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Smart Distribution Alliance (SDA)

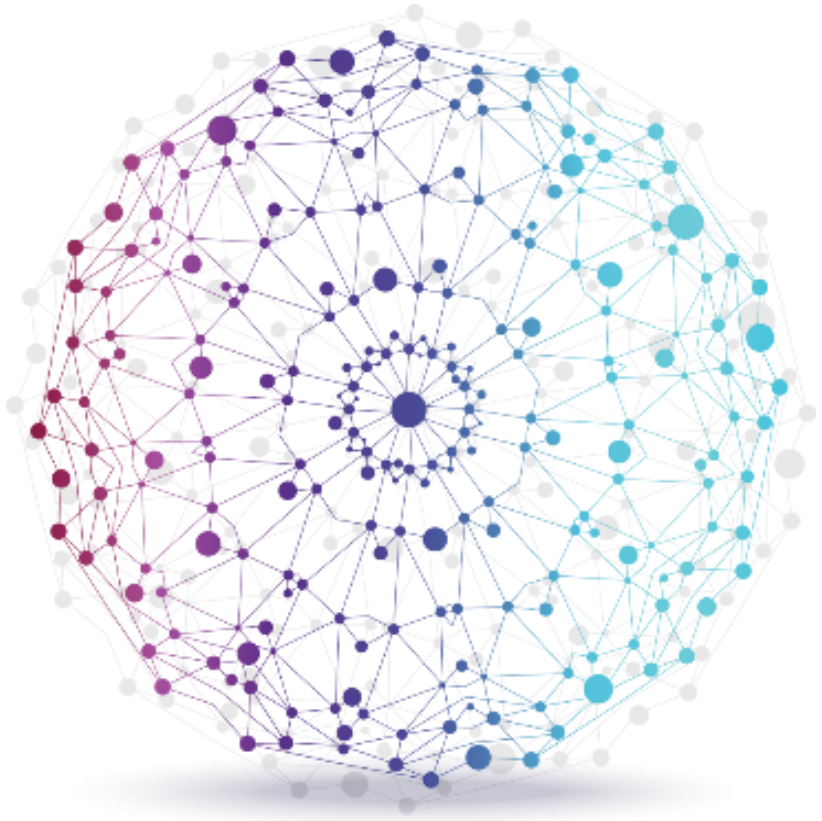
Need & Genesis

South Asia Clean Energy Forum (SACEF)

Jaipur, India

October 21, 2024

Agenda



1 South Asia Outlook

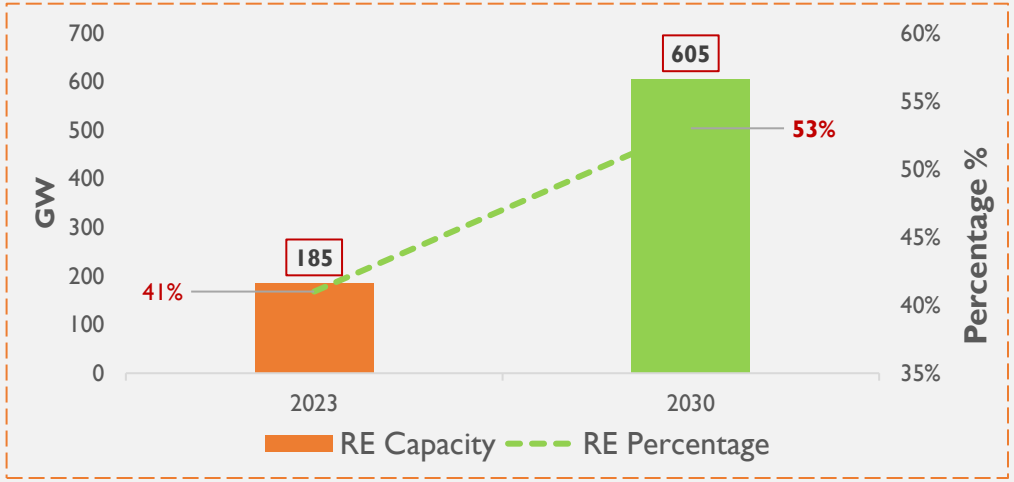
2 Challenges and priorities of power distribution utilities in South Asia

3 Smart Distribution Alliance (SDA): Introduction & Objectives

4 Introduction of SDA Advisory Group members

South Asia – The epicenter of growth

Paradigm shift in power sector due to clean energy transition



Huge scope for further growth in energy consumption

South Asia
(1,227 kWh/ capita)

Global
(21,000 kWh/ capita)

2023

Economic growth to drive consumer aspirations & electricity demand

..by 2030

Robust power distribution (last mile power delivery mechanism) is the linchpin for achieving regional growth imperatives & consumption aspirations in South Asia

Sources: IEA, World Bank, Macrotrends, United Nations Development Programme (UNDP), IRENA, Labor Report NSB, Ministry of Industry, Commerce and Employment (MoICE)

South Asia is facing dual set of distribution challenges

Legacy

Aging infrastructure & high distribution losses

Metering & distribution infra modernization

- ❑ Installation of smart meters - consumer, Distribution Transformers (DTs) & feeder
- ❑ New cables for distribution network
- ❑ Upgradation of DTs & substations

Grid reliability & quality of supply

Digitalization of grid elements for better monitoring & control

- ❑ Network management through Supervisory Control & Data Acquisition **(SCADA)** system
- ❑ Faster outage restoration through outage management systems

Increasing demand for affordable power

Demand mitigation through energy efficiency initiatives

- ❑ Peak Load Management – Demand Response
- ❑ End-use energy efficiency – building codes, appliance standards, labelling programs, etc.
- ❑ Tariff reforms– dynamic tariff, Time-of-Use, etc.

