ENERGY SECURITY INITIATIVE 2022

Background

The origins of the APEC Energy Security Initiative (ESI) date to November 2000, when APEC Economic Leaders acknowledged the risks to the global economy posed by volatility in the international oil market and called for appropriate measures to promote stability. This led to the development of the ESI, which was endorsed at EWG22 in September 2001. Five principal measures of energy security, along with recommendations for each, were identified in 2002: the Monthly Oil Data Initiative (which later became the Joint Organization Data Initiative), Sea Lane Security (later renamed Maritime Security and since dropped), Real-time Emergency Information Sharing, Oil Supply Emergency Response, and Non-petroleum and Longer Term Concerns. While the impetus for the ESI was oil market volatility and the predominant focus was oil, the fifth measure on non-petroleum and longer term concerns acknowledged the need to consider other factors in energy security, and provided a catch-all for such efforts.

With the announcement of the Leaders' Goals in 2011 and 2014 to reduce APEC's energy intensity by 45% from 2005 levels by 2035 and to double the share of renewables in the APEC energy mix by 2030, respectively, and the establishment of the Sub Fund for Energy Efficiency and Low Carbon Measures, the emphasis of the EWG's work shifted to energy efficiency, renewable energy, and other low-carbon efforts. Much of this work was captured under the Energy Smart Community Initiative (ESCI) and enhanced by the implementation of APEC Cooperation Initiative for Jointly Establishing an Asia-Pacific Urbanization Partnership endorsed by APEC Economic Leaders. The ESI focused more traditionally on oil and gas issues under the Oil and Gas Security Initiative, and then expanded to include energy resiliency with the creation of the Energy Resilience Task Force. The APEC Connectivity Blueprint (2015-2025) further enhanced the resolve of APEC members to tap into APEC's considerable potential in fostering future energy cooperation initiatives.

Recognizing that energy transitions are underway in economies around the world, including in response to ambitious climate change targets; that the pace and complexity of change is increasing rapidly; that electricity is growing as a share of final energy demand; and that the deployment of new, advanced energy technologies is expanding; energy security discussions need to reflect new challenges to traditional models of energy security, electrical grid infrastructure, and market structures. At the same time, it is critical to ensure that reliable sources of energy remain available to avoid the potential risks of economic shocks due to supply and demand imbalances and to support an economically viable low-carbon transition. Given this changing calculus of energy security since the ESI was first established, the EWG agreed at EWG58 in Antofagasta, Chile in October 2019 to revise the ESI to reflect a broader understanding of what energy security encompasses as the energy supply and demand structure has changed. The APERC report "Emerging Energy Security Risks in Changing Global Energy Landscape," published in September 2019 provides a useful starting point for considering the current context of energy security.

COVID-19 has presented new challenges in the energy security landscape; international collaboration has been key to responding effectively to the impacts the pandemic has had on the energy sector. While energy transition remains a priority, oil and gas continue to be

important energy sources and a fundamental driver of the global economy and energy security. Ensuring long term energy security and stability of all energy markets – notably through sustained energy investments aligned with our clean energy transition objectives – will be critical for both consumer and producer economies to enable a sustainable economic recovery and transform our energy systems to be as clean, resilient, secure, and affordable as possible. As we build back from the economic impacts of COVID with an emphasis on a clean and inclusive recovery, energy security and market stability will present a key opportunity for collaboration. Furthermore, the revised ESI will support the APEC Putrajaya Vision 2040 of *Strong, Balanced, Secure, Sustainable and Inclusive Growth.*

The Initiative

This revised Energy Security Initiative will provide a framework for the EWG to undertake activities that support the energy security goals of APEC member economies to provide access to affordable, reliable, resilient, modern and sustainable energy. APEC member economies can use this framework as they pursue energy security in paths suitable to their respective resource endowment and development stages, in line with implementation of the Paris Agreement. Recognizing APEC's fundamental principles of cooperation, voluntary participation and mutual respect, as well as the widely differing circumstances among economies, the ESI framework will provide a range of options from which economies can choose to focus their cooperative efforts.

A comprehensive approach to energy security must include consideration of the following:

1. the development of the widest variety of energy sources and technologies to support energy access to enhance energy security and promote sound and sustainable socio-economic development across the region, consistent with global climate objectives and with each economy’s environmental, geopolitical, economic, and social circumstances;
2. the development of open, competitive, and transparent energy markets and effective energy governance;
3. supply security of a) conventional energy resources; and b) advanced and emerging energy technologies and their essential inputs, such as critical minerals and materials, semiconductors and related technologies; and
4. the security, reliability, sustainability, accessibility, resilience and connectivity of energy infrastructure.

ESI activities could include workshops, trainings, seminars, studies, best practice guides and manuals, demonstrations, peer reviews, research, data collection and analysis, and dissemination of information. Activities will utilise the resources and expertise of the EWG Expert Groups, Task Forces, and Centers and will be managed by EWG members. Key elements of this initiative should be to highlight and strengthen the linkages of work that the EWG is already undertaking, and to strengthen dialogues and cooperation with related APEC sub fora as well as other international organizations and institutions such as the G20, the Clean Energy Ministerial (CEM), and the IEA, as appropriate. Members will seek greater involvement of the finance and business community in support of the overall Energy Security Initiative.

