

## SECTOR ASSESSMENT (SUMMARY): ENERGY<sup>1</sup>

### A. Sector Road Map

#### 1. Sector Performance, Problems, and Opportunities

1. Meghalaya State has significantly expanded access to and availability of electricity since 2010. The state has achieved 100% village electrification in fiscal year (FY) 2019.<sup>2</sup> The state is already supplying power for almost 24 hours in urban areas and for 22–24 hours in rural areas and to industries except during power shortages.

2. **Generation.** To meet its peak demand of about 400 megawatts (MW), Meghalaya is largely dependent on the hydropower plants of the Meghalaya Power Generation Corporation Limited located within the state and from central generating stations such as those of NTPC Limited and North Eastern Electric Power Corporation Limited. The state operates eight hydroelectric power plants with a rated capacity of 355 MW and draws 228 MW from central generating stations. Meghalaya has a hydropower potential of 3,000 MW, of which only 11.8% has been harnessed. The Meghalaya Power Policy, 2007 envisaged building 24 power plants with a total capacity of 1,440 MW by the end of the 12th plan period—10 projects amounting to 558.5 MW under the 11th plan and 14 projects amounting to 891 MW during the 12th plan.<sup>3</sup> However, the state has progressed only on 15 projects for implementation through various agencies: 10 hydropower stations, 2 thermal power plants, and 3 renewable generation facilities.<sup>4</sup> Meghalaya is blessed with sites for the development of small-scale hydropower plants, biomass gasification, and solar energy. Through build–own–operate–transfer models, and with support from central and private agencies, the state aims to develop its full hydropower potential as a major source of revenue to the state exchequer. In remote areas with difficult terrain, the policy aims to promote the development of renewable sources of energy through private participation as third-party projects so that remote villages benefit.

3. **Transmission.** Meghalaya Power Transmission Corporation Limited is upgrading the transmission infrastructure to meet the demand at load centers and for the evacuation of power from planned hydropower stations. The corporation reported availability of its transmission network to be 99%. In March 2019, the intrastate transmission network comprised 17 extra-high-voltage grid substations with a total capacity of 8,112 megavolt-amperes and 1,650 circuit kilometers of transmission lines.

4. **Distribution.** Electricity distribution and retail supply functions are handled by the Meghalaya Power Distribution Corporation Limited (MePDCL), the state’s sole distribution licensee. Table 1 provides an overview of MePDCL’s distribution activities in Meghalaya State.

**Table 1: Distribution System in Meghalaya State**

Parameter	Value	Remarks
Consumers		
Total number of consumers	474,415	FY2019

<sup>1</sup> This summary is based on data collected for technical due diligences and preparation of detailed project report (DPR) for the project (Available on request).

<sup>2</sup> Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY) and Saubhagya. 2020. [Status of Rural Electrification in Meghalaya](#).

<sup>3</sup> Government of Meghalaya. 2007. [Power Policy, 2007 of the Government of Meghalaya](#).

<sup>4</sup> The Shillong Times. 2018. [15 Power Projects Under Implementation in Meghalaya](#).

Parameter	Value	Remarks
Access to electricity	100.00%	FY2019
Consumer mix		FY2018
Domestic	93.63%	
Nondomestic	6.06%	
Industrial	0.20%	
Other	0.10%	
Electricity demand		
Winter peak	396 MW	January 2018
Consumption by consumer category		FY2019
Industrial	41.50%	
Domestic	20.00%	
Nondomestic	33.00%	
Other	5.50%	

FY = fiscal year, MW = megawatt.

Source: Data from MePDCL

5. **Distribution losses and loss reduction.** The distribution loss and aggregate technical and commercial loss levels in Meghalaya are high. Table 2 indicates the billing and collection efficiency and loss levels for Meghalaya in FY2019. Aggregate technical and commercial losses of MePDCL is more than 30%, and continue to far exceed regulatory targets, impacting the financial position and sustainability of the utility. MePDCL plans to achieve loss reductions by bringing down both commercial and technical losses by up to 12.19% by FY2021 under the mandate of the Ujwal DISCOM Assurance Yojana (UDAY) scheme.

