



Annexure 1

Long panel estimation

First, the fixed effect panel model is estimated using ordinary least squares regression. The error terms obtained from this estimation were analysed to identify the relationship exhibited by error terms for a given state in different time periods. The objective was to identify the dependence of an error term in time period 't', if any, on the error terms of previous periods.

Second, the strength of correlation in errors at various lags is studied using the autocorrelation function (ACF) plot. The ACF plot is a visual way to see serial correlation in time-series data. ACF gives a summary of correlation at different periods of time. The plot shows the correlation coefficient for the series lagged by one delay at a time. From the ACF plot, it was observed that the error terms exhibit serial correlation for AR (1). This implies that the error term in time period 't' is dependent on the error term of the previous period. As expected, error terms were also dependent on lags of 12 (error of the same month in the previous year) as electricity demand is bound to have a high degree of seasonality.

The estimation technique called Prais-Winsten regression is used to account for serial correlation in errors within each state. It allows for state-specific AR (1) model for the error over as

$$u_{it} = \rho_i u_{i(t-1)} + \varepsilon_{it},$$

where ε_{it} are serially uncorrelated and ρ_i is coefficient of autocorrelation for state . It applies a Cochrane - Orcutt transformation for all observation (except the first observation¹⁰) in a way to eliminate the serial correlation in the error term u_{it} so that we can work with serially uncorrelated error ε_{it} in the model:

$$U_{it} - \rho U_{i(t-1)} = E_{it}$$

Applying this transformation to all variables, we obtain the final equation for the model for each state:

$$\ln E_{it} - \rho_i \ln E_{i,t-1} = \Theta(X_{it} - \rho_i X_{i,t-1}) + \alpha_i(1 - \rho_i) + \varepsilon_{it}$$

Where E_{it} is the electricity demand of state 'i' in time period 't', represents all the independent variables other than the constant term (such as GDP, electricity prices, rainfall etc.), Θ is the vector of parameters and α is a state-specific constant.

$$\sqrt{(1 - \rho_i^2)} \ln E_{it} = \Theta \sqrt{(1 - \rho_i^2)} X_{it} + \alpha_i \sqrt{(1 - \rho_i^2)} + \sqrt{(1 - \rho_i^2)} \varepsilon_{it}$$

Panel data typically displays both contemporaneous correlation across states and state-level heteroskedastic. This

¹⁰ For the first observation, it makes a transformation in the following way:



results in incorrect inferences from standard errors produced by Ordinary Least Squares. Panel Corrected Standard Error (PCSE) are used in the current study to account for these deviations from spherical errors and allowing for better inferences from linear models estimated from panel data.

Partial adjustment model

The theoretical specification of the model is inspired by the paper ‘A partial adjustment model of US electricity demand by region, season and sector’ by Anthony Paul, Erica Myers and Karen Palmer.

The equilibrium energy demand of the economy that is expected to prevail in the long-run has been modelled by Q^* . At any point of time, the actual electricity demand prevailing in the economy is denoted as Q_t . The actual consumption varies from the desired consumption levels as the capital stock is not at the long-run equilibrium levels. In every time period, consumers try to reduce a part of the gap between their actual consumption and the long-run equilibrium level.

To model the equilibrium-desired level of electricity demand, we have assumed a Cobb Douglas relationship between equilibrium energy demand Q^* and its drivers (i.e. price, income and other covariates).

$$Q_{i,t}^* = f(P_{i,t}, X_{i,t}) = \alpha P_{i,t}^{\varepsilon_L} X_{i,t}^{\beta}$$

Consumers try to bring their actual level of consumption in line with the equilibrium level. However, they are only partially successful in every period to close this gap.

As capital is not immediately mobile, we use habitual parameters to model energy demand behaviour — that capture the constrained capacity of consumers to immediately adjust to the long-run equilibrium level of consumption in response to a change in price, rainfall, weather or other factors.

This habitual response of consumers is captured through two parameters. The parameter θ_1 captures the strength of month-to-month behavioural inertia based on the monthly rate of capital turnover for equipment that is operated in all months (e.g. refrigerators). The parameter θ_{12} captures the strength of year-on-year behavioural inertia based on the rate of capital turnover that has a seasonal usage pattern (e.g. air conditioners).

$$\left(\frac{Q_{i,t}}{Q_{i,t-1} Q_{i,t-12}} \right) = \left(\frac{Q_{i,t}^*}{Q_{i,t-1}^*} \right)^{\theta_1} \left(\frac{Q_{i,t}^*}{Q_{i,t-12}^*} \right)^{\theta_{12}}$$

These parameters take a value between 0 and 1, according to which 0 reflects a situation whereby consumers are completely unable to adjust their energy consumption towards the long-run equilibrium level and 1 reflects a situation whereby the capital stock can adjust immediately and no behavioural inertia exists. In reality, we expect a value between 0 and 1 to give a true picture of reality.

Using the above two models, the final specification of the model is specified as:

$$\ln Q_{i,t} = \frac{(1-\theta_1)}{2} \ln Q_{i,t-1} + \frac{(1-\theta_{12})}{2} \ln Q_{i,t-12} + \frac{(\theta_1 + \theta_{12})}{2} (\varepsilon_L \ln P_{i,t} + \beta \ln X_{i,t})$$



Annexure 2

Details of the data used

1. State GDP

The GDP data is used for every state on an annual level from FY 2002-03 to FY 2015-16. The complete data has been sourced from the Central Statistical Office (CSO), MOSPI. The GDP data between FY 2002-03 and FY 2016 was not at the same base year. The base years corresponding to the data obtained from MOSPI were as follows:

- FY 2002-03 and 2004: Base year was FY 2000
- FY 2005-FY 2011: Base year was FY 2005
- FY 2012-FY2016: Base year was FY 2012

To bring all the data on the same base year, the GDP values for all years were converted to the base year of FY 2012 as on 01.01.2018.

GDP (Factor) at base price (FY 2011-12)

FY	GDP (in Crores)	FY	GDP (in Crores)	FY	GDP (in Crores)
2000	3433272	2006	5025695	2012	8106946
2001	3582737	2007	5506611	2013	8546275
2002	3790873	2008	6019940	2014	9063649
2003	3936311	2009	6424768	2015	9712133
2004	4271604	2010	6976910	2016	10503348
2005	4590636	2011	7598676	2017	11247629

Assumptions made for obtaining future GDP

For forecasting the GDP data, several assumptions were made both at the all-India and state level.

- The all-India growth rate for FY 2016-17 was taken as 7.1% based on actual data from MOSPI. Similarly, the all-India growth rate for FY 2017-18 was taken as 6.6% based on the provisional estimate of GDP from the MOSPI. For subsequent years, different rate of growth for GDP has been assumed for different scenarios.
- After FY 2017-18, the growth pattern of all-India GDP is assumed to change according to three possible scenarios — baseline or BAU, pessimistic and optimistic scenario. The BAU case assumes that GDP at the all-India level will continue to increase at about 7.3% CAGR obtained during FY 2000-01 and FY 2017-18, and there will be no significant deviations from these past trends. The growth rate is varied over time but the CAGR of 7.3% is achieved during FY2018-19 and FY 2036-37. The growth rate is assumed to rise for the next five years until FY 2022-23 and then allowed to taper from FY 2023-24 according to the following:



Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	FY 2031 - FY 2037
GDP Baseline growth (%)	7.1	6.6	7.5	7.8	8	8	8	7.8	7.6	7.5	7.4	7.3	7.2	7.1	7

In the pessimistic growth scenario, the all-India GDP is assumed to grow at 6.5% for all future years from FY 2018-19 to FY 2036-37. In the optimistic growth scenario, the all-India GDP is assumed to grow at 8% for all future years from FY 2018-19 to FY 2036-37.

- c) After obtaining all-India GDP, it is allocated at the state level. First, the future GDP share of all states was forecast till FY 2025-26. This was done using a regression framework. The dependent variable used was the existing state GDP shares from FY 2002-03 to FY 2015-16. The only independent variable used was time. The state-wise GDP forecasts were obtained by multiplying the state shares obtained from the above regression with the values of all-India GDP. State-wise GDP obtained is normalised, so that it totals to All-India GDP.
- d) After FY 2025-26, states are assumed to grow at the rate of FY 2025-2026 till FY 2036-37. Under this approach, all-India GDP (sum of state-wise forecasts) and state-wise shares in all-India GDP are obtained for all future years. These state-wise shares are then used to allocate all-India GDP forecasts obtained under different scenarios to different states. This ensures that the sum of state-wise GDP forecasts sum to the all-India GDP forecasts obtained under different scenarios in every future year.

2. Population

The population statistics for every state for FY 2000-01 and FY 2010-11 are obtained from the census data. For every state, we have used the population data for FY 2000-01 and FY 2010-11 to construct the population statistics from FY 2002-03 to FY 2015-16. This is done using a two-step procedure — in the first step, the state-wise population CAGR was calculated from 2000-01 to 2010-11; in the second step, the calculated CAGR was used to fit a population trend for all states till FY 2015-16.

