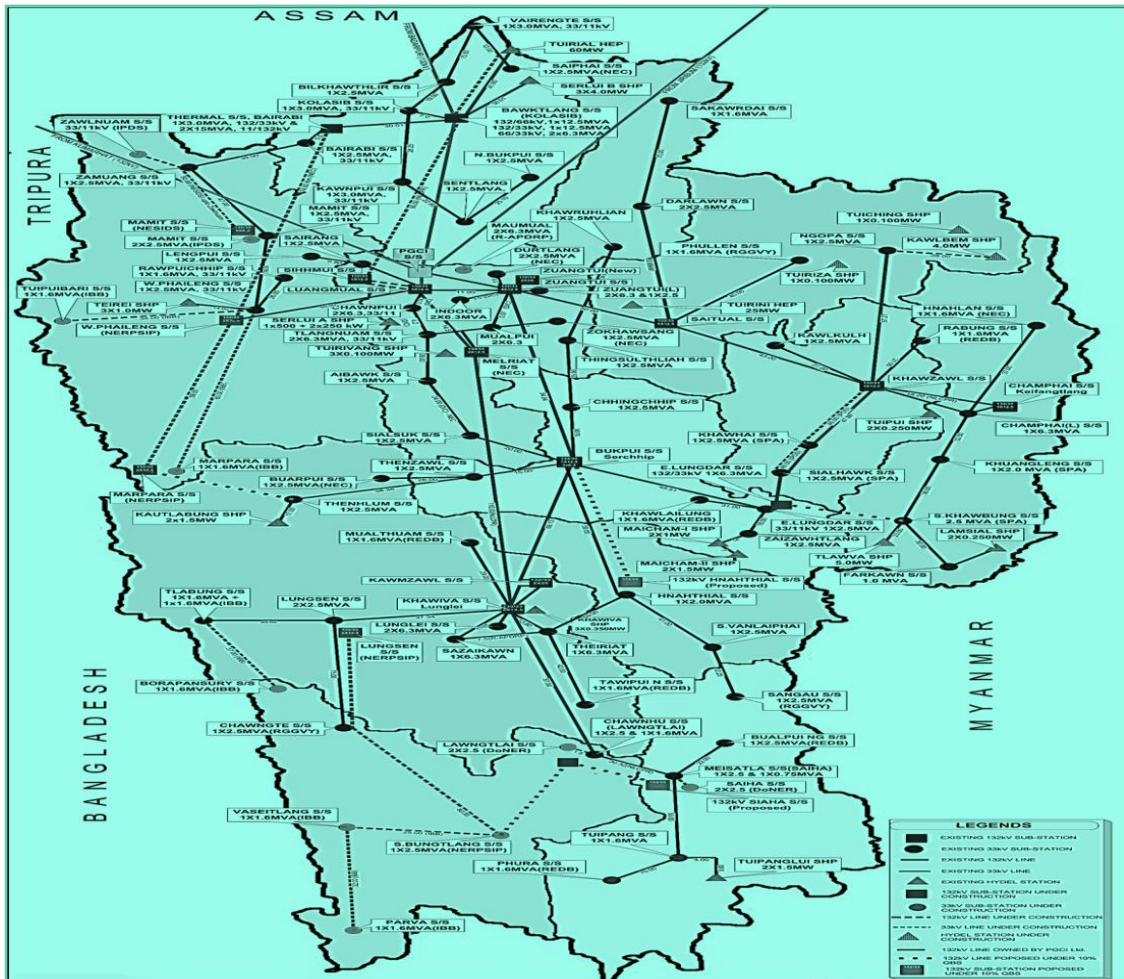




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REPORT ON INTRA STATE TRANSMISSION RESOURCE ADEQUACY PLAN FOR MIZORAM BY THE YEAR 2034-35



CENTRAL ELECTRICITY AUTHORITY

NEW DELHI

Disclaimer

This Intra-State Transmission Resource Adequacy Plan for the State has been prepared based on data and inputs provided by the State utilities. The analysis, findings, and conclusions contained herein rely on the accuracy, completeness, and timeliness of the information furnished by the State. Any errors, omissions, or inconsistencies in the data may influence the results of this study.

The Central Electricity Authority (CEA) has facilitated and supported the State in the preparation of this plan to address intra-state transmission requirements. The recommendations of this study—including but not limited to the establishment of new substations, construction of new transmission lines, reconductoring of existing lines, and augmentation of substations—depends upon data furnished by the State utilities. It is suggested to take up new intra-state elements, commensurate to the generation/demand in the area.

Executive Summary

Electricity (Transmission System Planning, Development and Recovery of Inter-State Transmission Charges) Rules 2021, provides that CEA to draw up short term plan every year on rolling basis for up to next five years and perspective plan every alternate year on rolling basis for next ten years.

Further, Guidelines for Resource Adequacy Planning Framework for India issued by MoP on 28.06.2023 provides that CEA to prepare the Resource Adequacy Plan for each State. Generation resource adequacy studies for the Mizoram State have already been carried out by CEA.

For the transmission part, this report presents a comprehensive assessment of the intra-state transmission infrastructure in Mizoram, with projections and planning aimed at ensuring transmission resource adequacy by the year 2034-35. The analysis incorporates current electricity demand, projected growth, existing and planned transmission assets, and key recommendations for strengthening the state's transmission network.

The highest peak demand met by Mizoram in 2024-25 was 168 MW, and Projected Peak Demand by 2034-35 is estimated to 344 MW, which is slightly less than the Electric Power Survey report. Further, existing Installed Capacity in the state is about 265.31 MW and state has planned 156 MW hydro capacity by 2034-35. Presently, the state has 1049 ckm of 132 kV lines. It has transformation capacity of 402 MVA at 132 kV level.

