



Advanced Energy Partnership for Asia

Enabling Advanced Energy Systems for Clean, Secure, and Sustainable Economic Growth Across Asia

The U.S. Agency for International Development (USAID) has partnered with the U.S. Department of Energy’s national laboratories to form the **Advanced Energy Partnership for Asia**.

Led by USAID and the National Renewable Energy Laboratory (NREL), the Partnership supports energy sector transformation and the growth of clean, secure, and sustainable energy markets across Asia.

This Partnership leverages U.S. expertise to provide rigorous, unbiased, third-party technical leadership to enhance the adoption of best practices and deploy advanced energy systems at speed and scale.

Our Mission

The Partnership helps USAID partner countries address the technical challenges of rapidly transitioning to advanced, integrated, and resilient energy sectors by focusing on key opportunities in the region to:

-  **Enhance energy utility planning and performance** to accelerate the adoption of advanced clean energy technologies.
-  **Create a level playing field** by assisting governments with fostering more supportive policy, legal, and regulatory frameworks that unlock private sector investment.
-  **Enable data-driven decision making** by providing high quality data to support critical investment and deployment decisions.
-  **Advance regional energy integration** through energy system planning and operational practices for efficient cross-border energy trade.

The Advanced Energy Partnership for Asia works collaboratively with partner governments and regional institutions to conduct research, analysis, and capacity building to deploy advanced energy systems.

The Partnership promotes advanced energy systems that, while at times are disruptive, are driving the global energy transition. These include:

- Renewable energy scale-up
- Energy efficiency
- Battery energy storage systems
- Electric vehicles
- Resilience and energy security
- Distributed energy generation
- Microgrids for energy access
- Digitalization and energy system security.

The Advanced Energy Partnership for Asia works from the local to the regional scale to broaden its impact.

Program Impacts

Best-in-Class Wind and Solar Resource Data for Southeast Asia

The Partnership released 2-kilometer (km) spatial and 10-minute temporal resolution solar resource data for Southeast Asia. The Partnership also released a complementing wind resource data set for the region with 3-km spatial and 15-minute temporal resolution. Both data sets can be accessed and used for free through the Renewable Energy Data Explorer geospatial analysis tool.

The high-resolution solar data set was developed by NREL in collaboration with the National Oceanic and Atmospheric Administration (NOAA) and the University



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Advanced Energy Partnership for Asia

The Advanced Energy Partnership for Asia supports U.S. Government and partner country development priorities by providing technical leadership and U.S. Department of Energy laboratory expertise to support the transition to advanced energy systems across Southeast Asia that are:

1. Clean and inclusive
2. Secure and resilient
3. Competitive and market-driven.

of Wisconsin using imagery provided by the Japanese Meteorological Agency’s Himawari weather satellite. NREL developed the high-resolution wind resource data set using machine learning to refine and build off the fifth-generation European reanalysis data set and Weather and Research Forecasting models.

These best-in-class, publicly available data sets can inform prospecting, target setting, renewable energy auctions, and other high impact decisions to accelerate renewable energy deployment. Learn more at:

www.re-explorer.org.

Air Quality Benefits of Renewable Energy Deployment

NREL partnered with the Association of Southeast Asian Nations (ASEAN) Centre for Energy (ACE) to study the air pollution reduction and human health benefits of increased regional renewable energy deployment scenarios drawn from the ASEAN Interconnection Masterplan (AIMS III) study. This novel research, in partnership with the University of Minnesota, used a reduced-complexity model to quantify country-level reductions in pollution and associated mortality. The Partnership trained ACE staff and other regional stakeholders on how to use this new open-source model. Explore the full report: www.nrel.gov/docs/fy23osti/83832.pdf.

Virtual Learning

With travel restrictions due to the COVID-19 pandemic, the Partnership ramped up its virtual engagements to deliver capacity-building programs and strengthen relationships with the regional energy community. Examples include:

- **Asia EDGE Power Sector Learning Series:** Conducted in partnership with the USAID Southeast Asia EDGE Hub, experts provide a series of no-cost, virtual trainings on topics such as power sector

planning, resilience, grid integration, and power sector modernization. Watch the series' recordings at: www.nrel.gov/usa-id-partnership/asia-edge-power-sector-learning-series.html.

- **Virtual Courses:** The Partnership provided comprehensive, state-of-the-art virtual courses focused on emerging advanced energy system topics in the region. Regional experts led courses on both load modeling and forecasting and electric vehicle deployment best practices, with specific attention paid to Southeast Asian contexts. These courses can be accessed through the NREL Learning Channel: www.youtube.com/user/NRELLearn/playlists.

Distributed Solar Photovoltaic (PV) Impacts in Vietnam

Electric utility operators around the globe must understand how distributed PV may affect their finances and grid management. The Partnership, together with the USAID Vietnam Urban Energy Security project, are working with Vietnam's utility, EVN, and the Ministry of Industry and Trade to understand the financial and technical impacts of distributed PV deployment in regions of Vietnam through analysis, modeling, and training.



NREL hosted USAID's Regional Energy Advisor for an on-site visit. Photo by Dennis Schroeder, NREL 65794

Sharing International Best Practices and Cutting-edge Solutions with Southeast Asia

USAID is building connections to exchange information on the transformational and enabling clean energy solutions that will support Southeast Asia's ambitious energy security and climate change goals.

In the fall of 2021, the Partnership hosted the Regional Energy Advisor for USAID's Regional Development Mission for Asia at the NREL campus. The visit included tours of the state-of-the-art renewable energy facilities and presentations by NREL technical experts on topics including energy storage, electric mobility, industrial decarbonization, circular economy, and air quality, among others. This collaboration with NREL enables USAID and partners to leverage U.S. Department of Energy investments and access global expertise to support the transition to low-carbon energy systems.



Participants, presenters, and staff from across live discussions and events hosted by the Advanced Energy Partnership for Asia.

To learn more about how the Advanced Energy Partnership for Asia helps countries with policy, planning, and deployment support for advanced energy technologies, please visit: www.nrel.gov/usa-id-partnership/project-advanced-energy-partnership-for-asia.html.

www.nrel.gov/usa-id-partnership

For comments and questions, or to inquire about working with the Advanced Energy Partnership for Asia, visit: www.nrel.gov/usa-id-partnership/contact-us.html.

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The USAID-NREL Advanced Energy Partnership for Asia helps partner countries address the technical challenges of transitioning to sustainable, secure, and market-driven energy sectors across Asia. More information can be found at: www.nrel.gov/usa-id-partnership/project-advanced-energy-partnership-for-asia.html.



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