Assumptions for forecasting

For forecasting the population data, several assumptions were made for the all-India and state levels as follows:

- a. The all-India population data for FY 2020-21, FY 2030-31 and FY 2040-41 was obtained from the UNDP website.
- b. This data was used to calculate the all-India population CAGR between 2010-11 and 2020-21. This CAGR was applied to compute the all-India population figures for FY 2016-17, FY 2017-18, FY 2018-19 and FY 2019-20.
- c. The following steps were performed to estimate the state-wise population figures for FY 2020-21:



- The state-wise population growth rate and all-India population growth rate were calculated between FY 2000-01 and FY 2010-11. The relationship between the two growth rates (state-level and all-India) was established by taking the ratio of the state growth rate to all-India growth rate. For example, the population growth at the all-India level was 17.64% between FY 2000-01 and FY 2010-11. During the same period, population growth for Maharashtra was 15.99%. Thus, the ratio of the two growth rates (15.99/17.64) measures the degree to which the state-wise population growth rate is higher than (if the ratio is greater than one), lower than (if the ratio is more than one) or equal to (if ratio is equal to one) the all-India population growth rate.
 - Using the all-India population figures between FY 2011 (census) and FY 2021 (UNDP), the all-India population growth rate was computed as 15.47% between FY 2011 and FY 2021. The all-India population for FY 2021 is then allocated to different states assuming that the same population growth rate relationship between a given state and national estimates for FY 2000-01-FY 2010-11 (as observed in Step1) will continue in the future between FY 2010-11 and FY 2020-21. For example, in case of Maharashtra the growth rate of population of 14.02% during FY 2011 and FY 2021 was obtained by multiplying 15.47% all-India growth rate by the past ratio of population growth rate of Maharashtra to all-India growth rate ($15.47 \times 15.99 / 17.64$). This process is repeated for all other states and state-level population estimates are obtained for FY 2021. Under this approach, the all-India population (sum of individual state-wise forecasts) will be close to the UNDP forecasts but not exactly same. Thus, state-wise shares in the all-India population (as obtained by the sum of individual state-wise forecasts) are obtained for FY 2021. These state-wise shares are then used to allocate all-India population forecasts obtained from the UNDP to different states for FY 2021. This ensures that the sum of state-wise population forecasts sum to the all-India population forecasts obtained from the UNDP.
- d. Given the state population values of 2010-11(census) and 2020-21(computed), the state-wise population CAGR is computed for FY 2010-11–FY2020-21. This CAGR is applied to estimate the state-wise population values for FY 2011-12–FY 2019-20. The same process has been repeated for population figures for FY 2021-FY 2031 and FY 2031-FY 2041.

3. Price

Price data is obtained at the annual level for every state for the period FY 2002-03–FY 2015-16. The complete data on prices is obtained from the report on 'Electricity Tariff & Duty and Average rates of electricity supply in India' published by the Central Electricity Authority, Government of India. Furthermore, the consumer price index for industrial workers (CPI-IW) is used to adjust the nominal prices for inflation. The complete CPI data is obtained from the Labour Bureau, Ministry of Labour and Employment.

The CPI-IW (CPI for industrial workers) figures were used as these figures are available state-wise for the period of analysis. The entire CPI-IW data was available on two base years — the base year for CPI-IW data after January 2006 is FY 2001 and the base year for CPI-IW data from January 2003 to December 2005 is FY 1983. The data was used after transforming the data on a common base year. For the purpose of our analysis,



the CPI-IW data for 2003 and 2004 on the base year FY 1983 was converted to the base year FY 2001. In order to do this conversion, the conversion rates specified by the Labour Bureau (http://labourbureau.new.gov.in/LBO_LinkingFactors.htm) were used.

The electricity price tariff for every state is available for five categories — domestic, agriculture, commercial, small industries, medium industries and large industries. Within each category, electricity tariffs are further divided according to multiple sub-categories. A price variable was constructed to obtain an average annual price for every state across different consumer categories. The construction of this price variable was implemented using a two-step averaging process:

- a) Under each category of Domestic, Agriculture, Commercial, Small Industries, Medium Industries and Large Industries, electricity tariffs are further divided according to multiple sub-categories according to the amount of consumption. A simple average was taken across all subcategories to obtain a representative figure of that category.
- b) A weighted average value was taken to combine the six categories of Agriculture, Commercial, Small Industries, Medium Industries and Large Industries to obtain a single electricity price value for every state. The weights were used according to the respective shares of Agriculture, Commercial, Industry (Small, Medium and Large) in the overall state electricity consumption.
- c) The obtained value for nominal price was converted to real price (adjustment for inflation) through division by the state-wise CPI-IW.

Assumptions for forecasting

For forecasting the price values, the state-wise real price value for FY 2016 was assumed to continue for all years from FY 2016-17 to FY 2036.

4. Rainfall

Rainfall data is obtained state-wise for every month from FY 2002-03 to FY 2015-16. The source of the complete data is <https://en.tutiempo.net/climate/india.html>.

Two primary assumptions have been made to account for the missing values of rainfall in the data set obtained. When less than 15 days in the month are missing, the rainfall value of the previous day available was used. For missing values in a month of more than 15 days, the rainfall values for the same month in the previous year were used. This is because rainfall is assumed to follow a similar trend for a given month over time.



Assumptions for forecasting

For forecasting the value of rainfall, the 14 available weather scenarios for the past years were used (FY 2002-03–FY 2015-16).

5. Cooling degree days (CDD) and heating degree days (HDD)

Temperature data is obtained state-wise for every month from FY 2002-03 to FY 2015-16. Data was taken for 75 Indian Meteorological Department (IMD) stations nationally for which temperature data was available for the period FY 2002-03– FY 2015-16. The complete list of stations used for the weather data has been specified state-wise in the table below. The source of the complete data is <https://en.tutiempo.net/climate/india.html>.

The variables used for HDD and CDD were computed based on the deviation of threshold value of 21 degree Celsius. Details of computation are explained in Chapter 3 on 'Historical Trends of Data'.

State	Station
Andaman and Nicobar	Port Blair
Andhra Pradesh	Cwc Vishakhapatnam
Andhra Pradesh	Kurnool
Andhra Pradesh	Machilipatnam
Andhra Pradesh	Nellore
Andhra Pradesh	Pbo Anantapur
Assam	Dibrugarh / Mohanbari
Assam	Guwahati
Assam	Tezpur
Bihar	Bhagalpur
Bihar	Gaya
Bihar	Patna
Chhattishgarh	Jagdalpur
Chhattisgarh	Pbo Raipur
Chhattisgarh	Pendra Road
Delhi	New Delhi / Palam
Delhi	New Delhi / Safdarjung
Goa	Goa/Panjim
Gujarat	Ahmadabad
Gujarat	Bhuj-Rudramata
Gujarat	Rajkot
Gujarat	Surat
Gujarat	Veraval
Haryana	Hissar
Jammu and Kashmir	Srinagar



State	Station
Jharkhand	Jamshedpur
Jharkhand	M. O. Ranchi
Karnataka	Bangalore
Karnataka	Belgaum / Samba
Karnataka	Chitradurga
Karnataka	Gadag
Karnataka	Mangalore / Bajpe
Kerala	Cochin / Willingdon
Kerala	Kozhikode
Kerala	Thiruvananthapuram
Kerala	Thiruvananthapuram
Lakshadweep	Minicoy
Madhya Pradesh	Bhopal / Bairagarh
Madhya Pradesh	Guna
Madhya Pradesh	Gwalior
Madhya Pradesh	Indore
Madhya Pradesh	Jabalpur
Madhya Pradesh	Satna
Maharashtra	Aurangabad Chikalthan Aerodrome
Maharashtra	Bombay / Santacruz
Maharashtra	Nagpur Sonegaon
Maharashtra	Poona
Maharashtra	Ratnagiri
Maharashtra	Sholapur
Manipur	Imphal Tuliha
Odisha	Balasore
Odisha	Bhubaneswar
Odisha	Jharsuguda
Punjab	Amritsar
Punjab	Patiala
Rajasthan	Barmer
Rajasthan	Bikaner
Rajasthan	Ganganagar
Rajasthan	Jaipur / Sanganer
Rajasthan	Jaisalmer
Rajasthan	Jodhpur
Rajasthan	Kota Aerodrome
Tamil Nadu	Coimbatore / Peelamedu
Tamil Nadu	Cuddalore



State	Station
Tamil Nadu	Madras / Minambakkam
Tamil Nadu	Tiruchchirapalli
Telangana	Hyderabad Airport
Telangana	Ramgundam
Tripura	Agartala
Uttar Pradesh	Agra
Uttar Pradesh	Bareilly
Uttar Pradesh	Gorakhpur
Uttar Pradesh	Lucknow / Amausi
Uttarakhand	Dehradun
West Bengal	Calcutta / Dum Dum

Assumptions for forecasting

For forecasting the temperature variables, the 14 available weather scenarios for the past years were used (FY 2002-03–FY 2015-16).

6. Structural breaks

Dummy variables were constructed to allow for structural breaks between defined periods: FY 2003–FY 2005; FY 2006–FY2009; FY 2010 to FY 2014 and FY 2015–FY2017.

In the model, an interaction of the structural break dummy variable was introduced with the state. Therefore, for every state, the dummy allows for a level difference in the electricity demand (through a different intercept) across each of the specified structural time periods. This is done by capturing state-specific factors that influence electricity demand but are unobservable to the modeller.

Assumptions for forecasting

For forecasting this variable, it was assumed that the future structural change will follow the structural change value for FY 2015-16.





