

Net Zero World: Transformative Partnerships for Global Decarbonization

Net Zero World is a U.S. Department of Energy multi-lab initiative that provides world-class technical support to countries committed to achieving net-zero emissions. By engaging the expertise of 10 U.S. Department of Energy national labs and 9 U.S. government agencies, Net Zero World partners with countries to accelerate energy transitions through demand-driven support for planning, technology deployment, and investment mobilization. Net Zero World offers partners a unique opportunity to scale their impact by supporting transformational energy programs across diverse geographies. In addition to the 8 country partners shown in the graphic below, Net Zero World is also partnering with India through the Renewable Energy Technology Platform, and is partnering with Power Africa to collaborate with South Africa in support of the

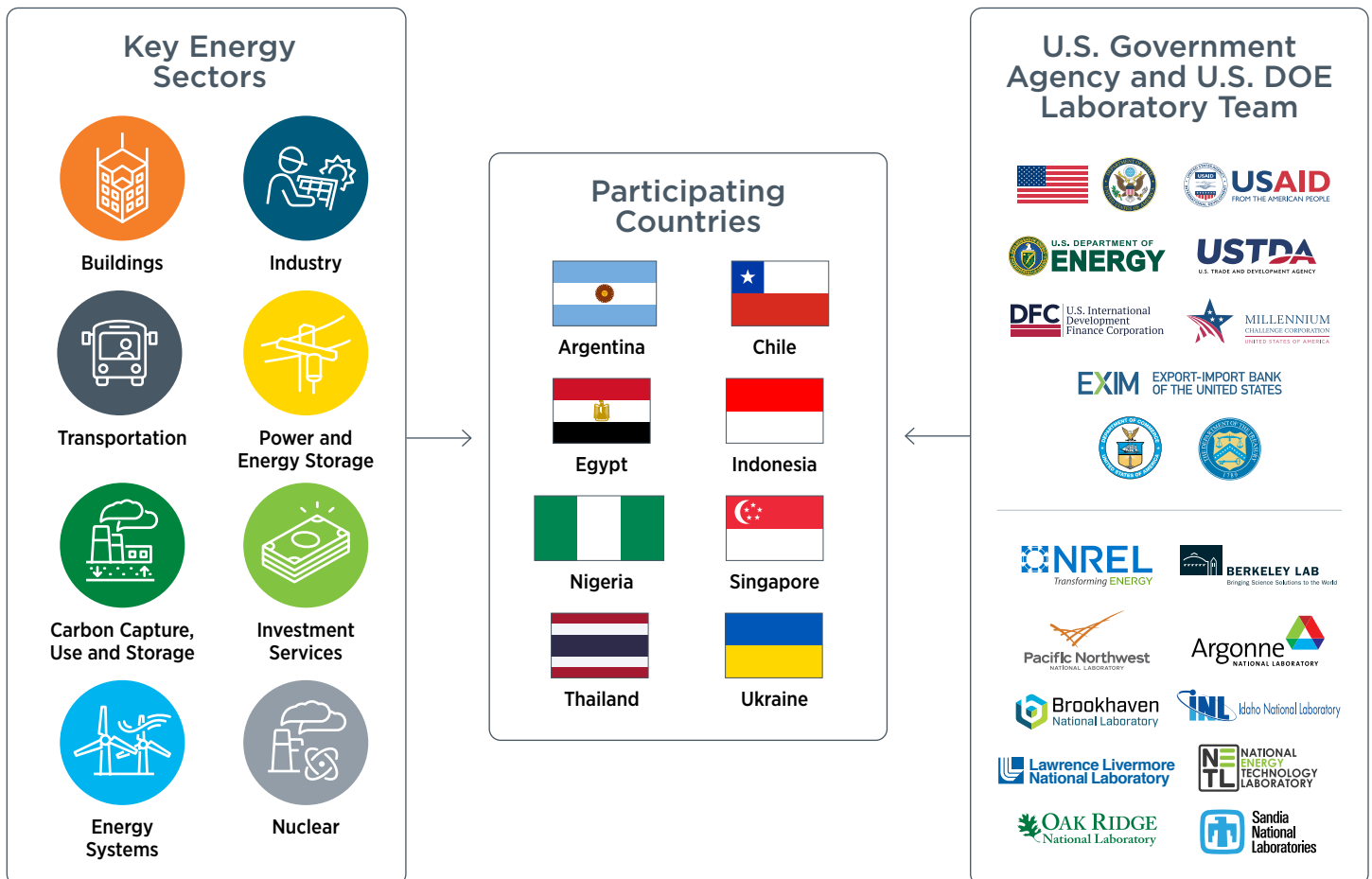
Just Energy Transition Plan.

