in BESS to real-time grid and trading optimizations—is enabling smarter, more efficient, and more resilient energy systems capable of withstanding future volatility. These trends are shaping an integrated renewable energy system that interlinks generation, storage, and trading to deliver sustainable, reliable energy and lasting value for all stakeholders.

### The Multi-Dimensional Value of an Integrated Renewable Energy System

- **Business sectors** — can enhance operational efficiency and competitiveness, reduce energy costs and volatility—particularly in Japan, China, Australia, the U.S., and Southeast Asia—while standing to benefit from tax incentives tied to greenhouse gas reduction and strong partnerships within green supply chains.
- **Investors and Partners** — gain access to diversified portfolios and balanced risk management, building confidence and delivering stable returns in high-demand markets for power and clean energy.
- **Communities** — enjoy uninterrupted access to clean energy that supports a better quality of life, enabling people to live and work with greater confidence and safety.
- **Countries** — support national decarbonization targets and regional energy security.

As an international energy producer company, **Banpu Power Public Company Limited (BPP)** is well-positioned to capitalize on the global energy transition and the growing demand for stable renewable energy. Moving forward, BPP will advance toward the ‘**Power+**’ business pillar to operate as a Power Pure-Play Platform, covering the entire power business value chain that encompasses Renewables, Thermal Power Plant, Battery Energy Storage Systems (BESS), and Energy Trading. This platform is anchored in effective asset management alongside carbon emissions reduction. BPP is further strengthening its power and renewable energy portfolio through key projects, including the Jinhu Qianfeng solar farm with BESS in China,

the Megamouth BESS project in the U.S., the Iwate Tono and several additional BESS projects in Japan. Our BESS projects in the U.S. and Japan help reinforce grid stability and create new revenue opportunities in merchant markets. In addition, the elevation of Power+ aligns with Banpu Group's Energy Symphonics strategy, accelerating long-term sustainable growth while serving reliable utility-scale energy demands of the expanding AI and data center and supporting the Group's decarbonization goals.

#### References

<sup>1</sup>[DCCE COP30](#)

<sup>2</sup>[Global Renewables Alliance 3xrenewables](#)

<sup>3</sup>[IEA - Renewable Increase 2025-2030](#)

<sup>4</sup>[ScienceDirect-Advancing grid stability and BESS in China, Japan, and South Korea](#)  
[ESS News - Global grid-scale BESS deployments increase](#)

<sup>5</sup>[Business Research Insights – Energy Trading Platform Market 2025–2033](#)

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#### About BPP

Banpu Power PCL (BPP), an international energy producer company, drives utility-scale power and integrated businesses under “Power+,” one of Banpu Group’s core business pillars, across Asia Pacific and the United States. Operating under the concept “Pioneering Energy, Empowering Tomorrow,” BPP is committed to powering a better tomorrow with reliable energy. For nearly three decades, BPP has been a forefront of delivering reliable, high-quality energy that meets global standards, by integrating advanced technologies with decarbonization efforts and strong corporate governance. BPP also actively supports local communities and aligning its operations with environmental goals in every country where it operates.

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