Annexure 3: (Coefficient Results)

Table A3.1: PAM Electricity Demand Models [2003-2016]

	All India	North	East	West	Northeast	South
log(Elec_Demand_lag_1)	0.61 *** (0.01)	0.42 *** (0.02)	0.62 *** (0.03)	0.68 *** (0.03)	0.64 *** (0.03)	0.61 *** (0.03)
log(Elec_Demand_lag_12)	0.08 *** (0.01)	0.16 *** (0.02)	0.16 *** (0.03)	0.05 (0.03)	0.05 (0.03)	0.07 *** (0.02)
log(GDP_lag_12)	0.23 *** (0.01)	0.31 *** (0.03)	0.20 *** (0.04)	0.13 *** (0.03)	0.24 *** (0.04)	0.21 *** (0.03)
log(EP_Adjust_CPI)	-0.02 (0.01)	-0.01 (0.02)	-0.02 (0.03)	-0.07 (0.04)	0.02 (0.03)	-0.12 *** (0.03)
CDD_Avg_Temp	0.06 *** (0.01)	0.07 *** (0.01)	0.03 ** (0.01)	0.07 *** (0.01)	0.02 (0.02)	0.07 *** (0.01)
HDD_Avg_Temp	0.01 (0.01)	0.02 (0.01)	0.02 (0.02)		0.01 (0.02)	
Rain_1 (0-50mm): Rainfall	-0.06 *** (0.01)	-0.13 *** (0.02)	-0.02 (0.02)	-0.08 * (0.03)	0.00 (0.04)	-0.04 * (0.02)
Rain_2 (50-100mm): Rainfall	-0.04 *** (0.01)	-0.07 *** (0.01)	-0.01 (0.01)	-0.07 *** (0.02)	0.01 (0.02)	-0.04 *** (0.01)
Rain_3 (100-200mm): Rainfall	-0.03 *** (0.00)	-0.05 *** (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.02 (0.01)	-0.03 *** (0.00)
Rain_4 (>200mm): Rainfall	-0.02 *** (0.00)	-0.04 *** (0.00)	-0.01 (0.00)	-0.02 *** (0.00)	-0.01 (0.01)	-0.03 *** (0.00)
R ²	0.95	0.96	0.98	0.93	0.91	0.98
Adj. R ²	0.94	0.96	0.97	0.92	0.90	0.97
Num. obs.	4368	1248	624	780	936	780

*** p < 0.001, ** p < 0.01, * p < 0.05



Table A3.2: Long Panel Electricity Demand Models [2003-2016] (for Energy Requirement)

	All India	North	East	West	Northeast	South
(Intercept)	-1.10 *	-1.91 ***	-4.11 ***	2.02 *	-3.46 ***	1.01
	(0.44)	(0.48)	(0.89)	(1.01)	(0.75)	(0.70)
log(GDP_lag_12)	0.74 ***	0.79 ***	0.92 ***	0.49 ***	0.71 ***	0.66 ***
	(0.03)	(0.04)	(0.05)	(0.06)	(0.06)	(0.03)
log(EP_Adjust_CPI)	0.00	-0.15 **	-0.04	-0.10	0.17 ***	-0.18 **
	(0.03)	(0.05)	(0.07)	(0.07)	(0.04)	(0.06)
Rainfall	-0.09 ***	-0.11 ***	-0.02	-0.14 ***	-0.03	-0.08 ***
	(0.01)	(0.02)	(0.02)	(0.03)	(0.04)	(0.02)
CDD_Avg_Temp	0.07 ***	0.09 ***	0.04 ***	0.08 ***	0.01	0.09 ***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)
HDD_Avg_Temp	0.01	0.01	0.01		-0.01	
	(0.01)	(0.01)	(0.02)		(0.02)	
Rain_2 (50-100mm): Rainfall	0.03	0.04	-0.04	0.16 **	0.01	0.02
	(0.02)	(0.03)	(0.05)	(0.06)	(0.11)	(0.03)
Rain_3 (100-200mm): Rainfall	0.08 ***	0.09 ***	0.02	0.16 ***	0.08	0.04 *
	(0.02)	(0.02)	(0.03)	(0.04)	(0.05)	(0.02)
Rain_4 (> 200mm): Rainfall	0.08 ***	0.09 ***	0.01	0.14 ***	0.02	0.07 ***
	(0.01)	(0.02)	(0.02)	(0.03)	(0.04)	(0.02)
R^2	.99	.99	.99	.99	0.99	.99
Wald	667904.10	221958.96	25684.15	33486.29	19535.28	152987.79
Pchisq	0.00	0.00	0.00	0.00	0.00	0.00
Num obs.	4368	1248	624	780	936	780

*** p < 0.001, ** p < 0.01, * p < 0.05



Table A3.3: SUR Electricity Demand Models [2003-2016] (for Energy Requirement)

	North	East	West	North-East	South
eqDL: (Intercept)	5.00 *** (0.49)				
eqDL: log(GDP_DL)	0.20 *** (0.04)				
eqDL: Rainfall_DL	-0.02 (0.01)				
eqDL: CDD_Avg_Temp_DL	0.05 ** (0.02)				
eqDL: HDD_Avg_Temp_DL	-0.00 (0.02)				
eqDL: Time_Zone_2	0.02 (0.02)				
eqDL: Time_Zone_3	0.09 ** (0.03)				
eqDL: Time_Zone_4	0.16 *** (0.04)				
eqHR: (Intercept)	-2.77 *** (0.55)				
eqHR: log(GDP_HR)	0.86 *** (0.05)				
eqHR: Rainfall_HR	-0.07 *** (0.01)				
eqHR: CDD_Avg_Temp_HR	0.04 ** (0.01)				
eqHR: HDD_Avg_Temp_HR	-0.00 (0.02)				
eqPB: (Intercept)	0.83 (0.75)				
eqPB: log(GDP_PB)	0.71 *** (0.06)				
eqPB: log(EP_Adjust_CPI_PB)	-0.25 *** (0.05)				
eqPB: Rainfall_PB	-0.07 *** (0.02)				
eqPB: CDD_Avg_Temp_PB	0.09 *** (0.02)				
eqPB: HDD_Avg_Temp_PB	-0.02 (0.03)				
eqRJ: (Intercept)	-2.09 *** (0.59)				
eqRJ: log(GDP_RJ)	0.81 *** (0.05)				
eqRJ: Rainfall_RJ	-0.13 *** (0.02)				
eqRJ: CDD_Avg_Temp_RJ	0.08 *** (0.02)				
eqRJ: HDD_Avg_Temp_RJ	0.03 (0.03)				
eqUK: (Intercept)	-3.97 *** (0.27)				
eqUK: log(GDP_UK)	0.93 *** (0.02)				
eqUK: Rainfall_UK	-0.03 *** (0.01)				
eqUK: CDD_Avg_Temp_UK	-0.00 (0.02)				
eqUK: HDD_Avg_Temp_UK	0.01 (0.02)				
eqUP: (Intercept)	-4.46 *** (0.66)				
eqUP: log(GDP_UP)	0.99 *** (0.05)				
eqUP: Rainfall_UP	-0.03 *** (0.01)				
eqUP: CDD_Avg_Temp_UP	0.08 ***				



eqJK: (Intercept)	(0.02)	
	-0.59	
eqJK: log(GDP_JK)	(1.50)	
	0.87 ***	
eqJK: log(EP_Adjust_CPI_JK)	(0.11)	
	-0.38 ***	
eqJK: Rainfall_JK	(0.10)	
	-0.01	
eqJK: CDD_Avg_Temp_JK	(0.01)	
	0.14 *	
eqJK: HDD_Avg_Temp_JK	(0.06)	
	0.02	
eqCH: (Intercept)	(0.02)	
	0.62	
eqCH: log(GDP_CH)	(1.71)	
	0.40 ***	
eqCH: log(EP_Adjust_CPI_CH)	(0.08)	
	0.00	
eqCH: Rainfall_CH	(0.16)	
	-0.03 *	
eqCH: CDD_Avg_Temp_CH	(0.01)	
	0.10 ***	
eqCH: HDD_Avg_Temp_CH	(0.02)	
	0.05 *	
eqBR: (Intercept)	(0.02)	-1.74
		(1.20)
eqBR: log(GDP_BR)		1.00 ***
		(0.06)
eqBR: log(EP_Adjust_CPI_BR)		-0.60 ***
		(0.16)
eqBR: Rainfall_BR		0.01
		(0.01)
eqBR: CDD_Avg_Temp_BR		0.05
		(0.03)
eqBR: HDD_Avg_Temp_BR		0.03
		(0.04)
eqWB: (Intercept)		-8.74 ***
		(0.55)
eqWB: log(GDP_WB)		1.29 ***
		(0.04)
eqWB: Rainfall_WB		0.00
		(0.01)
eqWB: CDD_Avg_Temp_WB		0.05 ***
		(0.01)
eqWB: HDD_Avg_Temp_WB		0.01
		(0.03)
eqOR: (Intercept)		-0.73
		(0.75)
eqOR: log(GDP_OR)		0.75 ***
		(0.05)
eqOR: log(EP_Adjust_CPI_OR)		-0.15 **
		(0.05)
eqOR: Rainfall_OR		-0.02 **
		(0.01)
eqOR: CDD_Avg_Temp_OR		-0.02
		(0.02)
eqOR: HDD_Avg_Temp_OR		0.00
		(0.07)
eqJH: (Intercept)		9.41 ***
		(1.82)
eqJH: log(GDP_JH)		0.18
		(0.11)
eqJH: log(EP_Adjust_CPI_JH)		-0.75 ***
		(0.10)
eqJH: Rainfall_JH		-0.01
		(0.01)
eqJH: CDD_Avg_Temp_JH		-0.02
		(0.03)
eqJH: HDD_Avg_Temp_JH		-0.03
		(0.05)



