

SOUTH ASIA SUBREGIONAL WORKSHOP INCLUSIVE CLEAN ENERGY TRANSITIONS IN BHUTAN AND NEPAL

Managing Change: South Asia

Priyantha Wijayatunga, PhD
Senior Director, Energy
Asian Development Bank

22-23 May 2025 • Paro, Bhutan



Outline

- Global Trends
- South Asia Energy Policy Highlights
- ADB Energy Policy
- Energy Sector Operations

Global Investment Trends and Financing Needs

Global Investment Trends

Energy Access and RE Investment

- Investments in renewables exceed fossil fuel.
- Grids and renewables expansion
- Strengthening grid infrastructure.

RE Integration, Energy Equity & Inclusiveness

- Digitalizing and modernizing grids
- Emerging markets and developing economies.
- No community is left behind.

Investment and Financing Needs

Global Requirements

- ✓ **Annual investments in grids: \$600 billion**
- ✓ **At least \$350 billion needed in emerging markets**
- ✓ **Over 80 million kms of transmission lines by 2040**

Regional Focus: Asia

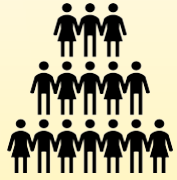
- ✓ **Rapid increase energy demand and affordability**
- ✓ **Smart grids and digitalization for RE**
- ✓ **Interconnections for regional power trade**

South Asia Energy Policy Highlights

Country	Energy Policy Highlights	Inclusive Developments & Potential
Bangladesh	Strong push for energy security and Renewable Energy Development and diversifying energy mix.	Women-led solar entrepreneurship; inclusive rural electrification and clean cooking programs.
Bhutan	Hydropower-focused with increasing other RE development (solar & wind) - export-oriented to support decarbonization	Clean energy access for rural women; community-based planning and engagement.
India	Ambitious RE target- 500 GW non-fossil capacity by 2030; investments in solar, green hydrogen, smart grids and digitalization	Women-led solar cooperatives; rural digital skilling; inclusive energy entrepreneurship programs.
Maldives	Strategic Action Plan 2019–2023 (being updated); aims for 33% RE share by 2028; solar and battery focus.	Gender-sensitive RE training; inclusive energy access in outer islands through community engagement.
Nepal	Hydropower Development Policy; cross-border energy trade with neighbors; major projects like Upper Arun and Dud Koshi to support decarbonization	Women's participation in energy cooperatives; gender-mainstreamed hydropower planning and training.
Sri Lanka	Sri Lanka Electricity Act 2024 sets 70% RE target by 2030; supports floating solar, offshore wind, and utility reform.	Virtual net metering for SME and low-income households; gender-responsive training and RE jobs programs.

Decentralization and Digitalization Policies Support : Inclusiveness and Communitive Participation

ADB 2021 Energy Policy Principles



Principle 1. Securing Energy for a Prosperous and Inclusive Asia and the Pacific

Support efforts to bring **affordable, reliable, sustainable, and modern energy to all**, so as to eradicate extreme poverty and reduce social inequalities.



Principle 2. Building a Sustainable and Resilient Energy Future

Provide support to its DMCs to tackle **climate change, enhance environmental sustainability, and build climate and disaster resilience.**



Principle 3. Supporting Institutions, Private Sector Participation, and Good Governance

Support the **institutional development, financial sustainability, and good governance** of energy sector institutions and companies, as well as private sector participation.



Principle 4. Promoting Regional Cooperation and Integration

Promote **regional energy cooperation and the integration of energy systems** to strengthen energy security and increase cross-border access to cleaner energy sources.



Principle 5. Integrated Cross- Sector Operations to Maximum Development Impact

Combine **finance, knowledge, partnerships, and its country-focused approach** to deliver integrated solutions with comprehensive and magnified development impacts.

Areas of Delivery

Decarbonization

**Decreasing
energy intensity**

Digitalization

Decentralization

ADB Initiatives



Power Evacuation and Strengthening Rural Grids

- RE integration and efficiency improvement
- Digitalization



Cross Sectoral Interventions Using RE

- Supporting water-energy-food nexus
- Greening transport and hard to abate sectors



Battery Energy and Emerging Storage Solutions

- BESS (grid scale and distributed)
- Pumped hydro (long term storage options)



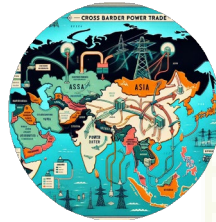
Enhancing Community Involvement

- Support local employment and RE skilling
- Develop skilled workers in RE sector



Distributed RE and Productive Energy Use

- Rooftop solar and virtual net-metering
- Empowering prosumers



Regional Power Trade and Interconnections

- Potential SASEC, CAREC , BIMSTEC , ASEAN and GMS interconnections and power trade

RE & Digital Solutions: Potential for Inclusive Development



Creating a Resilient Power Supply



Predicting and Balancing Power Fluctuations



Smart Maintenance to Extend Equipment Life



Helping Communities to Become Smart Prosumers



Real Time Monitoring

Few Examples of ADB Interventions

Sri Lanka:

- ❖ **AI and Digital Transformation Project** for integration of decentralized renewables
- ❖ **Virtual Net Metering Project** benefits low-income SME's and consumers with no possibilities to access own rooftop PV

India:

- ❖ **Maharashtra: Cross Sectoral Intervention to Solarize Agricultural Feeders Project** developing resilient rural distributed RE 18 GW and digital twins. Supports **green skilling and employment creation** in rural areas.

Pacific Islands and Maldives:

- ❖ **Mini grids and hybrid systems.** Displace diesel-based generation to RE based systems
- ❖ **Energy –water – Food Nexus (Maldives).** Renewable Energy based desalination plant to provide water for agriculture (including rainwater harvesting and modern irrigation solutions)
- ❖ **Supporting Fisheries using RE (Maldives).** Renewable Energy based ice making plants run by women development councils to support Fisheries.
- ❖ **Renewable Energy Based Ferry (Maldives).** Solar battery based renewable energy ferry to decarbonize Marine Transport.

Thank You

Email: pwijayatunga@adb.org