**Table 2: Efficiency and Loss Performance, Fiscal Year 2019**

Parameter	Value
Energy input	1,638.37 GWh
Energy billed	1,105.01 GWh
Revenue billed	₹6,930.69 million
Revenue collected	₹6,902.52 million
Billing efficiency	67.43%
Collection efficiency	99.59%
Aggregate technical and commercial losses	32.85%
Distribution transformer failure rate <sup>a</sup>	5.00%

FY = fiscal year, GWh = gigawatt-hour, ₹ = Indian rupees.

<sup>a</sup> Operational failure of numbers of transformers compared to the total number of transformers in operation calculated yearly.

Source: Data from MePDCL

## 2. Government's Sector Strategy

6. The Indian power sector has been witnessing a steady growth of more than 6% per annum because of sustained demand from a growing population, and the conversion of latent demand to increased energy consumption from newly connected consumers through central government flagship programs, such as Saubhagya<sup>5</sup> and Deen Dayal Upadhyaya Gram Jyoti Yojana

<sup>5</sup> The Saubhagya scheme is the Government of India's electrification program, which targets achieving 100% electrification of households. The scheme provides the last-mile connection to all interested households with no upfront fees for the electricity connection. For remote households away from the grid, a solar photovoltaic system is provided.

(DDUGJY) schemes,<sup>6</sup> which aim to achieve 100% household electrification. Peak demand was about 177 gigawatts (GW) in March 2019, and the energy requirement was 1,249 terawatt-hours (TWh) in FY2019. The 19th Electric Power Survey indicates a projected peak demand of 226 GW and an electricity requirement of 1,566 TWh by the end of FY2022. It projects the peak demand to reach 299 GW and energy requirements to rise to 2,047 TWh by FY2027.

7. India's power sector has an installed capacity of 356,100 MW. By FY2019, the peak demand deficit had been reduced to 0.8% and the energy deficit to 0.6% from the significantly higher deficits of 12.7% (demand) and 10.1% (energy) in FY2010.<sup>7</sup> To meet its ambitious goal of providing 24-hour electricity supply to all, the Government of India recognizes the need to increase electricity generation capacity, streamline transmission networks to improve interstate connectivity, and restore the financial sustainability and operational performance of the distribution utilities. It also intends to make greater use of indigenous hydropower and renewable energy resources and is working toward achieving a target of 175 GW of renewable energy capacity by 2022.<sup>8</sup>

## B. Major Development Partners: Strategic Foci and Key Activities

8. Table 3 lists the ongoing investments by major development partners and their projects in the energy sector.

**Table 3: Major Development Partners**

Development Partner	Project Name	Duration	Amount
ADB (Sovereign) (\$ million)	Green Energy Corridor and Grid Strengthening Project	(2015–)	500
	Solar Transmission Sector Project	(2017–)	175
	Madhya Pradesh Energy Efficiency Investment Program	(2011–2020)	367
	Madhya Pradesh Power Transmission and Distribution System Project	(2014–)	350
	Himachal Pradesh Clean Energy Transmission Investment Program	(2011–)	223
	Rajasthan Renewable Energy Transmission Investment Program	(2013–)	62
	Demand-Side Energy Efficiency Sector Project	(2016–2020)	200
	Assam Power Sector Enhancement Program	(2014–)	50
	Assam Power Sector Investment Program	(2014–)	90
	Clean Energy Finance Investment Program	(2014–)	200
	Solar Rooftop Investment Program	(2015–2019)	100
	Power Connectivity for Chennai–Kanyakumari Industrial Corridor	(2019–)	451

<sup>6</sup> The Government of India launched the DDUGJY scheme in December of 2014 to separate the electricity supply lines to agricultural and village (household) areas; strengthen and augment the subtransmission and distribution infrastructure in rural areas; install meters at distribution transformer, feeder, and consumer ends; and extend rural electrification. Under the DDUGJY scheme, funds are released against approved projects in installments, based on the achievement of specified milestones and fulfillment of other conditions.

<sup>7</sup> Government of India. 2019. [Executive Summary on Power Sector](#).