eqGJ: (Intercept)	5.76 ***	
	(1.45)	
eqGJ: log(Per_Capita_GJ)	0.44 ***	
	(0.09)	
eqGJ: log(EP_Adjust_CPI_GJ)	-0.30 ***	
	(0.09)	
eqGJ: Rainfall_GJ	-0.05 ***	
	(0.01)	
eqGJ: CDD_Avg_Temp_GJ	0.08 *	
	(0.04)	
eqMH: (Intercept)	3.67 ***	
	(0.69)	
eqMH: log(Per_Capita_MH)	0.55 ***	
	(0.06)	
eqMH: log(EP_Adjust_CPI_MH)	-0.12	
	(0.07)	
eqMH: Rainfall_MH	-0.03 **	
	(0.01)	
eqMH: CDD_Avg_Temp_MH	0.14 ***	
	(0.03)	
eqCG: (Intercept)	-3.99 ***	
	(1.11)	
eqCG: log(Per_Capita_CG)	1.02 ***	
	(0.11)	
eqCG: Rainfall_CG	-0.01	
	(0.02)	
eqCG: CDD_Avg_Temp_CG	0.05	
	(0.04)	
eqMP: (Intercept)	-0.34	
	(0.98)	
eqMP: log(Per_Capita_MP)	0.83 ***	
	(0.10)	
eqMP: Rainfall_MP	-0.00	
	(0.01)	
eqMP: CDD_Avg_Temp_MP	0.16 ***	
	(0.03)	
eqGA: (Intercept)	9.49 ***	
	(1.69)	
eqGA: log(GDP_GA)	0.12	
	(0.10)	
eqGA: log(EP_Adjust_CPI_GA)	-0.89 ***	
	(0.12)	
eqGA: Rainfall_GA	0.00	
	(0.01)	
eqGA: CDD_Avg_Temp_GA	0.14 *	
	(0.07)	
eqAS: (Intercept)	-21.46 ***	
	(1.33)	
eqAS: log(Per_Capita_AS)	2.61 ***	
	(0.13)	
eqAS: Rainfall_AS	0.00	
	(0.01)	
eqAS: CDD_Avg_Temp_AS	0.12 ***	
	(0.03)	
eqAS: HDD_Avg_Temp_AS	0.08	
	(0.04)	
eqMN: (Intercept)	-5.98 ***	
	(0.97)	
eqMN: log(Per_Capita_MN)	0.94 ***	
	(0.09)	
eqMN: Rainfall_MN	0.03	
	(0.02)	
eqMN: CDD_Avg_Temp_MN	-0.05	
	(0.08)	
eqMN: HDD_Avg_Temp_MN	-0.03	
	(0.06)	
eqTR: (Intercept)	-5.00 ***	
	(0.78)	
eqTR: log(Per_Capita_TR)	0.86 ***	
	(0.08)	
eqTR: Rainfall_TR	-0.02	



eqTR: CDD_Avg_Temp_TR	(0.01)	
	0.06	
eqTR: HDD_Avg_Temp_TR	(0.04)	
	0.17 ***	
eqNL: (Intercept)	(0.05)	
	-2.40	
eqNL: log(Per_Capita_NL)	(1.23)	
	0.55 ***	
eqNL: Rainfall_NL	(0.12)	
	-0.03	
eqNL: CDD_Avg_Temp_NL	(0.02)	
	0.09	
eqNL: HDD_Avg_Temp_NL	(0.07)	
	-0.04	
eqML: (Intercept)	(0.06)	
	-8.03 ***	
eqML: log(Per_Capita_ML)	(1.53)	
	1.20 ***	
eqML: Rainfall_ML	(0.14)	
	-0.01	
eqML: CDD_Avg_Temp_ML	(0.01)	
	-0.02	
eqML: HDD_Avg_Temp_ML	(0.06)	
	-0.10	
eqMZ: (Intercept)	(0.08)	
	-4.35 ***	
eqMZ: log(GDP_MZ)	(0.47)	
	0.92 ***	
eqMZ: Rainfall_MZ	(0.06)	
	-0.01	
eqKA: (Intercept)	(0.01)	4.91 ***
		(0.94)
eqKA: log(Per_Capita_KA)		0.64 ***
		(0.06)
eqKA: Rainfall_KA		-0.04 ***
		(0.01)
eqKA: CDD_Avg_Temp_KA		0.04
		(0.03)
eqKA: log(EP_Adjust_CPI_KA)		-0.61 ***
		(0.06)
eqTN: (Intercept)		-2.09 *
		(1.03)
eqTN: log(Per_Capita_TN)		0.99 ***
		(0.05)
eqTN: log(EP_Adjust_CPI_TN)		-0.07
		(0.10)
eqTN: Rainfall_TN		-0.03 **
		(0.01)
eqTN: CDD_Avg_Temp_TN		0.10 **
		(0.03)
eqKL: (Intercept)		-1.17
		(0.87)
eqKL: log(Per_Capita_KL)		0.91 ***
		(0.05)
eqKL: Rainfall_KL		-0.01 ***
		(0.00)
eqKL: CDD_Avg_Temp_KL		0.10 ***
		(0.02)
eqKL: log(EP_Adjust_CPI_KL)		-0.29 ***
		(0.07)
eqAP: (Intercept)		-2.25 ***
		(0.52)
eqAP: log(Per_Capita_AP)		0.99 ***
		(0.05)
eqAP: Rainfall_AP		-0.06 ***
		(0.01)
eqAP: CDD_Avg_Temp_AP		0.04
		(0.02)
eqPY: (Intercept)		-0.86
		(1.40)



```

eqPY: log(Per_Capita_PY)                                0.68 ***
                                                         (0.10)
eqPY: CDD_Avg_Temp_PY                                    0.13 *
                                                         (0.05)
eqPY: Rainfall_PY                                        -0.01
                                                         (0.02)
eqPY: log(EP_Adjust_CPI_PY)                             -0.38 ***
                                                         (0.09)
-----
eqDL: Adj. R^2                                           0.94
eqHR: Adj. R^2                                           0.96
eqPB: Adj. R^2                                           0.95
eqRJ: Adj. R^2                                           0.96
eqUK: Adj. R^2                                           0.99
eqUP: Adj. R^2                                           0.97
eqJK: Adj. R^2                                           0.91
eqCH: Adj. R^2                                           0.94
eqBR: Adj. R^2                                           0.96
eqWB: Adj. R^2                                           0.98
eqOR: Adj. R^2                                           0.95
eqJH: Adj. R^2                                           0.94
eqGJ: Adj. R^2                                           0.86
eqMH: Adj. R^2                                           0.87
eqCG: Adj. R^2                                           0.83
eqMP: Adj. R^2                                           0.90
eqGA: Adj. R^2                                           0.83
eqAS: Adj. R^2                                           0.96
eqMN: Adj. R^2                                           0.56
eqTR: Adj. R^2                                           0.88
eqNL: Adj. R^2                                           0.81
eqML: Adj. R^2                                           0.79
eqMZ: Adj. R^2                                           0.92
eqKA: Adj. R^2                                           0.95
eqTN: Adj. R^2                                           0.97
eqKL: Adj. R^2                                           0.97
eqAP: Adj. R^2                                           0.96
eqPY: Adj. R^2                                           0.85
Num. obs. (total)           1344           672           840           1008           840
=====
*** p < 0.001, ** p < 0.01, * p < 0.05

```



Table A3.4: PAM Peak Electricity Demand Models [2003-2016]

	North	East	West	Northeast	South
log(Elec_Demand_lag_1)	0.51 *** (0.03)	0.60 *** (0.03)	0.61 *** (0.03)	0.62 *** (0.03)	0.55 *** (0.03)
log(Elec_Demand_lag_12)	0.19 *** (0.03)	0.21 *** (0.03)	0.09 ** (0.03)	0.05 (0.03)	0.09 ** (0.03)
log(GDP_lag_12)	0.20 *** (0.03)	0.17 *** (0.04)	0.09 ** (0.03)	0.20 *** (0.04)	0.21 *** (0.03)
log(EP_Adjust_CPI)	-0.04 (0.02)	-0.01 (0.04)	-0.08 * (0.03)	0.01 (0.03)	-0.12 *** (0.03)
CDD_Avg_Temp	0.04 *** (0.01)	0.00 (0.01)	0.05 *** (0.01)	0.04 * (0.02)	0.05 *** (0.01)
HDD_Avg_Temp	0.00 (0.01)	-0.02 (0.02)		0.05 * (0.02)	
Time_Zone_Rain_1:Rainfall	-0.04 (0.02)	0.04 (0.03)	-0.07 * (0.03)	0.01 (0.04)	-0.03 (0.02)
Time_Zone_Rain_2:Rainfall	-0.02 * (0.01)	0.00 (0.02)	-0.04 * (0.02)	-0.00 (0.02)	-0.01 (0.01)
Time_Zone_Rain_3:Rainfall	-0.01 * (0.01)	0.02 (0.01)	-0.01 (0.01)	-0.00 (0.01)	-0.02 ** (0.01)
Time_Zone_Rain_4:Rainfall	-0.02 *** (0.00)	0.00 (0.00)	-0.01 *** (0.00)	0.01 * (0.01)	-0.01 *** (0.00)
R ²	0.96	0.97	0.92	0.84	0.96
Adj. R ²	0.95	0.96	0.92	0.82	0.96
Num. obs.	1248	624	780	936	780

*** p < 0.001, ** p < 0.01, * p < 0.05



Table A3.5: PAM All-India Peak Electricity Demand Model [2003-2016]

=====	
	All India

(Intercept)	0.48 *** (0.11)
log(Peak_Demand_lag_1)	0.62 *** (0.06)
log(GDP)	0.25 *** (0.04)
HDD_Avg_Temp	0.04 (0.02)
CDD_Avg_Temp	0.04 ** (0.01)
Rain_1:Rainfall	-0.04 (0.02)
Rain_2:Rainfall	-0.05 ** (0.01)
Rain_3:Rainfall	-0.05 *** (0.01)
Rain_4:Rainfall	-0.04 *** (0.01)

R ²	0.99
Adj. R ²	0.99
Num. obs.	167
RMSE	0.02
=====	





Annexure 4 (State Shares of electricity consumption)