Emerging

Integration of RE

Designing flexible pathways for clean power supply

- ❑ Frameworks for planning & deployment of large scale RE
- ❑ Incorporation of grid-scale energy storage solutions

Managing new loads

Grid management solutions to improve efficiency of distribution systems

- ❑ Incorporation of electric vehicle (EV) charging infrastructure, expansion of Distributed Energy Sources (DERs)
- ❑ Dynamic Tariffs and Tariff incentives

Climate change

Building grid resilience for faster recovery from adversities

- ❑ Deployment of Distribution Automation devices
- ❑ Preventive grid maintenance using new technologies such as drones

Considering the regional challenges & priorities, there's significant opportunity for cooperation on utility transformation…

Existing regional cooperation mechanisms on power sector

SAARC	BBIN	BIMSTEC	SAFIR	SASEC	SARI/EI	SARTIP
South Asian Association for Regional Cooperation	Bangladesh, Bhutan, India, Nepal Initiative	Bay of Bengal Initiative for Multi-Sectoral Technical & Economic Cooperation	South Asian Forum for Infrastructure Regulation	South Asia Sub-regional Economic Cooperation Program	South Asia Regional Initiative for Energy Integration	South Asia Regional Trade and Integration Program
Government Mechanisms			Non-Government Mechanisms			

Focus areas of existing regional cooperation mechanisms

1. Generation capacity development
2. Cross border electricity trade
3. Grid interconnection
4. Regulatory alignment

No single dedicated platform for regional cooperation on modernization of distribution business in South Asia

Smart Distribution Alliance (SDA) will serve as the dedicated regional network of distribution utilities in South Asia

1. Strengthen South Asian distribution utilities to achieve **common goals**

Objectives

Power for All

2. Wider cooperation on distribution modernization

A platform to connect, learn, share and grow

Introduction of SDA Advisory Group Members

Advisory Group

Member Countries

Bangladesh, Bhutan, India, Nepal, Maldives, and Sri Lanka

Roles and Responsibilities

01 

Provide overall strategic guidance & direction to the alliance

02 

Participate in periodic meetings to deliberate on priority themes

Thank you

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South Asia is facing dual set of distribution challenges

Legacy

Aging infrastructure & high distribution losses

- Installation of smart meters (**Bangladesh:** 1 million+ smart meters to be installed, **India:** 250 mn+ smart meters, **Bhutan:** 5,000 smart meters deployed, **Nepal:** 98,000 installed)
- New cables for distribution network: (**Bangladesh:** Dhaka Power System Expansion and Strengthening Project, **Bhutan:** National Fiber Network Project)
- Upgradation of DTs & substations: (**Bhutan**: Basochhu Hydropower Plant Substation Automation, **India:** Revamped Distribution Sector Scheme (RDSS); **Sri Lanka**: Nawalapitiya Grid Substation)

Grid reliability and quality of supply

- Network management through Supervisory Control & Data Acquisition **(SCADA)** system (**Bangladesh:** DESCO, **Bhutan:** BPC, **India:** KPTCL **Nepal:** NEA use SCADA for monitoring power grids
- Faster outage restoration through outage management systems (**Bangladesh:** DPDC, **Bhutan:** BMC, **India:** TPDDL **Nepal:** NEA, **Sri Lanka:** CEB, **Maldives:** STELCO)

Increasing demand for affordable power

- Peak Load Management – Demand Response (**Bangladesh:** BPDB implements DSM strategies, **Bhutan:** BPC uses time-of-use pricing, **India:** TPDDL has implemented Automated Demand Response (AutoDR) **)**
- End-use energy efficiency – (**Bangladesh-** 50% energy savings by 2030, through efficient ACs with inverter technology, **Bhutan-** Import 257 ACs by 2030, **India-** Indian Cooling Action Plan aims to reduce cooling demand across sectors by 20-25% by 2037-38, **Maldives-**Hakathari labeling program; **Sri Lanka-** Energy Efficiency Building Code of Sri Lanka

Emerging

Integration of RE

- Frameworks for planning & deployment of Distributed Energy Resources (DERs) (**Bhutan:** Bhutan Sustainable Hydropower Development Policy, **Nepal:** Alternative Energy Promotion Centre (AEPC), **Sri Lanka:** Sustainable Energy Authority (SLSEA)
- Incorporation of grid-scale energy storage solutions (**India:** storage capacity 411.4 GWh by 2032, **Maldives:** 100MWh BESS by 2040, **Sri Lanka:** 1825 MW of storage capacity to be added by 2030)

Managing new loads

- Incorporation of electric vehicle (EV) charging infrastructure (**Bhutan:** 25 public EV charging stations, **India:** 12,146 operational charging stations and aims to establish a total of 46,000 public charging stations by 2030, **Nepal:** 51 public EV charging stations; plans to install 500+ charging stations by 2025

Climate change

- Deployment of Distribution Automation devices (**Bhutan:** Substation Automation Systems (SAS), **Nepal:** Smart Grid technologies**, Sri Lanka**: Automated Switches and Reclosers):
- Preventive grid maintenance using new technologies such as drones (**Bangladesh:** Smart Grid and Cloud Computing, **India:** DigiGrid and AProSys, Dron-based inspection by BYPL)

Sources: ADB. Nepal Energy Forum, PIB, World Bank, Bangladesh Power Management Institute(BPMI)