Considering the anticipated demand, generation capacity, demand pattern, operational feedback from NERLDC and SLDC, system studies have been conducted for low hydro high demand and high hydro low demand scenarios for the timeframe 2031-32 & 2034-35 in consultation with Mizoram, CTUIL and Grid-India. Based on the studies, the requirement of transmission system by the year 2034-35 has been identified.

A total of 294 MVA transformation capacity addition/augmentation and 659 ckm of new transmission lines/reconductoring of old lines at an estimated cost of ₹ 696.28 Crs. would be required for implementing the intra-state transmission proposals for meeting the electricity demand of the state by the year 2034-35. Further, reactive power compensation needs to be provided at various substations at distribution level for addressing low voltage issues.

Summary of year-wise MVA capacity, ckm addition at 132 kV voltage level and tentative expenditure required for implementation of above recommended proposals is given below

Financial Year	MVA Capacity Addition	Transmission line ckm Addition	Reconductoring (ckm)	Estimated Cost (in ₹ Cr.)
FY 2026-27	218.80	60	97.79	100.90
FY 2027-28	-	-	-	-

FY 2028-29	75	298.20	-	289.36
FY 2029-30	-	70	-	130.03
FY 2030-31	-	-	-	-
FY 2031-32	-	28	-	60.97
FY 2032-33	-	-	-	-
FY 2033-34	-	-	-	-
FY 2034-35	-	55	50	115.02
Total	293.80	511.20	147.79	696.28

To ensure reliable and adequate power supply in Mizoram by 2034-35, substantial investments and infrastructure upgrades are essential. With a projected demand of 344 MW and local generation and contracted capacity covering only part of this, a robust and resilient transmission network becomes critical. The outlined plan, if implemented timely, will ensure resource adequacy and support economic and industrial development in the State.

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Intra State Transmission Resource Adequacy of Mizoram by the year 2034-35

1. Demographics

Mizoram is a state in Northeastern India, with Aizawl as its seat of Government and capital city. The name of the state is derived from "Mizo", the self-described name of the native inhabitants, and "Ram", which in the Mizo language means "land." Thus "Mizo-ram" means "land of the Mizos". Within India's northeast region, it is the southernmost landlocked state, sharing borders with three of the Seven Sister States, namely Tripura, Assam and Manipur. The state also shares a 722-kilometre (449 mi) border with the neighbouring countries of Bangladesh and Myanmar

2. Electricity profile of state

2.1. Power generation-demand scenario of state:

2.1.1. In the FY 2024-25, Mizoram had peak electricity demand of 168 MW and total energy requirement of 714 MU. As on 28.02.2025, state has central sector allocation of 189.45 MW, which includes Hydro plants (97.94 MW) and Thermal plants (91.51 MW). In addition, State sector installed capacity is 45.47 MW and private sector installed capacity is 30.39 MW. The per capita electricity consumption of the state was 564 kWh in the year 2022-23

2.1.2. Peak demand & Energy of Mizoram state is given at Table 2-1 below

Table 2-1 Peak demand & Energy of Mizoram

Financial Year	Peak Demand(MW)	Energy(MU)
2018-19	121	643
2019-20	133	647
2020-21	132	728
2021-22	169	656
2022-23	159	645
2023-24	162	684
2024-25	168	714

Source: Power Supply Position Report, CEA

2.1.3. The graph indicating the above Peak Demand (MW) & Energy (MU) is given at Figure 2-1 & Figure 2-3 respectively below.

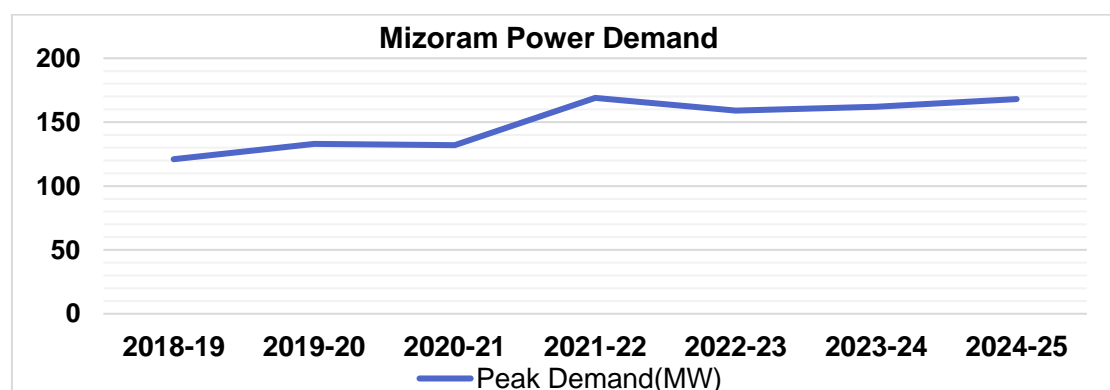


Figure 2-1 Peak Demand

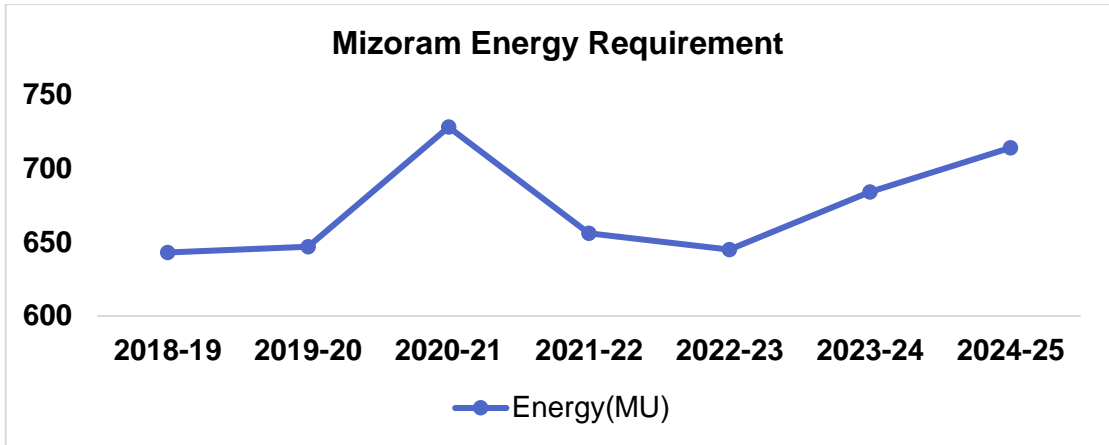


Figure 2-2 Energy Requirement

2.1.4. The peak demand of Mizoram occurs in winter and daily peak occurs in the evening period. The graph indicating of Seasonal Load variation in the year 2024 is given at Figure 2-3 below.