Figure A4.1: Share of Commercial Electricity Consumption

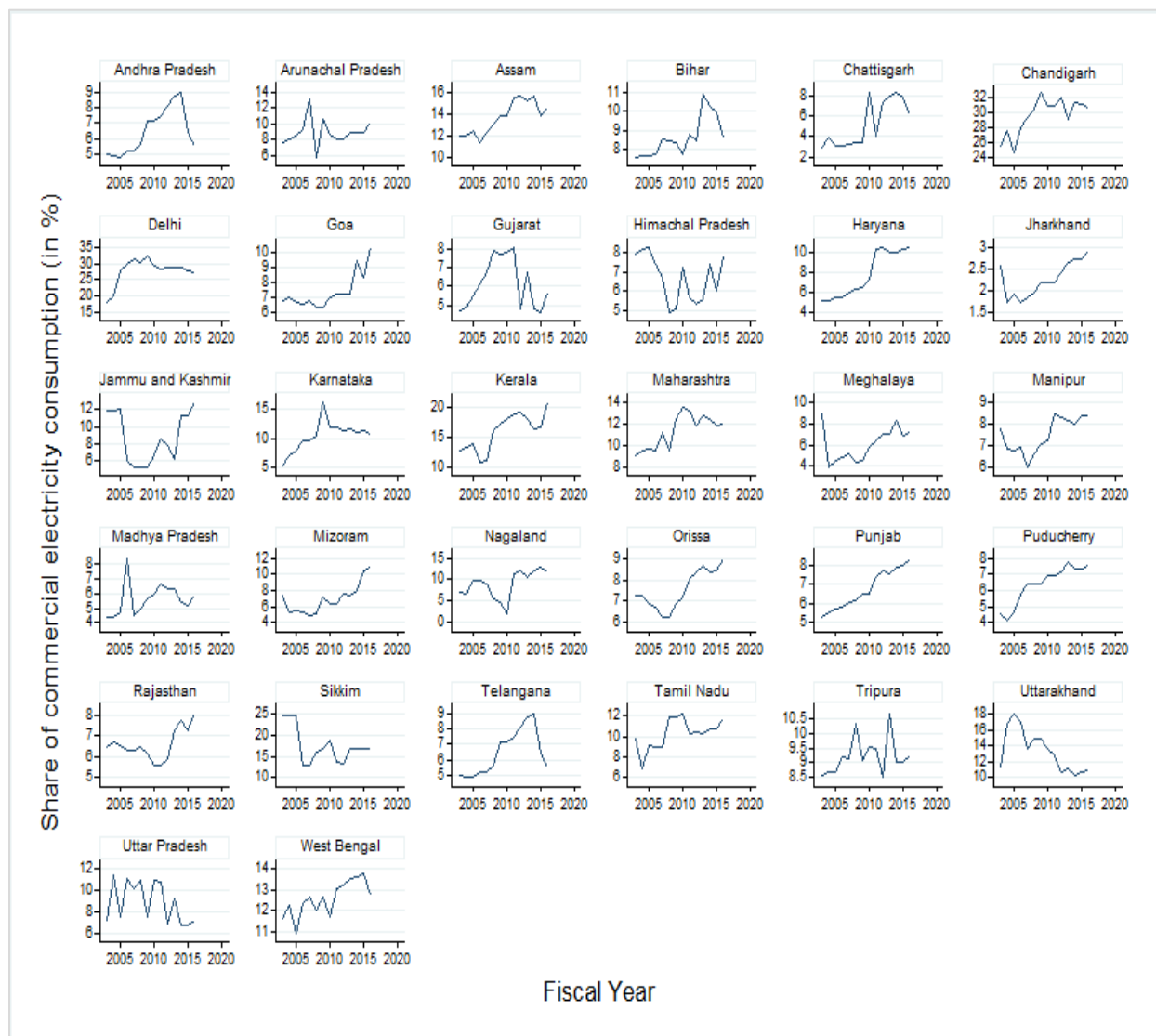


Figure A4.2: Share of Domestic Electricity Consumption

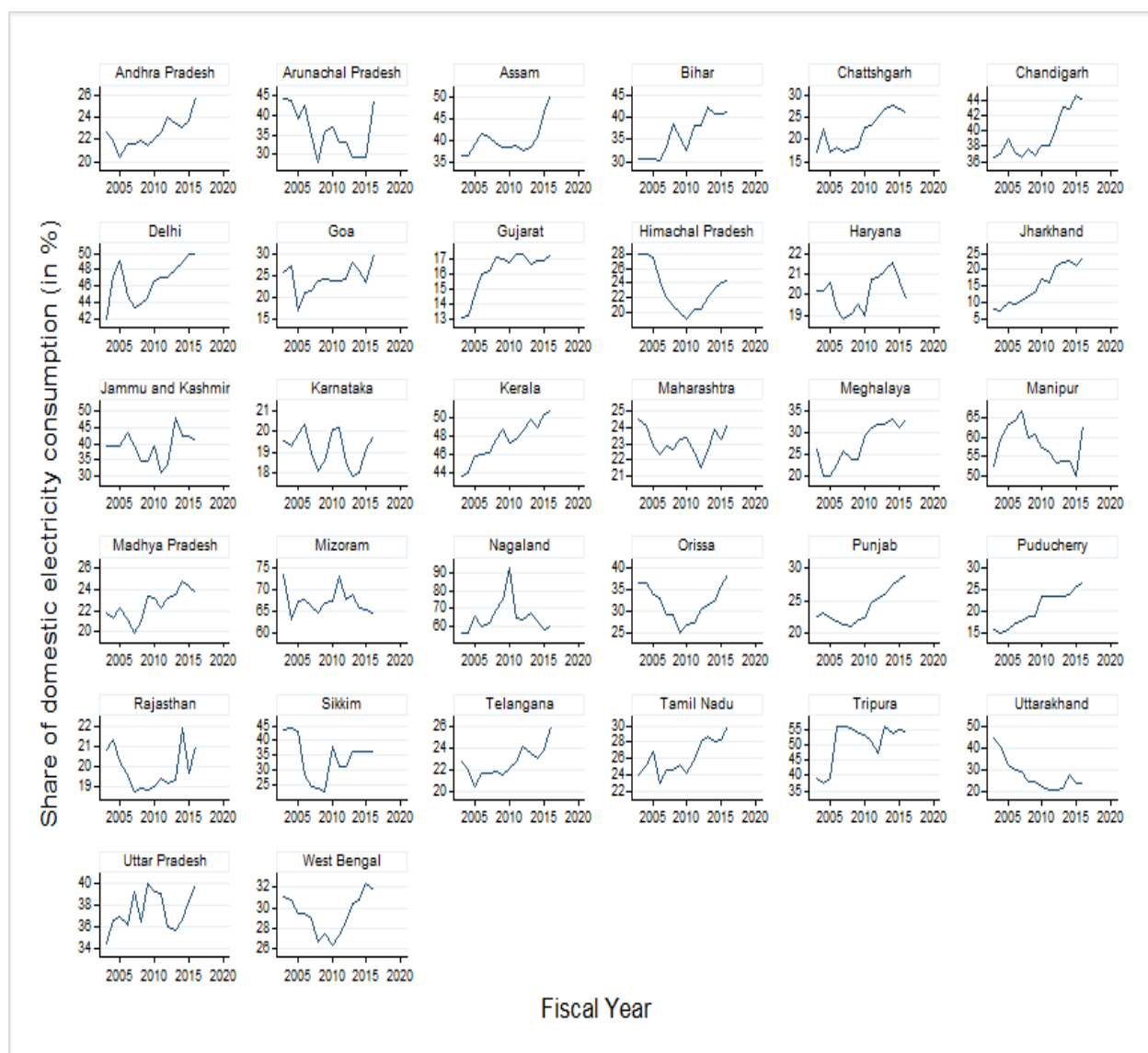


Figure A4.3: Share of Agricultural Electricity Consumption

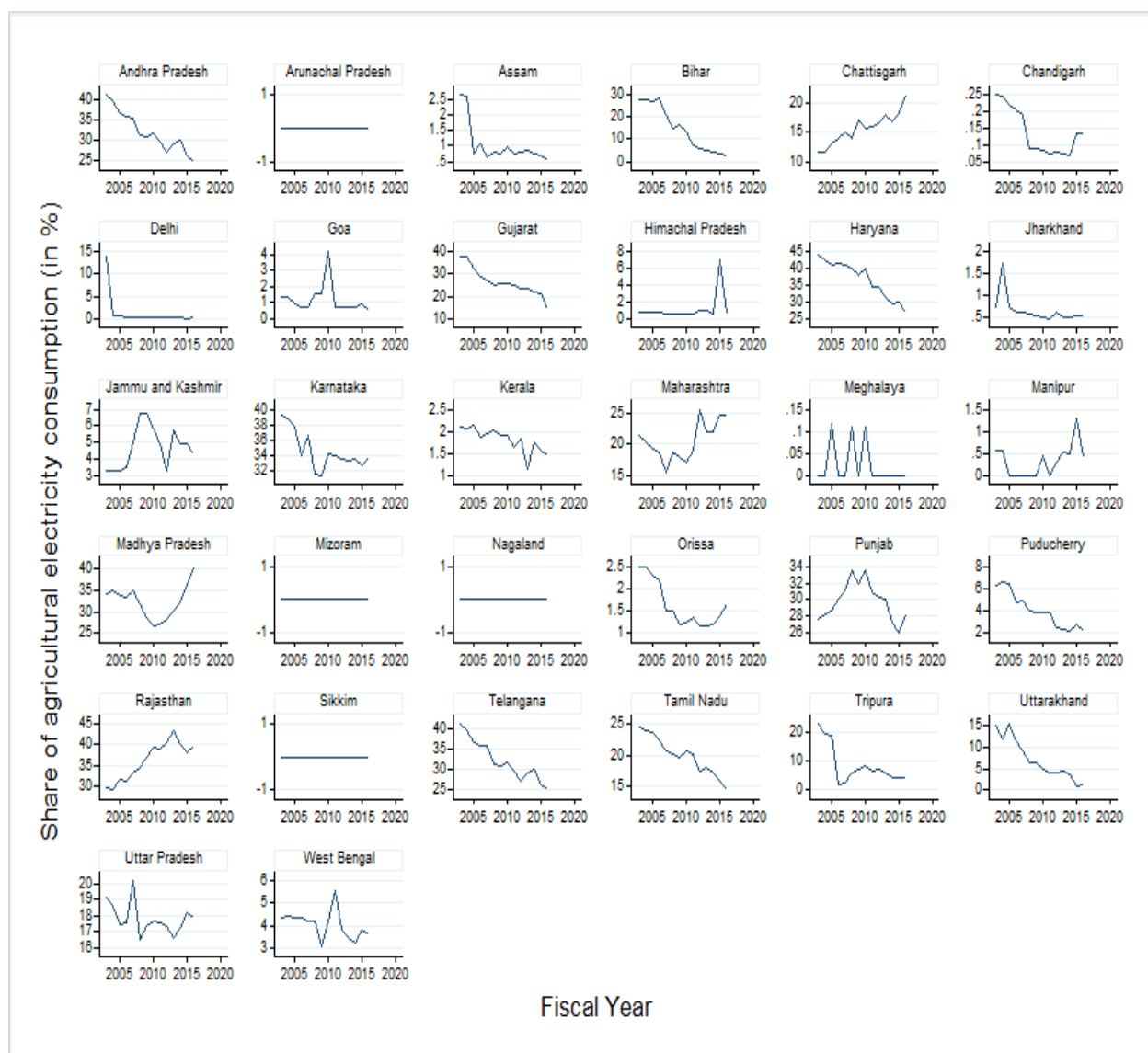
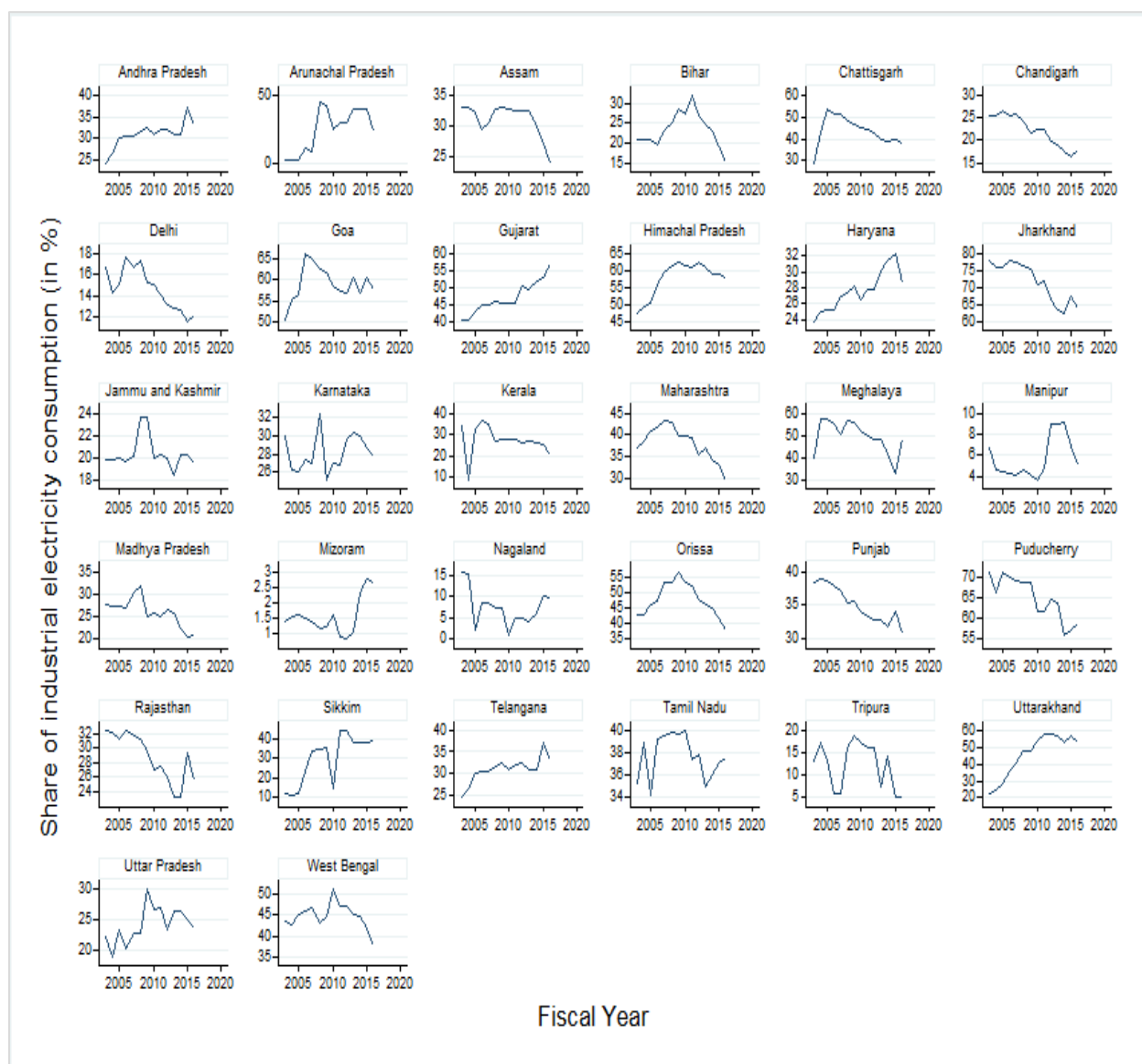


Figure A4.4: Share of Industrial Electricity Consumption





Annexure 5 (Electricity Demand Forecasts and Growth rates)

Table A5.1: Growth Rates of GDP and Population

Year	GDP Base (%)	GDP Pessimistic (%)	GDP Optimistic (%)	Population (%)
2017	7.1	7.1	7.1	1.44
2018	6.6	6.6	6.6	1.45
2019	7.5	6.5	8	1.45
2020	7.8	6.5	8	1.45
2021	8	6.5	8	1.45
2022	8	6.5	8	0.87
2023	8	6.5	8	0.87
2024	7.8	6.5	8	0.87
2025	7.6	6.5	8	0.87
2026	7.5	6.5	8	0.87
2027	7.4	6.5	8	0.87
2028	7.3	6.5	8	0.87
2029	7.2	6.5	8	0.87
2030	7.1	6.5	8	0.87
2031	7	6.5	8	0.87
2032	7	6.5	8	0.56
2033	7	6.5	8	0.56
2034	7	6.5	8	0.56
2035	7	6.5	8	0.56
2036	7	6.5	8	0.56
2037	7	6.5	8	0.56



Table A5.2: Forecasted Electrical Energy Requirement (PAM Baseline Scenario) in MUs

State/Region	2017	2018	2019	2020	2021	2022	2023
Delhi	31,588	33,625	35,584	37,730	40,080	42,640	45,382
Haryana	50,958	54,723	58,028	61,512	65,286	69,380	73,760
Himachal Pradesh	9,262	9,725	10,211	10,722	11,258	11,821	12,412
Jammu & Kashmir	17,810	18,297	18,819	19,444	20,140	20,890	21,671
Punjab	50,740	53,378	55,694	58,147	60,789	63,629	66,621
Rajasthan	71,560	76,544	80,883	85,475	90,456	95,859	101,629
Uttar Pradesh	110,295	115,211	119,878	125,056	130,728	136,859	143,331
Uttarakhand	13,452	14,883	16,094	17,338	18,673	20,122	21,682
Chandigarh	1,668	1,745	1,817	1,897	1,984	2,078	2,177
Northern Region	357,333	378,131	397,008	417,321	439,394	463,278	488,665
Goa	5,040	5,197	5,352	5,528	5,722	5,931	6,149
