

Net Zero World COP28 Program Highlights

The Net Zero World initiative, a U.S. flagship program launched at COP26, is designed to support countries in accelerating transitions to clean energy systems. Combining expertise from 10 U.S. Department of Energy laboratories and 9 U.S. government agencies, Net Zero World collaborates with governments in Argentina, Chile, Egypt, Indonesia, Nigeria, Singapore, Thailand, and Ukraine to fortify net-zero pathways, advance implementation of priority actions, and mobilize significant investment in clean energy projects and infrastructure, targeting \$10 billion by 2025.

Strategic Achievements to Date

Energy System Modeling and Capacity Building: In global efforts, we have conducted widespread energy system modeling and capacity building to bolster net-zero and just transition pathways. For instance, Indonesia has leveraged modeling to devise strategies for moving away from coal power and shaping the Just Energy Transition Partnership plans. In Nigeria, localized energy system models are enhancing power and transport decarbonization analyses, aiding in the design of potential carbon markets. Chile and Ukraine have also benefited from specific modeling tools, aiding in strategic electrification, decarbonization planning, and strengthening national energy and climate plans.

Implementation Actions With Partner Countries: Our work has advanced 23 implementation actions with partner countries, offering in-depth analytic and technical support. Examples include partnering with Tocopilla, Chile, to repurpose coal-generation facilities for clean energy systems; collaborating with Indonesia on a clean energy road map; and assisting Nigeria in renewable embedded generation pilot projects. In Singapore, a feasibility study for a subsea interconnection enhances regional energy connectivity. Additionally, our support in Ukraine focuses on deploying renewable energy and storage systems for critical sites, including evaluating modular nuclear energy systems.

Mobilizing Investments in Clean Energy Projects: We have actively mobilized private and public investments in key clean energy projects and infrastructure systems. Our collaborations span across countries, U.S. government agencies, and various financial institutions, focusing on technical de-risking, financing design, and investor connections. Notable achievements include supporting Argentina's Energy Transition Plan, influencing renewable energy

deployment and coal plant closures in Indonesia, and promoting renewable energy integration and district energy projects in Chile.

Training and Capacity-Building Activities: Over 200 individuals and more than 30 institutions across partner countries have benefited from our training and capacity-building initiatives. These activities span various clean energy topics, including energy efficiency, sectoral modeling, and decarbonization strategies. A highlight was the comprehensive knowledge exchange program for women leaders facilitated by prominent national laboratories, focusing on power systems, building technologies, and offering ongoing mentoring.

Country-Specific Actions



Partners: Energy Secretariat of the Ministry of Economy, technical institutes, CAMMESA, provincial government of La Pampa, and other key stakeholders

Activities: Energy system and power sector modeling; expansion of renewable energy; energy efficiency in buildings; carbon capture, usage, and storage resource mapping; policy and infrastructure transformation; finance and investment mobilization

Outcomes to Date: Informed renewable energy and grid infrastructure investments; supported Argentina's Energy Transition Plan and Energy Efficiency bill, contributing to a \$350 million Inter-American Development Bank loan; analysis of renewable energy capacity expansion plans at regional level, feeding into energy transition fund projects.



Partners: Ministry of Energy, local governments, and communities, including Tocopilla

Activities: Modeling to inform strategic energy planning; district energy development, power system decarbonization, and just transition strategies and plant repurposing in coal-reliant communities

Outcomes to Date: Provided crucial data for Chile's National Energy Plan; facilitated coal capacity transition through exchanges in Tocopilla; advanced district energy system road map, informing power decarbonization road map and grid upgrades.

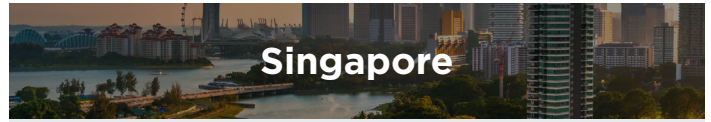


Egypt

Partners: Ministry of Petroleum and Mineral Resources and the Ministry of Electricity and Renewable Energy

Activities: Energy system-wide modeling and development of an in-house modeling unit; enhance oil recovery for carbon dioxide sequestration; defining cooperation on other topics

Anticipated Outcomes: Enhanced strategic energy planning; supported carbon sequestration projects; operationalized modeling center for policy analysis.



Singapore

Partners: Ministry of Trade and Industry and the Energy Market Authority.

Activities: Technical feasibility and cost of increasing regional power grid integration through long-distance subsea interconnections.

Outcomes to date: Net Zero World has identified several factors to consider when siting an interconnection in the South China Sea, such as the risk of anchor strikes due to heavy shipping traffic and the need to avoid existing infrastructure and geologic hazards. The analysis suggests that risks can be mitigated with site-specific design and increased cable burial depth. The economic opportunity of an interconnected Association of Southeast Asian Nations region is significant, including job creation in renewable energy and interconnection construction and maintenance.



Indonesia

Partners: Ministry of Energy and Mineral Resources, the Ministry of National Development Planning, Indonesia's national electric utility, and other key stakeholders

Activities: Energy system-wide modeling; phasing out coal-fired power plants; a nickle to battery to electric vehicle road map, island energy transitions, building efficiency program, and sustainable transport initiatives

Outcomes to Date: Contributed to Indonesia's 23% renewable energy target by 2025 and informed investment of Just Energy Transition Partnership resources on coal replacement, including 9 GW of captive coal; facilitated development of island microgrids and informed 500 MW diesel replacement strategy; designed building efficiency program.



Thailand

Partners: Ministry of Energy, the Ministry of Housing, Electricity Generating Authority of Thailand, and other key agencies and technical partners

Activities: Energy sector-wide modeling; energy storage planning; building energy efficiency; analysis and pilots for use of second-life battery energy storage systems

Outcomes to Date: Enhanced institutional capacity for decarbonization analysis; evaluated battery energy storage systems for utility applications; supported design of building energy efficiency program for low- and middle-income households.



Nigeria

Partners: National Council for Climate Change, the Department of Climate Change within the Federal Ministry of Environment, and the Energy Transition Office as overall coordinating and advisory partners, with the Federal Ministry of Power, Energy Commission of Nigeria, the National Upstream Petroleum Regulatory Commission, local distribution utilities

Activities: Energy modeling; analytic and technical support and capacity building to enable scaled-up rooftop solar photovoltaic systems and distributed energy resource minigrids; methane mitigation in oil and gas sectors and carbon market analysis

Outcomes to Date: Improved policy evaluation and sectoral analysis on net-zero pathways and transport decarbonization; advanced distributed energy resource tools and pilots; trained oil and gas companies in methane leak detection and remediation.



Ukraine

Partners: Ministry of Energy, Ministries for Communities, Territories and Infrastructure Development, Environment and Natural Resources

Activities: Energy modeling with TIMES-Ukraine and Global Change Assessment Model; distributed energy resource pilot projects for critical sites and distributed energy resource deployment plan; capacity building in nuclear energy; support for renewable energy integration; development of building efficiency program.

Outcomes to Date: Informed strengthened National Energy and Climate Plan; supported renewable energy capacity expansion and distributed energy resource deployment; trained participants on small modular nuclear reactors.