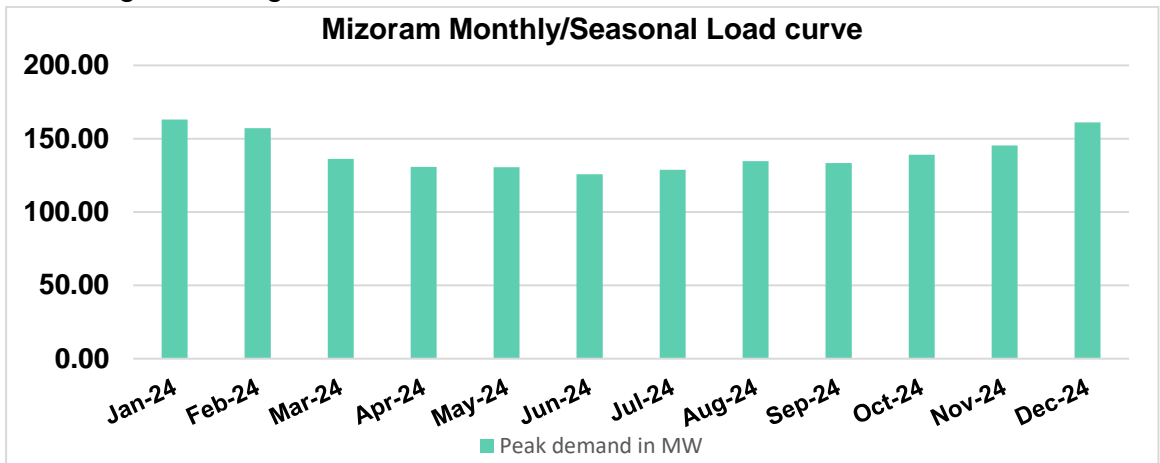


Figure 2-3 Seasonal Load Curve

2.1.5. The graph indicating of Hourly Load variation in the year 2024 is given at Figure 2-4 below.

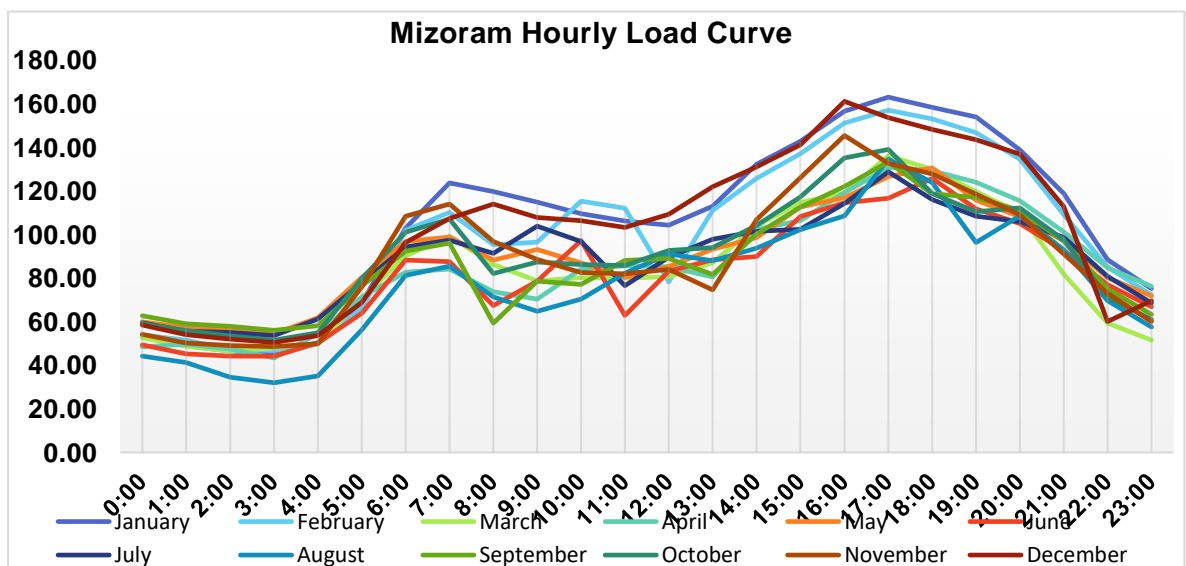


Figure 2-4 Hourly Load Curve

2.1.6. Contracted capacity (MW) by Mizoram as on March-2025 is given at Table 2-2 below:

Table 2-2 Contracted capacity by Mizoram

(All fig. in MW)

SECTOR	HYDRO	THERMAL					NUCL -EAR	R.E.S. (MNR E)	TOTAL
		COAL	LIGNITE	GAS	DIESEL	TOTAL			
State	0	0	0	0	0	0	0	45.47	45.47
Private	0	0	0	0	0	0	0	30.39	30.39
Central allocation	97.94	31.05	0	60.46	0	91.51	0	0	189.45
Total	97.94	31.05	0	60.46	0	91.51	0	75.86	265.31
%	36.98	11.70	0	25.95	0	34.71	0	28.30	100.00