Partnering with the Net Zero World Initiative enables organizations to apply the following core capabilities to support existing or new philanthropic initiatives:



Advanced Energy Modeling and Planning

Net Zero World's modeling and planning capabilities guide partners and governments in developing robust and actionable energy transition strategies. Examples include:



DETAILED ENERGY SYSTEM MODELING TO STRENGTHEN

NATIONAL PLANS: Using advanced tools like the Low Emissions Analysis Platform (LEAP), MESSAGE, and TIMES, Net Zero World helps countries identify the most cost-effective and impactful decarbonization pathways.

Example: Net Zero World's support for Ukraine's National Energy and Climate Plan directly improved the country's ability to plan for energy resilience and emissions reductions. Through joint modeling sessions using the TIMES and Global Change Analysis Model platforms, Net Zero World helped Ukraine identify optimal pathways for integrating renewables and enhancing energy security, contributing to its 2030 climate targets.

LOCALIZED DATA PLATFORMS: Net Zero World creates accessible, country-specific data platforms to improve decision-making and facilitate cross-ministerial collaboration.

Example: In Thailand, Net Zero World is developing a localized energy modeling platform that integrates renewable energy potential, electricity demand forecasts, and industrial energy use data. This tool aims to allow different ministries and government agencies to align on decarbonization strategies, ensuring more coordinated and effective energy policy planning.

IN-COUNTRY MODELING CAPACITY: Net Zero World supports cross-agency energy modeling teams and in-house modeling units at governmental energy agencies and technical institutions through localized modeling tools and data and training and peer exchange on energy system modeling, economic analysis, and decarbonization options.

Example: In Argentina, Net Zero World trained local ministry staff to use advanced energy modeling tools like LEAP and MESSAGE. This training enabled Argentina's Ministry of Energy to independently model decarbonization scenarios and incorporate them into the 2050 Energy Transition Strategy, empowering the country to make data-driven decisions for renewable energy expansion and emissions reductions.



Accelerated Technology Deployment

Net Zero World partners to accelerate the deployment of cutting-edge technologies through feasibility studies, pilot projects, strengthened policies and regulations, and technology roadmaps. Examples of such partnerships include:

PILOT PROJECTS AND TECHNICAL SUPPORT: Net Zero World conducts first-of-their-kind pilot projects to demonstrate the viability and scale-up potential of clean energy technologies.

Example: Net Zero World is partnering with Nigerian distribution utilities on mini-grid and battery energy storage pilots to support the national goal of deploying 15-GW of distributed renewable energy capacity. This deployment will be accomplished by embedding tools and capacity and advancing pilot projects with local utilities.

INFRASTRUCTURE AND GRID MODERNIZATION: Net Zero World supports the development of technology roadmaps, system upgrades, and the integration of advanced technologies.

Example: In Indonesia, Net Zero World is helping to develop a Battery to Electric Vehicle Roadmap to outline opportunities for clean energy integration for manufacturing practices. This roadmap is expected to attract \$1-\$3 billion in investment.

POLICY DEVELOPMENT SUPPORT: Net Zero World helps governments design and implement policies, regulations, and market mechanisms to accelerate decarbonization and energy transitions.

Example: Net Zero World is supporting Chile in developing regulations for distributed energy resources, enabling more efficient integration of decentralized renewable energy into the grid. These regulations are pivotal to expanding clean energy access and supporting Chile's transition away from coal, while also creating market opportunities for private investments in distributed solar and storage systems.