Gujarat	102,981	105,580	109,367	113,876	118,850	124,191	129,809
Chhattisgarh	25,714	26,533	27,400	28,381	29,457	30,612	31,823
Madhya Pradesh	61,601	63,736	65,867	68,204	70,741	73,454	76,296
Maharashtra	143,165	148,033	153,106	158,671	164,713	171,179	177,957
D. & N. Haveli	6,221	6,532	6,859	7,202	7,562	7,940	8,337
Daman & Diu	2,454	2,577	2,706	2,841	2,983	3,132	3,289
Western Region	347,176	358,188	370,657	384,703	400,028	416,439	433,660
Andhra Pradesh	52,501	55,418	57,999	60,781	63,816	67,099	70,579
Telangana	52,756	55,688	58,281	61,077	64,127	67,426	70,923
Karnataka	67,154	69,770	72,601	75,873	79,496	83,424	87,584
Kerala	23,929	25,008	25,991	27,061	28,226	29,481	30,802
Tamil Nadu	101,157	107,197	112,772	118,782	125,321	132,399	139,927
Puducherry	2,509	2,689	2,828	2,966	3,113	3,271	3,438
Southern Region	300,006	315,770	330,472	346,540	364,099	383,100	403,253
Bihar	26,326	29,193	31,758	34,334	37,051	39,984	43,151
Jharkhand	14,675	15,564	16,503	17,552	18,720	20,011	21,416
Odisha	28,086	29,804	31,522	33,412	35,495	37,778	40,245
West Bengal	62,728	69,635	75,274	80,519	85,762	91,222	96,962
Sikkim	419	440	462	485	509	534	561
Eastern Region	132,234	144,636	155,519	166,302	177,537	189,529	202,335
Assam	9,282	9,453	9,706	10,040	10,419	10,827	11,249
Manipur	867	864	881	907	938	970	1,003
Meghalaya	1,854	2,041	2,157	2,266	2,382	2,506	2,638
Nagaland	776	833	879	928	981	1,039	1,101
Tripura	1,394	1,434	1,508	1,601	1,707	1,824	1,949
Arunachal Pradesh	656	689	723	759	797	837	879
Mizoram	531	549	582	623	671	724	781
North Eastern Region	15,360	15,863	16,436	17,124	17,895	18,727	19,600
Andaman & Nicobar Islands	284	298	313	329	345	362	380
Lakshadweep	50	53	56	59	62	65	68
All-India	1,152,443	1,212,939	1,270,461	1,332,378	1,399,360	1,471,500	1,547,961