<sup>8</sup> Government of India. 2017. [India Three Year Action Agenda 2017–2018 to 2019–2020](#).

Development Partner	Project Name	Duration	Amount
World Bank (\$ million)	Jharkhand Power System Improvement Project	(2018–)	310
	Programmatic Electricity Distribution Reform Development Policy Loan Rajasthan	(2016–)	500
	India Energy Efficiency Scale-Up Project	(2018–)	300
	Andhra Pradesh 24X7 Power for All Project	(2019–)	240
	Shared Infrastructure for Solar Park Project	(2017–)	75
	Grid Connected Rooftop Solar Project	(2016–)	523
	Energy Efficiency at Micro, Small and Medium Enterprises Project	(2016–)	5
	North Eastern Region Power System Improvement Project	(2016–)	470
	JICA (¥ million)	Haryana Distribution System Upgradation Project	(2014–2019)
Transmission System Strengthening Project in Madhya Pradesh		(2016–)	15,457
Andhra Pradesh and Telenaga Rural HVDS Project		(2011–2018)	18,590
Tamil Nadu Transmission System Improvement Project		(2012–)	60,740
KfW (€ million)	Green Energy Corridor PGCIL	(2014–)	500
	Green Energy Corridor (Tamil Nadu, Rajasthan, Andra Pradesh, Himachal Pradesh, Gujarat, Madhya Pradesh, Maharashtra)	(2014–)	500
	Shongtong–Karchan Hydro Power Project in Himachal Pradesh	(2015–)	100
	Solar PV (Maharashtra)	(2015–)	92
	Solar Energy Partnership (without GOI Guarantee) with SBI	(2018–)	150
	Renewable Energy Finance Facility (without GOI Guarantee) with REC	(2018–)	200
	Energy Efficiency in Public Buildings with EESL	(2014–2020)	250

ADB = Asian Development Bank, EESL = Energy Efficiency Services Limited, GOI = Government of India, HVDS = high voltage distribution system, IREDA = India Renewable Energy Department Agency Ltd., JICA = Japan International Cooperation Agency, KfW = Kreditanstalt Für Wiederaufbau, PGCIL = Power Grid Corporation of India Limited, REC = Rural Electrification Corporation Ltd., SBI = State Bank of India.

Source: Asian Development Bank.

### C. Institutional Arrangements and Processes for Development Coordination

9. The Department of Economic Affairs (DEA) of India's Ministry of Finance coordinates and monitors projects funded by development partners in consultation with NITI Aayog (National Institution for Transforming India), line ministries, and state governments. State and central government entities proposing projects for external financing must submit preliminary project reports in a prescribed format to the DEA, providing information on the project rationale, justification, preliminary cost estimates, project readiness, innovative features, finance, and value addition expected from development partners. After obtaining comments and recommendations from line ministries (in the case of energy projects, this is usually the Ministry of Power or the Ministry of New and Renewable Energy), the DEA will decide which development partner to approach for support. This ensures proper coordination and optimal allocation of development