Source: Installed Capacity Report, CEA

2.1.7. The graph indicating the generation capacity mix is given at Figure 2-5 below

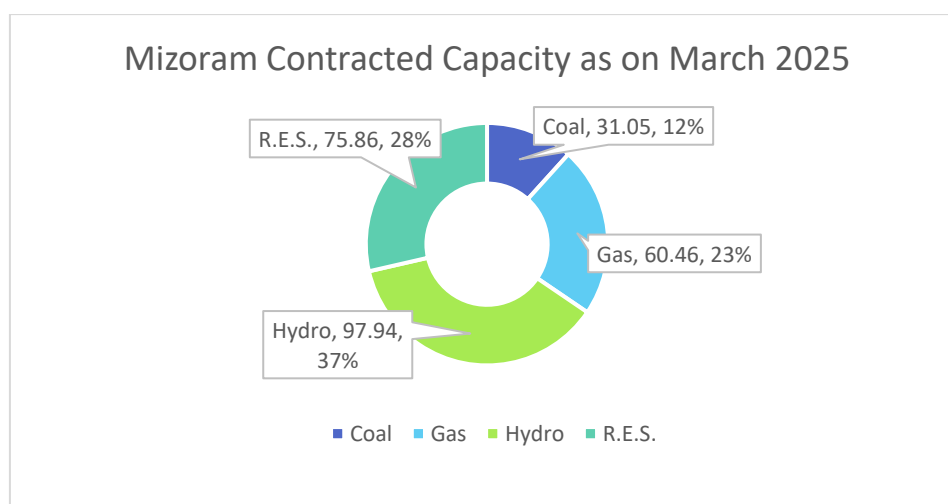


Figure 2-5 Contracted Capacity

2.1.8. As on March 2025, the General Network Access (GNA) quantum for ISTS drawal and Available Transfer Capability (ATC) of the state is 150 MW and 150 MW respectively.

3. Existing Transmission System

The details of existing Intra-state and Inter-state transmission system in Mizoram are as under.

3.1. Existing Intra State Transmission assets (as on 31.03.2025):

3.1.1. Intra State Transmission assets of Mizoram state in past five years is given at Table 3-1 below

Table 3-1 Intra State Transmission assets in Mizoram

Financial Year	Voltage (kV)	Transmission lines (ckm)	Substations (MVA)
2018-19	132	760.06	239.30

2019-20	132	760.30	283
2020-21	132	760.30	283
2021-22	132	877.60	339.30
2022-23	132	999.75	401.90
2023-24	132	1034.75	401.90
2024-25	132	1048.78	401.90

Mizoram state has total 1049 ckm of 132 kV transmission line and 402 MVA of 132 kV, Substation capacity in Intra-state transmission system.

