

ASIA-PACIFIC ENERGY COOPERATION AND COORDINATION: KEY FINDINGS AND ACTIONS

Key Messages for APEC Energy Policymakers

Key Findings

Asia-Pacific energy cooperation is moving beyond product trade and project-based collaboration toward industry chain coordination, infrastructure synergy, and multi-stakeholder governance. Economies in the region feature strong complementarities in resources, technology, industry, and markets. However, the full potential of cooperation remains constrained by gaps in policy and market rules, infrastructure and local capacity, the utilization of flexibility resources, and cross-entity coordination. Strengthening pragmatic cooperation under the APEC framework can further enhance regional energy security and resilience, boost investment in clean energy and related industries, and extend the benefits of the energy transition to a broader set of economies.

I. The Asia-Pacific region has built a solid industrial and practical foundation for deepening energy cooperation

- ◎ Asia-Pacific economies differ significantly in energy resources, manufacturing capacity, technological innovation, market demand, and infrastructure. While such diversity adds complexity to cross-border cooperation, it also creates considerable space for complementarity. In recent years, a number of cross-economy cooperation practices have emerged across energy storage, wind power, photovoltaics, hydrogen, low-carbon fuels, and transport electrification.
- ◎ Cooperation models are evolving from product and equipment trade toward joint investment, local manufacturing, infrastructure development, long-term operations and maintenance, and industry chain collaboration. Practice

shows that clean energy cooperation not only expands energy supply and investment, but also enhances renewable energy integration, power system regulation, and energy resilience, while supporting local manufacturing, employment, and capacity building. The development of energy storage, distributed energy resources, and new energy vehicles (NEVs) is bringing greater focus to the flexibility and operational efficiency of energy systems.

- ◎ The linkages between industry platforms, research institutions, and APEC cooperation mechanisms are being strengthened. Common challenges arising in corporate projects—such as institutional adaptation, standards and certification, infrastructure, and business models—could be translated into topics for policy dialogue, joint research, and regional cooperation. Asia-Pacific energy cooperation is moving from individual projects toward industry chain coordination, multi-stakeholder participation, and institutional collaboration.

II. Further deepening of Asia-Pacific energy cooperation and coordination is subject to four key constraints

1. Policies, market rules, and technical standards are insufficiently aligned across economies

Asia-Pacific economies vary in energy governance, market access, project approval procedures, electricity markets, and localization requirements, raising the cost of adapting technologies and business models across markets. Meanwhile, rules on energy storage and grid access, charging/discharging interface, hydrogen and low-carbon fuel certification, carbon accounting, and green attribute traceability are not fully aligned.

2. Supporting infrastructure for renewable energy systems and local capacity are unevenly developed

Some economies have seen rapid growth in renewable energy and new energy vehicles, but supporting infrastructure, including grids, energy storage, charging and swapping facilities, green hydrogen storage and transport, and low-carbon fuel bunkering, is yet to catch up. Gaps persist in local manufacturing, operations and maintenance, and competencies of professionals. Renewable energy projects call for coordinated progress across production, transmission, storage, and application; delays in any segment can hinder their large-scale deployment.

3. The system value of flexibility resources has yet to be fully realized

Rising wind and solar penetration is driving demand for flexibility resources within power systems. Assets including energy storage, flexible loads, distributed energy resources, and NEVs remain under-utilized for system regulation. The synergistic potential between transport and power stands out in particular, with road transport accounting for about 20% of final energy consumption in the APEC region. As transport electrification accelerates, NEVs can further support peak shaving and valley filling, renewable energy integration, and reverse power transfer through orderly charging and V2G, shifting from incremental loads to flexibility resources. This should also be a key area for transport-energy integration in the Asia-Pacific.

4. Multi-stakeholder cooperation has yet to translate into stable regional coordination

Cross-border energy projects involve governments, companies, infrastructure operators, financial institutions, and research institutions. Yet much cooperation remains confined to individual projects. Common challenges, such as rule alignment, infrastructure synergy, long-term returns, and risk sharing, still need to be addressed through stable mechanisms to deliver cross-economy policy dialogue and replicable regional outcomes.

III. Competent authorities across economies are recommended to jointly advance four priority actions

Building on voluntary-cooperation principles of “for all, openness, synergy, pragmatism, and universal benefit”, economies may prioritize the following actions:

I. Facilitating the alignment of policies, market rules, and technical standards to cut institutional costs for cross-border cooperation

Leveraging the APEC platform, economies in this region should strengthen policy exchanges on energy market rules, project access, technical specifications, testing and certification, and carbon accounting. They should enhance compatibility of standards, certification, and green attribute rules for energy storage, vehicle-grid interaction, green hydrogen, and low-carbon fuels, so as to reduce redundant testing and institutional friction, and explore pathways for rule alignment through joint research and demonstration projects.

2. Promoting coordinated infrastructure planning and local capacity building to enhance energy system resilience

Efforts should be made to ensure that infrastructure—including power grids, storage, charging and swapping facilities, distributed energy resources, and low-carbon fuel storage and transport—is planned in tandem with clean energy deployment to boost power source-grid-load-storage integration. Tailored to the specific conditions of each economy, cooperation should be pursued in power interconnection, clean energy allocation, and infrastructure resilience, while strengthening project development and operational capacity through local manufacturing, talent cultivation, and long-term operations and maintenance.

3. Fully unlocking the value of flexibility resources to reduce system costs

Energy storage, new energy vehicles, flexible loads, and distributed energy resources should be better integrated into energy planning, grid operation, and electricity markets. Economies should refine mechanisms for demand response, smart charging, and V2G-enabled system regulation—covering technology, metering, settlement, and revenue frameworks—and support aggregators in pooling distributed resources for peak shaving and valley filling, ancillary services, and renewable energy integration. In particular, transport electrification needs to be coordinated with power system transition by aligning charging infrastructure with distribution grids, renewable power output, and market mechanisms. Through cross-economy demonstrations, standards exchange, and business model research, NEVs can gradually become dispatchable, aggregatable mobile storage resources to enhance system flexibility and reduce power balancing costs.

4. Establishing regular mechanisms to translate industry practice into regional cooperation outcomes

APEC energy cooperation mechanisms, industry platforms, and the Partnership Network should serve as bridges to foster regular exchanges among governments, enterprises, research institutions, and financial organizations. Economies should timely identify common challenges and proven practices from cross-border projects, and promote research outcome commercialization through policy dialogue, joint research, demonstration cooperation, and capacity building. In this way, project-based experience can progressively evolve into coordinated and replicable regional cooperation arrangements.