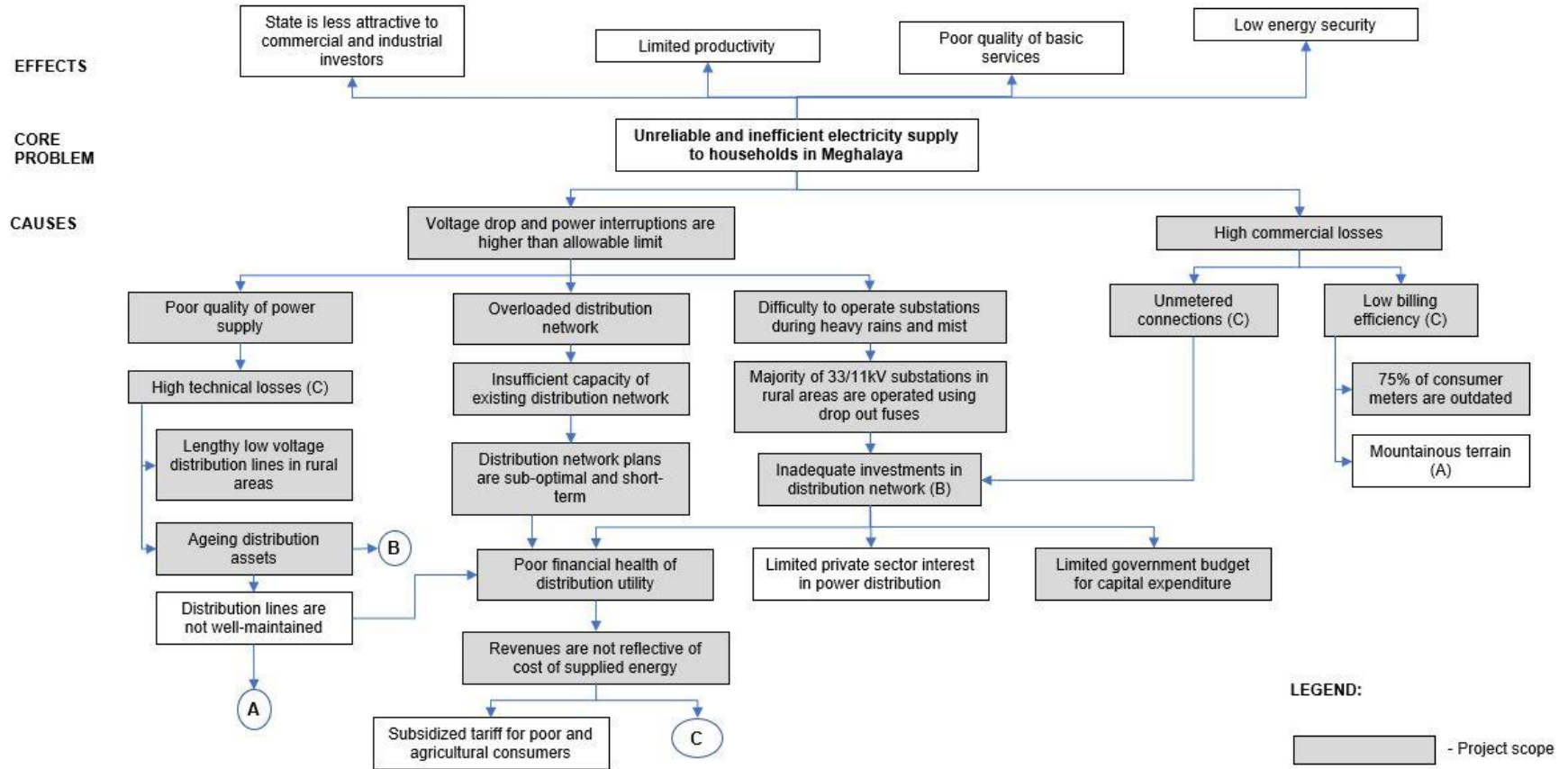
partner resources among states and avoids overlap and duplication of projects funded through development partners and/or domestic funds.

#### **D. ADB Sector Experience and Assistance Program**

10. **ADB sector experience.** As a multilateral development partner in India's power sector, ADB has supported several states, including northeastern states such as Assam, providing project loans for generation, transmission, and distribution projects, and has worked with state governments and utilities on reform measures and supported the regulatory commission in the neighboring state of Assam. ADB is currently assisting Meghalaya State on human capital development for (i) improving the quality and delivery of secondary and higher secondary school education and (ii) facilitating results-oriented technical and vocational skills training.

11. **Innovative operations.** ADB will continue to support state utilities in network investments and capacity development to strengthen transmission and distribution networks, reduce technical and commercial losses, and improve their financial health. In addition, ADB will provide continued support for low-carbon initiatives, including renewable energy and energy efficiency. Support for improving power distribution and supply efficiency will include (i) provision of advanced technology to increase billing and collection efficiency through smart meters; (ii) facilitation of demand-side management; and (iii) construction of additional substations and feeders for load diversion. ADB will share the lessons learned and experience gained in financing projects with similar technical design, contract management, and safeguard issues.

### PROBLEM TREE: ENERGY



**LEGEND:**  
 - Project scope