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# The South Asia Group for Energy

South Asia is leading a transformation in how its energy systems meet the growing demand for clean energy. Adoption of advanced technologies and state-of-the-art planning will be key to driving the region's successful energy transition.

The **South Asia Group for Energy (SAGE)** is a consortium consisting of the U.S. Agency for International Development (USAID) and two U.S. Department of Energy national laboratories: the National Renewable Energy Laboratory (NREL) and Pacific Northwest National Laboratory (PNNL).

Through SAGE, governments, public institutions, and private sector partners in South Asia can access best-in-class energy expertise from U.S. national labs to support long-term planning and strategic development and receive consultation on complex energy challenges.

SAGE activities are designed to support South Asia's clean energy transitions and resilience through the following objectives:

- Improving energy and climate planning, policy, and regulations including through new modeling capabilities
- Enhancing knowledge and adoption of new and evolving technologies
- Strengthening technical institutions across India and South Asia.

## Solutions To Transform South Asia's Energy Sector

**Regional analysis and energy modeling:** SAGE conducts modeling and analysis to understand the extent of climate impacts on South Asia's electricity load and generation and to support South Asia in charting its path to decarbonization, resilient power systems, and achieving the region's clean energy targets.

**Knowledge creation on emerging themes:** SAGE leverages current and prior research to develop knowledge products, such as technical reports and white papers, that educate key stakeholders on the importance and relevance of emerging energy sector topics.

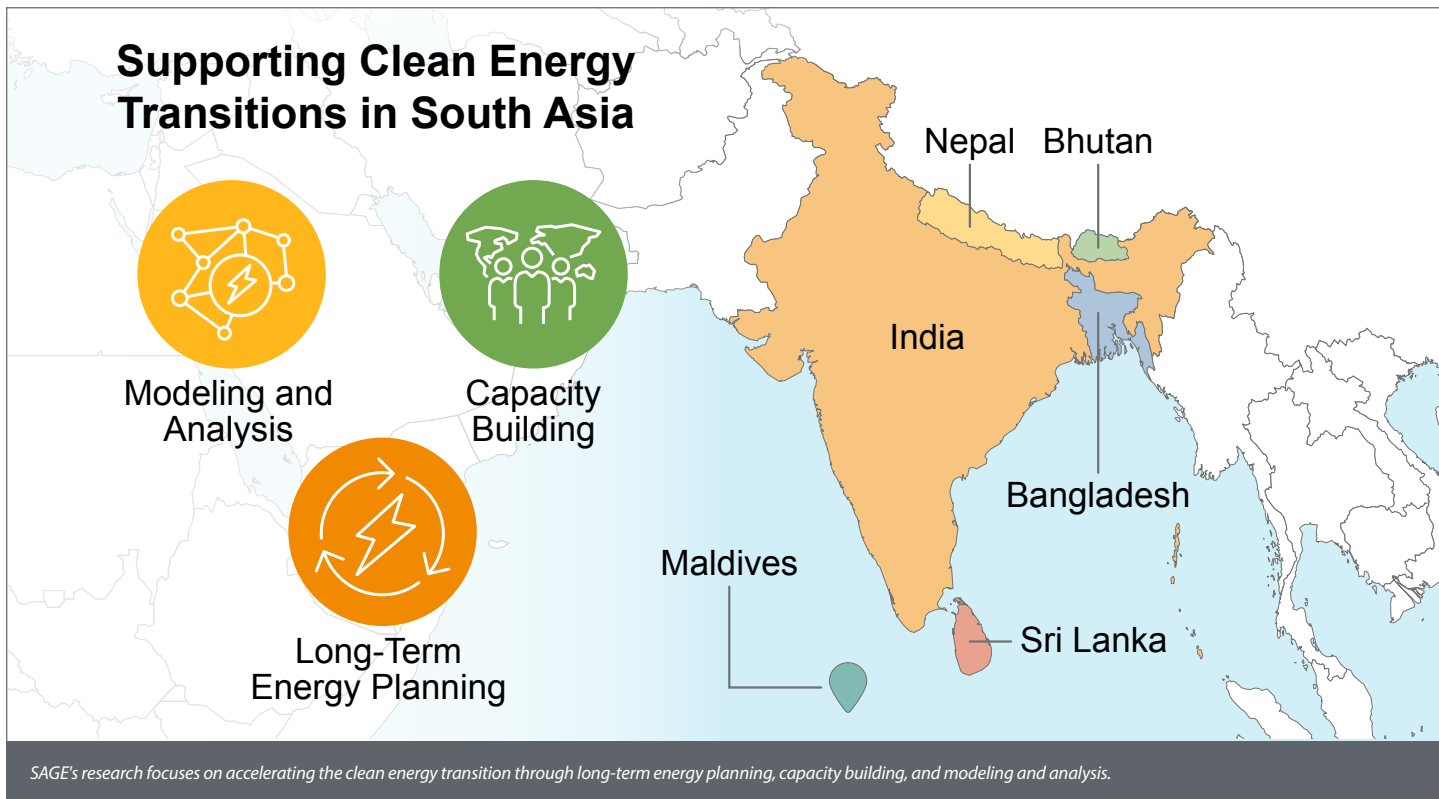
**Hydropower and climate:** SAGE examines the impact of changing climate on hydropower production and its cascading effects on the energy system to support decision-making for planning energy futures while increasing capacity for both multi-sector and traditional hydrological modeling.

**Strengthened national institutions:** SAGE reinforces institutional and human capacity in South Asia through collaborative research, partnerships, and training on how to integrate results into relevant decision-making processes.

**Support to U.S.-India Sustainable Growth Pillar:** SAGE is working side-by-side with NITI Aayog and other institutions in India to expand energy data, connect energy modeling to policymaking through the India Climate and Energy Modeling Forum, and enhance understanding of key development topics, such as just coal transitions.



Learn more and explore SAGE resources by visiting [www.nrel.gov/usaaid-partnership/project-south-asia.html](http://www.nrel.gov/usaaid-partnership/project-south-asia.html).



## SAGE Program Impacts

Through SAGE, NREL and PNNL are collaborating with stakeholders across South Asia to support their clean energy goals.

**Grid modernization:** NREL is working with grid operators across South Asia to maintain stable grid planning and operations through the development of a control room renewable energy desk. As variable renewable energy levels continue to increase, specialized renewable energy desks stabilize the grid by managing challenges associated with bi-directional power flow, fluctuating generation outputs, and forecasting uncertainty.

**Sustainable farming:** PNNL and the National Institute of Bioenergy (NIBE) evaluated the impact of changes in agricultural waste burning on air pollution, estimated water use and savings potentials from improved irrigation

practices, and assessed changes in food prices from crop yields and competition between biomass and food crops. These insights support policy and business decisions on biomass deployment by identifying cost-benefits associated with increased sustainable farming practices and environmental impacts of agricultural waste burning.

**Hydrological data and modeling:** PNNL is developing novel hydrologic modeling capacity across Bhutan at decision-relevant scales to understand how climate impacts river systems and hydropower, addressing a need in Bhutan's current hydrology tool kit.

Capacity building and targeted technical assistance across these focus areas and more ensure that decision-makers across South Asia are supported in whole-of-system approaches to clean energy deployment.

## Partner With SAGE

SAGE works with USAID Missions and other country stakeholders to identify solutions, experts, and work programs that fit their unique needs and priorities. Submit questions or expressions of interest to:

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