3.1.2. The graph indicating of year-on-year growth of Transmission lines is given at Figure 3-1 below.

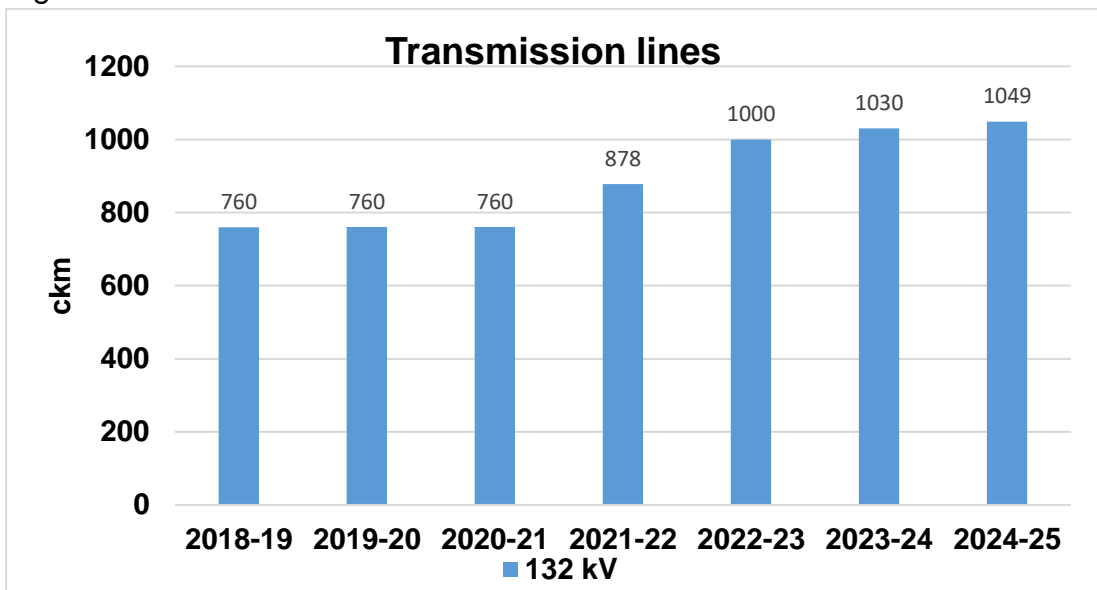


Figure 3-1 Existing Transmission Line

3.1.3. The graph indicating of year on year growth of substation MVA capacity is given at Figure 3-2 below.

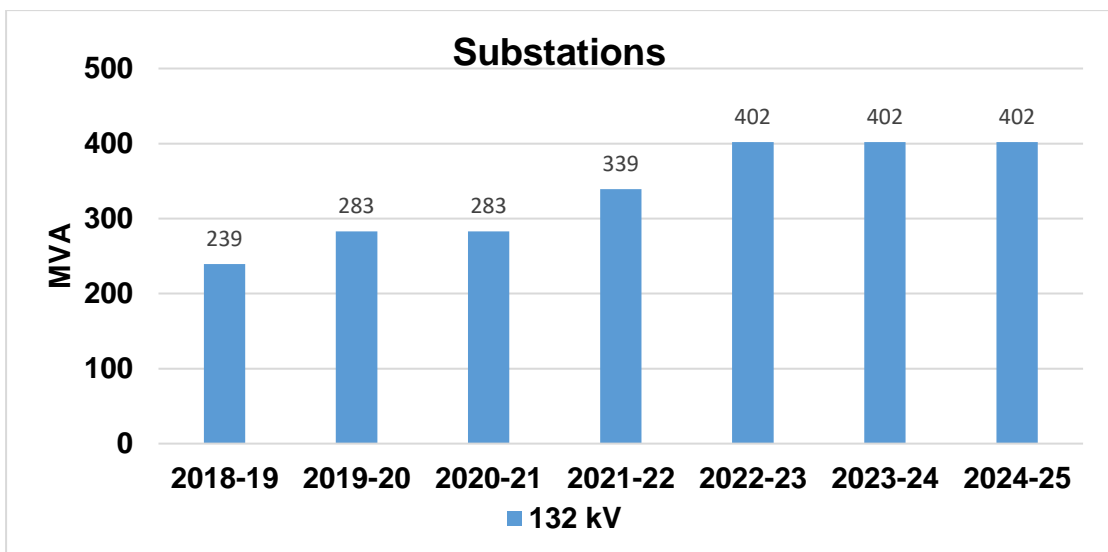


Figure 3-2 Existing Substations

3.2. Existing Inter State Transmission system in the state:

3.2.1. State has total 624 ckm of ISTS network. Brief details of the ISTS network (including ISTS lines owned by states) are given at Table 3-2 below:

Table 3-2 Existing ISTS of Mizoram

Voltage level	Existing
132 kV	337 ckm
400 kV	287 ckm
Total	624 ckm

4. **Under implementation Transmission System**

4.1. **Under implementation Intra-State Transmission assets (as on March 2025):**

The summary of under implementation Intra-state in Mizoram are given at Table 4-1.

Table 4-1 Under Implementation Intra-state transmission system assets in Mizoram (as on March 2025)

Voltage (kV)	Transmission lines (ckm)	Substations (MVA)
132	172.6	125.1

4.2. **Under implementation Inter-State Transmission assets (as on March 2025):**

Detailed of under implementation ISTS network in Mizoram (as on March, 2025) are as given below:

4.2.1. **Under Construction ISTS: RTM Mode (April, 2025)**

i. **NERES-XVIII:**

- Reconductoring of Melriat (GIS) (POWERGRID) – Zuangtui (Mizoram) 132 kV ACSR Panther S/c line with Single HTLS conductor of 900A (at nominal voltage level) (10.19ckm)

[Note: The existing line bay and dead tower at Melriat (POWERGRID) end of Melriat (POWERGRID) – Zuangtui (Mizoram) 132kV HTLS S/c line may be kept as spare bay after shifting of the line to newly constructed bay]

- One (1) new 132kV line bay at Melriat (GIS) (POWERGRID) S/s (of rating commensurate with rating of HTLS viz. 900A) for shifting of Melriat (GIS) (POWERGRID) – Zuangtui (Mizoram) 132kV HTLS line from existing bay and termination of the HTLS line in the new bay (0.5km including approx. 5 Nos. towers) (1ckm)
- Replacement of existing CT of 600/1A at Zuangtui (Mizoram) end in Melriat (GIS) (POWERGRID) – Zuangtui (Mizoram) 132kV S/c line with rating commensurate with ampacity (900A) of HTLS conductor

5. System operator feedback

The operational constraint faced in the Intra-state and Inter-state transmission network by NERLDC including transmission line constraints, ICT constraints, nodes experiencing high voltage/ low voltage are attached at **Annexure-I**. Mizoram SLDC informed that presently, no operational constraint is being faced by them in their Intra-state transmission system.

6. Assumptions for study:

- 6.1. Peak electricity demand (MW) of Mizoram according to the 20th EPS Report and as estimated by the State are given at Table 6-1 below:

Table 6-1 Peak electricity demand

Reference ↓ / Parameter →	Year	Peak Demand (MW)	CAGR
<i>Actual Peak</i>	2024-25	168	
<i>As per 20th EPS</i>	2025-26	215	27.98
	2026-27	231	17.26
	2027-28	249	14.02
	2028-29	268	12.38
	2029-30	289	11.46
	2030-31	309	10.69
	2031-32	331	10.17
<i>State Estimated Peak electricity demand</i>	2034-35	344	7.43
<i>As per 20th EPS</i>	2036-37	460	8.76

6.2. Industrial Demand:

- 6.2.1. The Food processing, agro based industries in various parts of Mizoram is being envisaged.

- 6.3. The following Parameters were considered during the study

- a) The total intra state generation installed capacity is 112 MW by the year 2031-32 and 244 MW by the year 2034-35. The details of existing and upcoming generation is as under

S.No.	Name of Plant	Installed Capacity (MW)	Time frame considered for the study
1.	Tuivai HEP	132 MW	2034-35
2.	Tuirial HEP	60 MW	Existing
3.	Turini HEP	24 MW	2031-32
4.	Solar Plant at Vankal	20 MW	2031-32

- b) Peak Demand: 331 MW by the year 2031-32 and 344 MW by the year 2034-35.

- c) Scenario of Study:

S.No.	Scenario	Demand Factor	Dispatch Factors
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1.	Low Hydro & Peak Demand	100%	Hydro Plant: 30% Solar Plant: 50%
2.	High Hydro & Low Demand	40%	Hydro Plant: 90% Solar plant: 0%

7. Study Results

7.1. Based on the demand and generation projections, the State has outlined its need for new transmission elements. Taking into account operational feedback from Mizoram SLDC and NERLDC, as well as the provisions in the Manual on Transmission Planning Criteria (with Amendment-I), 2025, studies were conducted to identify the state's transmission system requirements, which are detailed in Paragraph 8.