WORKFORCE AND TECHNICAL SKILLS DEVELOPMENT: Net Zero World builds local expertise to operate, maintain, and expand new technologies.

Example: In India, Net Zero World, through the Renewable Energy Technology Action Platform, is collaborating on forecasting and grid modernization pilots, while also establishing incubator programs to facilitate a 60-GW offshore wind market.



Market Development and Investment Mobilization

Net Zero World works to create enabling conditions for investment and scale by de-risking projects and providing tailored financial solutions. Examples of this work include:

INVESTMENT ROADMAPS AND FINANCIAL MECHANISMS: Net Zero World develops new finance instruments (i.e., revolving loan funds, public-private investment frameworks, and de-risking strategies for frontier technologies) and teams with countries, multilateral development banks, and other investors on roadmaps and investment plans.

Example: In Chile, Net Zero World is partnering with the World Bank to develop a 10-GW offshore wind roadmap, representing a \$42–\$62 billion investment opportunity that includes targeted support for affected coal communities.

TECHNO-ECONOMIC ANALYSIS FOR PROJECT

AGGREGATION: Net Zero World identifies and prioritizes bankable project pipelines to match investment with high-impact opportunities.

Example: Net Zero World is helping establish a revolving loan fund with an inflation guarantee in Argentina to mobilize \$40–\$50 million for energy efficiency retrofits in La Pampa buildings. Net Zero World also provided key technical assistance for the development of national energy efficiency policies. These efforts helped secure a \$350 million loan from the Inter-American Development Bank aimed at implementing energy-saving measures in public buildings and the residential sector, driving significant emissions reductions and energy cost savings.

GENDER-RESPONSIVE WORKFORCE DEVELOPMENT:

Net Zero World designs programs that prioritize women’s leadership and technical skill development to ensure inclusive participation in the clean energy transition.

Example: The Climate-Smart Women Energy Leaders Program mentors women from Net Zero World partner countries through a cohort-based model, fostering both in-country and cross-country networks to amplify long-term impact.

ECONOMIC DIVERSIFICATION AND REINVESTMENT

PROGRAMS: Net Zero World partners to develop community investment strategies that support new economic opportunities in areas impacted by coal plant closures.

Example: Through collaboration with the Just Energy Transition Partnership program in South Africa, Net Zero World is providing municipal energy planning and investment assessment services to accelerate renewable energy integration.

Global Reach and Partner Impact

Net Zero World has delivered tangible results in accelerating energy decarbonization projects and programs while strengthening nationally determined contributions and long-term energy strategies across its partner countries. This includes advancing over 20 policy, regulatory, and pilot project programs that are driving sustainable energy transitions. Through targeted analysis, project design, and investment facilitation, Net Zero World is on track to mobilize over \$10 billion in clean energy investments by 2025 and scale multi-gigawatt renewable energy projects globally.



Community and Workforce Development

Net Zero World fosters sustainable and equitable transitions by prioritizing community engagement, workforce reskilling, and capacity-building. Examples of this support include:

JUST TRANSITION STRATEGIES: Net Zero World provides technical support and peer-exchange to help communities transition from fossil fuels to clean energy alternatives.

Example: In Tocopilla, Chile, Net Zero World is working with coal-reliant communities to design clean energy projects that create jobs and repurpose over 400 MW of coal capacity.

How To Engage

Partners can tap into Net Zero World’s capabilities by supporting the program directly, co-funding technical assistance, or investing in specific areas that support specific partner programs and priorities, such as technology pilots, workforce development, or policy and market design. For example, the Global Energy Alliance for People and Planet has engaged the cross-lab Net Zero World team to provide technical validation, modeling, and expert assistance with battery energy storage deployment optimization, pilot projects, and policies and plans for four Latin American and Caribbean countries.

For more information or to explore partnership opportunities, contact Bethany Speer (bethany.speer@nrel.gov).