State/Region	2024	2025	2026	2027	2028	2029	2030
Delhi	48,306	51,371	54,561	57,898	61,390	65,043	68,860
Haryana	78,425	83,308	88,385	93,688	99,230	105,020	111,061
Himachal Pradesh	13,033	13,685	14,369	15,087	15,841	16,633	17,465
Jammu & Kashmir	22,472	23,269	24,050	24,821	25,591	26,362	27,135
Punjab	69,752	72,953	76,197	79,504	82,883	86,337	89,865
Rajasthan	107,761	114,161	120,792	127,699	134,894	142,385	150,175
Uttar Pradesh	150,110	157,049	164,084	171,260	178,600	186,107	193,779
Uttarakhand	23,354	25,122	26,980	28,940	31,014	33,210	35,533
Chandigarh	2,282	2,388	2,496	2,607	2,720	2,836	2,955
Northern Region	515,495	543,306	571,914	601,504	632,163	663,933	696,828
Goa	6,375	6,606	6,840	7,077	7,319	7,566	7,816
Gujarat	135,682	141,720	147,891	154,229	160,751	167,461	174,361
Chhattisgarh	33,085	34,375	35,686	37,025	38,394	39,794	41,223
Madhya Pradesh	79,254	82,275	85,338	88,464	91,655	94,913	98,235
Maharashtra	185,017	192,239	199,573	207,066	214,725	222,551	230,544
D. & N. Haveli	8,754	9,192	9,652	10,135	10,642	11,174	11,733
Daman & Diu	3,453	3,626	3,807	3,997	4,197	4,407	4,627
Western Region	451,620	470,033	488,787	507,993	527,683	547,866	568,539
Andhra Pradesh	74,248	78,040	81,931	85,950	90,104	94,394	98,818
Telangana	74,609	78,419	82,330	86,369	90,543	94,853	99,300
Karnataka	91,960	96,471	101,087	105,841	110,738	115,780	120,967
Kerala	32,183	33,594	35,024	36,483	37,976	39,502	41,062
Tamil Nadu	147,893	156,176	164,729	173,613	182,840	192,423	202,366
Puducherry	3,615	3,797	3,983	4,176	4,375	4,580	4,791
Southern Region	424,508	446,497	469,084	492,432	516,576	541,532	567,304
Bihar	46,571	50,219	54,082	58,178	62,519	67,115	71,979
Jharkhand	22,932	24,542	26,234	28,013	29,884	31,848	33,908
Odisha	42,891	45,679	48,589	51,627	54,798	58,106	61,553
West Bengal	103,025	109,346	115,883	122,656	129,679	136,961	144,506
Sikkim	589	618	649	681	715	751	789
Eastern Region	216,008	230,404	245,437	261,155	277,595	294,781	312,735
Assam	11,683	12,112	12,532	12,945	13,359	13,774	14,191
Manipur	1,037	1,070	1,101	1,130	1,159	1,188	1,217
Meghalaya	2,777	2,919	3,065	3,214	3,368	3,527	3,690
Nagaland	1,166	1,234	1,304	1,377	1,453	1,532	1,613
Tripura	2,082	2,223	2,369	2,523	2,685	2,854	3,032
Arunachal Pradesh	923	969	1,017	1,068	1,121	1,177	1,236
Mizoram	842	907	975	1,047	1,123	1,204	1,289



State/Region	2024	2025	2026	2027	2028	2029	2030
North Eastern Region	20,510	21,434	22,363	23,304	24,268	25,256	26,268
Andaman & Nicobar Islands	399	419	440	462	485	509	534
Lakshadweep	71	75	79	83	87	91	96
All-India	1,628,611	1,712,168	1,798,104	1,886,933	1,978,857	2,073,968	2,172,304

State/Region	2031	2032	2033	2034	2035	2036	2037
Delhi	72,845	77,001	81,369	85,972	90,825	95,944	101,352
Haryana	117,359	123,919	130,806	138,055	145,691	153,734	162,221
Himachal Pradesh	18,338	19,255	20,218	21,229	22,290	23,405	24,576
Jammu & Kashmir	27,910	28,684	29,471	30,275	31,097	31,939	32,804
Punjab	93,464	97,133	100,915	104,829	108,883	113,083	117,445
Rajasthan	158,270	166,673	175,469	184,701	194,399	204,587	215,309
Uttar Pradesh	201,611	209,598	217,836	226,362	235,198	244,356	253,871
Uttarakhand	37,989	40,584	43,343	46,282	49,415	52,756	56,323
Chandigarh	3,076	3,200	3,327	3,459	3,596	3,738	3,886
Northern Region	730,862	766,047	802,754	841,164	881,394	923,542	967,787
Goa	8,071	8,330	8,595	8,868	9,149	9,438	9,736
Gujarat	181,452	188,734	196,269	204,087	212,203	220,629	229,390
Chhattisgarh	42,682	44,169	45,699	47,278	48,909	50,592	52,333
Madhya Pradesh	101,621	105,070	108,615	112,270	116,041	119,931	123,951
Maharashtra	238,701	247,019	255,577	264,407	273,525	282,941	292,681
D. & N. Haveli	12,320	12,936	13,583	14,262	14,975	15,724	16,510
Daman & Diu	4,858	5,101	5,356	5,624	5,905	6,200	6,510
Western Region	589,705	611,359	633,694	656,796	680,707	705,455	731,111
Andhra Pradesh	103,379	108,074	112,954	118,040	123,344	128,877	134,658
Telangana	103,882	108,600	113,504	118,615	123,945	129,504	135,313
Karnataka	126,298	131,772	137,449	143,353	149,498	155,894	162,564
Kerala	42,653	44,275	45,946	47,676	49,466	51,319	53,241
Tamil Nadu	212,674	223,352	234,507	246,188	258,429	271,258	284,724
Puducherry	5,009	5,233	5,466	5,708	5,960	6,223	6,498
Southern Region	593,895	621,306	649,826	679,580	710,642	743,075	776,998
Bihar	77,119	82,545	88,304	94,435	100,970	107,940	115,391



State/Region	2031	2032	2033	2034	2035	2036	2037
Jharkhand	36,065	38,323	40,700	43,210	45,865	48,676	51,659
Odisha	65,140	68,869	72,772	76,870	81,183	85,723	90,517
West Bengal	152,315	160,389	168,797	177,588	186,796	196,450	206,603
Sikkim	828	869	912	958	1,006	1,056	1,108
Eastern Region	331,467	350,995	371,485	393,061	415,820	439,845	465,278
Assam	14,608	15,026	15,451	15,886	16,332	16,788	17,257
Manipur	1,245	1,273	1,301	1,329	1,358	1,388	1,419
Meghalaya	3,857	4,028	4,206	4,392	4,585	4,786	4,996
Nagaland	1,698	1,785	1,877	1,973	2,074	2,179	2,289
Tripura	3,218	3,413	3,619	3,837	4,067	4,311	4,570
Arunachal Pradesh	1,298	1,363	1,431	1,503	1,578	1,657	1,740
Mizoram	1,380	1,476	1,577	1,686	1,802	1,926	2,059
North Eastern Region	27,304	28,364	29,462	30,606	31,796	33,035	34,330
Andaman & Nicobar Islands	561	589	618	649	681	715	751
Lakshadweep	101	106	111	117	123	129	135
All-India	2,273,895	2,378,766	2,487,950	2,601,973	2,721,163	2,845,796	2,976,390

Table A5.2: CAGR of Forecasted Electrical Energy Requirement (PAM Baseline Scenario)

State/Region	FY 2016-17 to FY 2021-22	FY 2021-22 to FY 2026-27	FY 2016-17 to FY 2026-27	FY 2026-27 to FY 2036-37	FY 2016-17 to FY 2036-37
Delhi	6.18	6.31	6.25	5.76	6
Haryana	6.37	6.19	6.28	5.64	5.96
Himachal Pradesh	5	5	5	5	5
Jammu & Kashmir	3.24	3.51	3.38	2.83	3.1
Punjab	4.63	4.56	4.59	3.98	4.29
Rajasthan	6.02	5.9	5.96	5.36	5.66
Uttar Pradesh	4.41	4.59	4.5	4.01	4.26
Uttarakhand	8.39	7.54	7.96	6.89	7.42
Chandigarh	4.49	4.64	4.57	4.07	4.32
Northern Region	5.33	5.36	5.35	4.87	5.11
Goa	3.31	3.6	3.45	3.24	3.35
Gujarat	3.82	4.43	4.12	4.05	4.09
Chhattisgarh	3.55	3.88	3.71	3.52	3.62
Madhya Pradesh	3.58	3.79	3.69	3.43	3.56
Maharashtra	3.64	3.88	3.76	3.52	3.64



State/Region	FY 2016-17 to FY 2021-22	FY 2021-22 to FY 2026-27	FY 2016-17 to FY 2026-27	FY 2026-27 to FY 2036-37	FY 2016-17 to FY 2036-37
D. & N. Haveli	5	5	5	5	5
Daman & Diu	5	5	5	5	5
Western Region	3.71	4.05	3.88	3.71	3.79
Andhra Pradesh	5.03	5.08	5.05	4.59	4.82
Telangana	5.03	5.08	5.05	4.59	4.82
Karnataka	4.43	4.88	4.65	4.38	4.52
Kerala	4.26	4.35	4.31	3.85	4.08
Tamil Nadu	5.53	5.57	5.55	5.07	5.31
Puducherry	5.45	5.01	5.23	4.52	4.87
Southern Region	5.01	5.15	5.08	4.67	4.87
Bihar	8.72	7.79	8.25	7.09	7.67
Jharkhand	6.4	6.96	6.68	6.31	6.49
Odisha	6.11	6.45	6.28	5.78	6.03
West Bengal	7.78	6.1	6.94	5.35	6.14
Sikkim	4.97	4.98	4.98	4.99	4.98
Eastern Region	7.46	6.62	7.04	5.95	6.49
Assam	3.13	3.64	3.38	2.92	3.15
Manipur	2.27	3.1	2.68	2.3	2.49
Meghalaya	6.21	5.1	5.66	4.51	5.08
Nagaland	6.01	5.79	5.9	5.21	5.56
Tripura	5.52	6.7	6.11	6.12	6.12
Arunachal Pradesh	4.99	5	4.99	5	5
Mizoram	6.4	7.66	7.02	7	7.01
North Eastern Region	4.04	4.47	4.26	3.95	4.1
Andaman & Nicobar Islands	4.97	5	4.99	4.98	4.98
Lakshadweep	5.39	5.01	5.2	4.98	5.09
All-India	5.01	5.1	5.05	4.66	4.86