The following are a range of possible topics for collaborative projects and activities. Inclusion here does not constitute endorsement by all APEC members of any particular energy source, technology, or activity.

Energy Sources and Technologies

Ensuring reliable access to energy infrastructure and delivery requires the responsible utilization of a wide variety of energy sources and technologies.

- Sustainable development of conventional oil and gas and high-efficiency exploration, as well as sustainable utilization of conventional oil and gas resources, recognizing methane abatement as a component of sustainable development of oil and gas resources.

- Development of clean energy export, transmission and import infrastructure that supports sustainable energy use in the region and brings energy to underserved communities.

- Research, development and deployment of clean technologies that abate and reduce emissions from fossil energy.

- Research, development and deployment of carbon capture, utilization, and storage (CCUS) and carbon recycling for sustainable utilization of energy.

- Research, development and deployment of new and renewable energy technologies and fuels.

- Research, development and deployment of systems integration and sector coupling technologies, including hydrogen and energy storage technologies.

- Research, development and deployment of energy efficiency technologies and demand response tools, including digital technologies that can help make energy systems around the world more connected, accessible, intelligent, flexible, efficient, reliable, and sustainable.

- Research, development and deployment of nuclear energy for interested economies, adhering to nuclear safety, security, safeguards, and peaceful uses, including opportunities for integration of nuclear energy and other clean energy technologies, such as variable renewables.

- Development of energy technology standards cooperation opportunities, as well as recognition of industry-developed and adopted energy standards and certifications for energy equipment and products.

Energy Markets and Governance

Open, transparent, and competitive energy markets increase energy access; promote trade, financing, and investment; and foster economic growth.

- Modern regulatory frameworks that ensure reliable, stable, sustainable, and affordable energy access.

- Effective energy governance that recognizes the importance of security across all fuel types.

- Diversified, flexible, and integrated energy markets in the Asia Pacific region.

- Robust, high-quality data to inform decision-making on energy policy and energy investment in the region, across all fuel types and sources, including emerging clean fuels and technologies.

- An open trade and investment environment for new and emerging energy technologies, equipment, and products.

Security of Supply Chains

Oil and gas supply security remains critical to energy security and economic development in the APEC region during the clean energy transition. At the same time, the growing deployment of new energy technologies means that secure and stable supply chains of energy technologies, equipment, and products, and their inputs must now be considered as well.

- Oil and gas security exercises that can help capacity building of emergency response mechanisms for short-term disruptions in energy supply.

- An oil and gas security network where member economy officials in charge of oil and gas security issues can share their experiences and latest information.

- Oil and gas and other energy security studies to address regional energy security challenges and threats.

- High-quality energy statistics to ensure more accurate analysis of APEC energy security.

- Activities that encourage the sharing of best practices and lessons learned on strengthening energy security and resilience as well as emergency management and reliability.

- Cooperation to encourage reliable and sustainable critical materials and semi-conductor supply chains to reduce the risks of disruption, which may impact the manufacture and deployment of advanced energy technologies downstream.

- Cooperation to foster open, competitive, and transparent markets capable of incentivizing the sustainable exploration, discovery, and exploitation of mineral and metal reserves required to meet net zero and carbon neutral emissions ambitions.

Infrastructure Security, Reliability, Access, and Resilience

Energy infrastructure security encompasses the design, construction, operation, and maintenance of reliable, affordable, resilient, and sustainable energy systems that can withstand changes in how energy is produced and used, challenges from extreme weather events, geopolitical tensions, and threats to physical or cyber security. Member economies should continue to tap into APEC's considerable potential in fostering future energy cooperation initiatives such as promoting sustainable energy security and access, and building resiliency into the energy infrastructure to further implement the APEC Connectivity Blueprint 2015-2025.

- Research and capacity building to promote universal energy access and support inclusive growth in the region.

- Research to understand the systematic impact of deployment of high concentrations of variable renewable energy on power systems, enhanced power system flexibility, and strengthened power grid connectivity.

- Development and adoption of technologies to enable flexible operation, improved reliability, and enhanced abatement of carbon dioxide emissions of thermal generation and advanced energy storage technologies to strengthen electrical grids with greater variable renewable energy.

- Integrated resource and resiliency planning to prepare for natural or man-made disasters.

- Policies to promote distributed energy resources, including modern microgrids.

- Policies to strengthen the reliability, adaptability, and interoperability of electric grids in the APEC region.

- Policies to safeguard the cybersecurity of critical energy infrastructure and systems as the energy sector becomes increasingly digitalized.

- Research to understand the water-energy nexus and help address associated challenges.

Next Steps

The following near-term activities are planned or proposed:

- [*To be populated as project proposals are developed.*]

- Dissemination of APEC Energy Resiliency Principles and development of APEC Energy Resiliency Guidelines through an APEC project.