Taking in account of identified system and related assumptions the import/export on tie lines by the year 2031-32 are presented at Table 7-1 below:

Table 7-1 study results for the timeframe of 2031-32

Parameter↓ / Scenario→	High Hydro Low Demand	Low Hydro Peak Demand
Generation despatch (intra-state + ISGS located in state) (in MW)	78.5	18
Demand (in MW)	170	331
Net interchange ((-)import / (+)export) at ISTS-STU periphery (in MW)	-105	-292

The import/export on tie lines by the year 2034-35 are presented in Table 7-2 below.

Table 7-2 study results for the timeframe of 2034-35

Parameter↓ / Scenario→	High Hydro Low Demand	Low Hydro Peak Demand
Generation despatch (intra-state + ISGS located in state) (in MW)	220	83
Demand (in MW)	144	344
Net interchange ((-)import / (+)export) at ISTS-STU periphery (in MW)	76	-258

7.2. The Peak Demand scenario with low hydro scenario was found to be critical scenario during the system studies.

7.3. The line flows and voltage were in permissible limit as mentioned in the Manual on Transmission Planning Criteria (with Amendment-I), 2025 in the critical as well as other scenario after modelling the required additional transmission system by 2031-32 & 2034-35.

7.4. The planned transmission system of the State is N-1 contingency criteria compliant. The planned system addresses the all the constraints in the Intra-state transmission as mentioned by NERLDC at **Annexure-I**.

7.5. According to CEA's generation recourse adequacy report for Mizoram (2031-32) is likely to have unserved energy in coming years and may need to contract

coal -based capacities for meeting energy requirements other than the planned capacities. The quantum of coal-based capacities required to be contracted is about 152 MW by the year 2031-32.

The electricity demand of the state by the year 2034-35 would be 344 MW. The intra state generation and contract capacity would be 244 MW. The state would require to import additional power from ISTS network

- 7.6. The agreed system by the year 2031-32 & 2034-35 was modelled and studied considering the N-1 contingency criteria, and no constraints were observed in transmission system of Mizoram taking into account the RPO compliance. Hence, the transmission system as planned by 2031-32 & 2034-35 (including new schemes identified in this report) ensure the Transmission Resource Adequacy.

8. Intra-state Transmission system requirement by 2034-35.

- 8.1. New substations and associated transmission lines required by 2034-35 are listed at Table 8-1 below

Table 8-1 New substations alongwith their associated transmission lines of Mizoram

SI.No.	Transmission System	Justification	Estimated Cost (in ₹ Cr.)	Remarks
1.	Establishment of new 132/33 kV, 2x12.5MVA Substation at Hnahthial	To meet the future load demand the S/s is required	31.87	Time frame: 2028-29
	Bukpui – Hnahthial 132 kV D/c line (110 ckm) along with 2 Nos. of 132 kV bays at Bukpui S/s		69.94	
2.	Establishment of new 132/33 kV, 2x25 MVA, Substation at Siaha	To meet the future load demand the S/s is required	16.38	Time frame: 2028-29
	Siaha – Lawngtlai 132 kV D/c line (87 ckm) (initially to be operated at 33 kV) alongwith associated bays at both end		51.15	

- 8.2. New Intra-state Transmission lines which are required by 2034-35 are listed at Table 8-2 below

Table 8-2 New Transmission lines of Mizoram

SI.No.	Transmission System	Justification	Estimated Cost (in ₹ Cr.)	Remarks
1.	Melriat (POWERGRID) – Melriat (Mizoram) 132 kV S/c line (using at least 1000 A HTLS conductor) (23 ckm) alongwith associated bay at both end	Melriat (POWERGRID) – Melriat (Mizoram) are connected via Aizawl (POWERGRID) and Luangmual (Mizoram). This direct line will provide additional path	26.95	Time frame: 2028-29

SI.No.	Transmission System	Justification	Estimated Cost (in ₹ Cr.)	Remarks
		to feed Melriat (Mizoram)		
2.	2 nd circuit Stringing of Khawzawl – Champhai 132 kV S/c line on D/c tower (18 ckm) alongwith associated bay at both end	Improvement in reliability and redundancy in power supply at Champhai District	22.78	Time frame: 2028-29
3.	Tuirial HEP – Darlawn 132 kV S/c line on D/c tower (70 ckm) alongwith associated bay at both end	At present, Darlawn 132/33 kV S/s is connected to only Saitual S/s at 132 kV level. As such, to provide N-1 reliability at Darlawn, the line from Tuirial HEP to Darlawn 132 kV S/c on D/c tower is proposed. Improvement in reliability and redundancy in power supply & evacuation of power from 60MW Tuirial HEP	130.03	Time frame:2029-30
4.	S.Bungtlang – Lawngtlai 132 kV S/c line on D/c tower (initially to be charged at 33kV) (60 ckm) alongwith associated bay at both end	Improvement in reliability and redundancy in power supply at Lawngtlai District	70.29	Time frame: 2028-29 Mizoram has informed that they are seeking funding from other sources(10%GBS)
5.	Marpara – Thenhlum 132 kV S/c line (initially to be operated at 33kV) (26 ckm) alongwith associated bay at both end	Improvement in reliability and redundancy in power supply at Serchhip District	30.46	Time frame: 2026-27 Mizoram has informed that they are seeking funding from other sources(10%GBS)

8.3. Reconductoring of existing transmission lines which are required by 2034-35 are listed at Table 8-3 below

Table 8-3 Reconductoring of existing transmission lines of Mizoram

SI.No.	Transmission System	Justification	Estimated Cost (in ₹ Cr.)	Remarks
1.	Zuangtui – Sihhmui 132 kV S/c line (27	On N-1 contingency of Zuangtui – Melriat (PG) 132 kV S/c line, the other circuit	12.34	Time frame: 2026-27

Sl.No.	Transmission System	Justification	Estimated Cost (in ₹ Cr.)	Remarks
	ckm) with at least 800 A HTLS conductor along with upgradation of requisite bay equipment	gets overloaded. To relieve the loading of Zuangtui – Melriat 132 kV S/c line on N-1 contingency, reconductoring of this line is required. <ul style="list-style-type: none"> • Ampacity of Existing conductor- 395 A • Year of commissioning- 1995 • Ampacity of HTLS- 800 A 		
2.	Luangmual – Melriat 132 kV S/c line (17 ckm) with at least 800 A HTLS conductor along with upgradation of requisite bay equipment	Improvement in reliability and redundancy in power supply at State Capital. <ul style="list-style-type: none"> • Ampacity of Existing conductor- 395 A • Year of commissioning- 2015 • Ampacity of HTLS- 800 A 	5.60	Time frame: 2026-27
3.	Zuangtui – Bukpui 132 kV S/c line (50 ckm) with at least 800 A HTLS conductor along with upgradation of requisite bay equipment	Improvement in reliability and redundancy in power supply within the State N-1 contingency of Zuangtui – Saitual 132 kV S/c line, leads to overloading of Zuangtui – Bukpui 132 kV S/c line. <ul style="list-style-type: none"> • Ampacity of Existing conductor- 395 A • Year of commissioning- 1986 • Ampacity of HTLS- 800 A 	20.86	Time frame: 2026-27
4.	Zuangtui – Saitul 132 kV S/c line (50 ckm) with at least 800 A HTLS conductor along with upgradation of requisite bay equipment	Improvement in reliability and redundancy in power supply within the State <ul style="list-style-type: none"> • Ampacity of Existing conductor 395 A - • Year of commissioning- 1986 • Ampacity of HTLS- 800 A 	20.86	Time frame: 2034-35

Note: - Before taking up the reconductoring, state shall ensure Tower healthiness and commensurate rating of Bay equipment.

8.4. Augmentation of following 132 kV Sub-Station (7 Nos) which are required by 2034-35 are listed at Table 8-4 below

Table 8-4 Augmentation of Substations of Mizoram

Sl.No.	Transmission System	Justification	Estimated Cost (in ₹Cr.)	Remarks
1.	Augmentation of 132/33 kV, Bawktlang S/s	Improvement in reliability and redundancy in power supply within the State	7.21	Time frame: 2026-27 After augmentation Total ICT capacity: 2x25 MVA

Sl.No.	Transmission System	Justification	Estimated Cost (in ₹Cr.)	Remarks
		Existing ICT capacity: 2x12.5 MVA		Mizoram has informed that they are seeking funding from other sources (10% GBS).
2.	Augmentation of 132/33 kV, Saitual S/s	Improvement in reliability and redundancy in power supply within the State Existing ICT capacity: 1x12.5 MVA	2.75	Time frame: 2026-27 After augmentation Total ICT capacity: 2x12.5 MVA Mizoram has informed that they are seeking funding from other sources (10% GBS).
3.	Augmentation of 132/33 kV, Melriat S/s	Improvement in reliability and redundancy in power supply within the State Existing ICT capacity: 2x12.5 MVA	7.31	Time frame: 2026-27 After augmentation Total ICT capacity: 2x25 MVA Mizoram has informed that they are seeking funding from other sources (10% GBS).
4.	Augmentation of 132/33 kV, Khawzawl S/s	Improvement in reliability and redundancy in power supply within the State Existing ICT capacity: 1x12.5 MVA	2.77	Time frame: 2026-27 After augmentation Total ICT capacity: 2x12.5 MVA Mizoram has informed that they are seeking funding from other sources (10% GBS).
5.	Augmentation of 132/33 kV, Champhai S/s	Improvement in reliability and redundancy in power supply within the State Existing ICT capacity: 1x12.5 MVA	2.81	Time frame: 2026-27 After augmentation Total ICT capacity: 2x12.5 MVA Mizoram has informed that they are seeking funding from other sources (10% GBS).
6.	Augmentation of 132/33 kV, Serchhip S/s	Improvement in reliability and redundancy in power supply within the State Existing ICT capacity: 2x12.5 MVA	5.96	Time frame: 2026-27 After augmentation Total ICT capacity: 1x25 & 1x12.5 MVA Mizoram has informed that they are seeking funding from other sources (10% GBS).
7.	Augmentation of 132/33 kV, E.Lungdar S/s	Improvement in reliability and redundancy in power supply within the State Existing ICT capacity: 1x6.3 MVA	2.83	Time frame: 2026-27 After augmentation Total ICT capacity: 1x6.3 & 1x12.5 MVA Mizoram has informed that they are seeking funding

Sl.No.	Transmission System	Justification	Estimated Cost (in ₹Cr.)	Remarks
				from other sources (10% GBS).

8.5. Evacuation system for upcoming hydro projects which are required by 2034-35 are listed at Table 8-5 :

Table 8-5 Evacuation system for upcoming hydro projects of Mizoram

S.No	Transmission System	Justification	Estimated Cost (in ₹Cr)	Remarks
1.	Turini HEP – Thingsulthliah 132 kV D/c line (28 ckm) along with 2 Nos. 132 kV line bay at Thingsulthliah	Transmission system for evacuation of power from HEP	60.97	Time frame: 2031-32 matching with Generating Station
2.	Tuivai HEP – Saitual 132 kV D/c line (55ckm) along with associated bay at both end	Transmission system for evacuation of power from HEP	94.16	Time frame:2034-35 matching with Generating Station

8.6. The power map of the state, including the above planned system is attached at **Annexure-II.**

9. Inter-state Transmission system requirement by 2034-35.

9.1. The requirement of Inter-state transmission system (ISTS) in Mizoram would be identified after the study of complete transmission system including neighbouring states and GNA quantum indicated by the state.

9.2. Planned ISTS System

- (I). Upgradation of existing Melriat (POWERGRID) 132kV switching station to 400/132kV S/s

10.Reactive Power Compensation:

10.1. The following reactive power compensation requirement has been identified to be implemented in the state:

Sl. No.	Name of Substation (132 kV Level)	Capacitor requirement at downstream Distribution level (in MVar)
1.	Champhai	2x15
2.	Hnahthial	10
3.	Lunglei-khaw	15
4.	Melriat-mizoram	10
5.	S khawbung	10
6.	Saiha	10

11. Summary of identified transmission system by 2034-35:

11.1. A total of 294 MVA transformation capacity addition/augmentation and 659 ckm of new transmission lines/reconductoring of old lines at an estimated cost of ₹ 696.28 Crs. would be required for implementing the intra-state transmission proposals for meeting the electricity demand of the state by the year 2034-35.

The summary of identified transmission system of the state by 2034-35 is as below:

132 kV Transmission system

S.No.	Transmission System	No.	Length (in ckm)	Capacity (in MVA)	Estimated Cost (in ₹Cr)*
1.	New substation	2	-	75	48.25
2.	Augmentation of existing substation	7	-	218.8	31.64
3.	New transmission line including LILO and 2nd Ckt Stringing	9	511	-	556.73
4.	Reconductoring of transmission line	4	148	-	59.66

*Note: The estimated cost of the above transmission system is based on Schedule of Rates (SoR) 2023 of Power & Electricity Department, Mizoram.

11.2. Summary of year-wise MVA capacity, ckm addition at 132 kV voltage level and tentative expenditure required for implementation of above recommended proposals is given Table 11-1 at below:

Table 11-1 Yearwise implementation summary of proposed transmission system

Financial Year	MVA Capacity Addition	ckm Addition	Reconductoring (ckm)	Estimated Cost (in ₹ Cr.)
FY 2026-27	218.80	60	97.79	100.90
FY 2027-28	-	-	-	-
FY 2028-29	75	298.20	-	289.36
FY 2029-30	-	70	-	130.03
FY 2030-31	-	-	-	-
FY 2031-32	-	28	-	60.97
FY 2032-33	-	-	-	-
FY 2033-34	-	-	-	-

FY 2034-35	-	55	50	115.02
Total	293.80	511.20	147.79	696.28

12. Conclusion

- 12.1. By the year 2034-35, the power demand of Mizoram would be increasing significantly. Total expected demand of Mizoram by the year 2034-35 is about 344 MW. This anticipated increase in demand includes the expected industrial load coming progressively from 2024-25 to 2034-35.
- 12.2. About 02 Nos. of hydro power projects connected with Intra-state transmission network are expected to be commissioned by 2034-35.
- 12.3. In order to meet this growing load demand, evacuation of power from hydro generation and for drawal of power from ISTS in accordance with GNA requirement of Mizoram by 2034-35, the intra-state as well as inter-state transmission system of Mizoram need to be strengthened. It has been observed that the transmission system infrastructure in Mizoram at voltage levels of 132 kV and 400 kV needs to be upgraded.
- 12.4. The planned network is related to the intra-state transmission system of the State, the State is also advised to plan its downstream network at distribution level in matching timeframe with this planned transmission system.
- 12.5. At some of the sub-stations there may be low voltage issues due to long lines the State is advised to installed suitable capacitor at distribution level (i.e. 33 kV or 11 kV level). The compensation requirement is given at Paragraph-10 above in this report.
- 12.6. It is recommended that Mizoram shall update their intra-state transmission systems on the PM GatiShakti (PMGS) National Master Plan on regular basis.
- 12.7. The quantum of GNA is nearing the ATC of the Mizoram and demand of the state is increasing, therefore, the state is advised to take up their transmission system strengthening progressively. As per CERC (Connectivity and General Network Access to the Inter-State Transmission System) Regulations, 2022 States (STUs) may apply for additional GNA once in a financial year by the month of September for the next 3 (three) financial years. Therefore, it is suggested that State shall assess their GNA requirement and apply well before considering the timelines prescribed in the regulations.
- 12.8. A total of 294 MVA transformation capacity addition/augmentation and 554 ckm of new transmission lines/reconductoring of old lines at an estimated cost of ₹ 581.26 Cr. would be required for implementing the intra-state transmission proposals for meeting the electricity demand of the state by the year 2031-32.
- A total of 294 MVA transformation capacity addition/augmentation and 659 ckm of new transmission lines/reconductoring of old lines at an estimated cost of ₹

696.28 Crs. would be required for implementing the intra-state transmission proposals for meeting the electricity demand of the state by the year 2034-35.

Annexure -I

Operational feedback from NERLDC/NLDC

a) Constraints in Transmission Lines

At present, the Mizoram power system operates in three different radial modes details thereof is as under:

S.No.	Constraints in System	Affected station
1.	Connected to the 132 kV Kolasib: Kolasib – Bairabi 132 kV S/c and Kolasib - Tural 132 kV S/c are operating radially.	Tural, Bairabi and Serlui B
2.	Melriat (PG) - Zuangtui - Saitual-Khawzawl & Zuangtui-Serchip-E.Lungdar 132 kV link operate radially. Serchip-Lunglei (Khawiva) 132 kV line kept in open condition.	Zuangtui, Saitual,Khawzawl,- Serchip,E-Lungdar
3.	Aizawl-Luangmual-Melriat (Mz) -Lunglei (Khawiva) 132 kV link operate radially. Serchip-Lunglei (Khawiva) 132 kV line kept in open condition.	Luangmual, Melriat(Mz), Lunglei(Khawiva)