Table A5.3: Forecasted Electrical Energy Requirement (PAM Optimistic Scenario) in MUs

State/Region	2017	2018	2019	2020	2021	2022	2023
Delhi	31,588	33,625	35,584	37,818	40,241	42,833	45,596
Haryana	50,958	54,723	58,028	61,656	65,548	69,696	74,108
Himachal Pradesh	9,262	9,725	10,211	10,722	11,258	11,821	12,412
Jammu & Kashmir	17,810	18,297	18,819	19,489	20,221	20,985	21,773
Punjab	50,740	53,378	55,694	58,283	61,033	63,918	66,935



State/Region	2017	2018	2019	2020	2021	2022	2023
Rajasthan	71,560	76,544	80,883	85,675	90,820	96,296	102,109
Uttar Pradesh	110,295	115,211	119,878	125,348	131,253	137,482	144,007
Uttarakhand	13,452	14,883	16,094	17,378	18,748	20,214	21,784
Chandigarh	1,668	1,745	1,817	1,902	1,992	2,088	2,188
Northern Region	357,333	378,131	397,008	418,271	441,114	465,333	490,912
Goa	5,040	5,197	5,352	5,537	5,738	5,949	6,168
Gujarat	102,981	105,580	109,367	114,057	119,178	124,577	130,222
Chhattisgarh	25,714	26,533	27,400	28,426	29,539	30,707	31,925
Madhya Pradesh	61,601	63,736	65,867	68,314	70,937	73,683	76,539
Maharashtra	143,165	148,033	153,106	158,923	165,167	171,710	178,523
D. & N. Haveli	6,221	6,532	6,859	7,202	7,562	7,940	8,337
Daman & Diu	2,454	2,577	2,706	2,841	2,983	3,132	3,289
Western Region	347,176	358,188	370,657	385,300	401,104	417,698	435,003
Andhra Pradesh	52,501	55,418	57,999	60,915	64,056	67,380	70,883
Telangana	52,756	55,688	58,281	61,212	64,368	67,709	71,228
Karnataka	67,154	69,770	72,601	76,041	79,795	83,774	87,961
Kerala	23,929	25,008	25,991	27,120	28,332	29,605	30,934
Tamil Nadu	101,157	107,197	112,772	119,043	125,791	132,953	140,528
Puducherry	2,509	2,689	2,828	2,972	3,124	3,285	3,453
Southern Region	300,006	315,770	330,472	347,303	365,466	384,706	404,987
Bihar	26,326	29,193	31,758	34,407	37,204	40,189	43,393
Jharkhand	14,675	15,564	16,503	17,590	18,797	20,113	21,536
Odisha	28,086	29,804	31,522	33,483	35,640	37,971	40,471
West Bengal	62,728	69,635	75,274	80,690	86,112	91,687	97,505
Sikkim	419	440	462	485	509	534	561
Eastern Region	132,234	144,636	155,519	166,655	178,262	190,494	203,466
Assam	9,282	9,453	9,706	10,067	10,465	10,880	11,306
Manipur	867	864	881	910	942	975	1,008
Meghalaya	1,854	2,041	2,157	2,272	2,392	2,519	2,651
Nagaland	776	833	879	931	986	1,044	1,106
Tripura	1,394	1,434	1,508	1,606	1,715	1,833	1,958
Arunachal Pradesh	656	689	723	759	797	837	879
Mizoram	531	549	582	625	674	727	785
North Eastern Region	15,360	15,863	16,436	17,170	17,971	18,815	19,693
Andaman & Nicobar Islands	284	298	313	329	345	362	380
Lakshadweep	50	53	56	59	62	65	68
All-India	1,152,443	1,212,939	1,270,461	1,335,087	1,404,324	1,477,473	1,554,509



State/Region	2024	2025	2026	2027	2028	2029	2030
Delhi	48,536	51,664	54,992	58,531	62,294	66,293	70,544
Haryana	78,799	83,785	89,084	94,715	100,695	107,045	113,785
Himachal Pradesh	13,033	13,685	14,369	15,087	15,841	16,633	17,465
Jammu & Kashmir	22,579	23,402	24,240	25,093	25,968	26,869	27,799
Punjab	70,084	73,371	76,800	80,375	84,110	88,011	92,085
Rajasthan	108,275	114,814	121,747	129,099	136,887	145,134	153,865
Uttar Pradesh	150,826	157,947	165,380	173,136	181,234	189,693	198,529
Uttarakhand	23,465	25,265	27,193	29,257	31,472	33,850	36,405
Chandigarh	2,292	2,402	2,516	2,636	2,760	2,891	3,027
Northern Region	517,889	546,335	576,321	607,929	641,261	676,419	713,504
Goa	6,396	6,632	6,876	7,130	7,392	7,664	7,946
Gujarat	136,116	142,265	148,680	155,372	162,358	169,649	177,258
Chhattisgarh	33,191	34,507	35,876	37,299	38,777	40,312	41,905
Madhya Pradesh	79,508	82,591	85,795	89,123	92,575	96,155	99,869
Maharashtra	185,609	192,977	200,636	208,600	216,868	225,451	234,361
D. & N. Haveli	8,754	9,192	9,652	10,135	10,642	11,174	11,733
Daman & Diu	3,453	3,626	3,807	3,997	4,197	4,407	4,627
Western Region	453,027	471,790	491,322	511,656	532,809	554,812	577,699
Andhra Pradesh	74,568	78,447	82,526	86,817	91,329	96,069	101,048
Telangana	74,932	78,828	82,927	87,240	91,774	96,537	101,539
Karnataka	92,358	96,974	101,821	106,909	112,244	117,837	123,699
Kerala	32,322	33,769	35,278	36,851	38,491	40,201	41,984
Tamil Nadu	148,533	156,990	165,924	175,362	185,328	195,848	206,949
Puducherry	3,630	3,816	4,012	4,218	4,434	4,661	4,899
Southern Region	426,343	448,824	472,488	497,397	523,600	551,153	580,118
Bihar	46,843	50,562	54,572	58,897	63,560	68,585	74,000
Jharkhand	23,066	24,709	26,471	28,360	30,382	32,546	34,862
Odisha	43,142	45,991	49,028	52,264	55,708	59,374	63,274
West Bengal	103,627	110,091	116,929	124,167	131,830	139,948	148,547
Sikkim	589	618	649	681	715	751	789
Eastern Region	217,267	231,971	247,649	264,369	282,195	301,204	321,472
Assam	11,742	12,186	12,639	13,100	13,573	14,063	14,568
Manipur	1,042	1,076	1,110	1,144	1,178	1,213	1,249
Meghalaya	2,791	2,937	3,091	3,253	3,423	3,601	3,789
Nagaland	1,172	1,242	1,315	1,394	1,476	1,564	1,656
Tripura	2,093	2,236	2,390	2,553	2,728	2,914	3,113



State/Region	2024	2025	2026	2027	2028	2029	2030
Arunachal Pradesh	923	969	1,017	1,068	1,121	1,177	1,236
Mizoram	846	912	983	1,059	1,141	1,229	1,324
North Eastern Region	20,609	21,558	22,545	23,571	24,640	25,761	26,935
Andaman & Nicobar Islands	399	419	440	462	485	509	534
Lakshadweep	71	75	79	83	87	91	96
All-India	1,635,605	1,720,972	1,810,844	1,905,467	2,005,077	2,109,949	2,220,358

State/Region	2031	2032	2033	2034	2035	2036	2037
Delhi	75,061	79,861	84,961	90,378	96,133	102,245	108,746
Haryana	120,940	128,534	136,593	145,145	154,220	163,848	174,077
Himachal Pradesh	18,338	19,255	20,218	21,229	22,290	23,405	24,576
Jammu & Kashmir	28,759	29,750	30,772	31,826	32,913	34,035	35,195
Punjab	96,340	100,783	105,421	110,264	115,320	120,597	126,115
Rajasthan	163,108	172,891	183,246	194,205	205,801	218,072	231,075
Uttar Pradesh	207,760	217,401	227,470	237,986	248,966	260,431	272,424
Uttarakhand	39,149	42,097	45,263	48,662	52,313	56,232	60,445
Chandigarh	3,170	3,318	3,474	3,637	3,807	3,984	4,169
Northern Region	752,625	793,890	837,418	883,332	931,763	982,849	1,036,822
Goa	8,237	8,539	8,851	9,174	9,508	9,854	10,213
Gujarat	185,198	193,482	202,126	211,144	220,551	230,365	240,616
Chhattisgarh	43,558	45,275	47,056	48,905	50,823	52,813	54,881
Madhya Pradesh	103,720	107,713	111,854	116,148	120,599	125,214	130,006
Maharashtra	243,609	253,207	263,170	273,508	284,237	295,369	306,937
D. & N. Haveli	12,320	12,936	13,583	14,262	14,975	15,724	16,510
Daman & Diu	4,858	5,101	5,356	5,624	5,905	6,200	6,510
Western Region	601,500	626,253	651,996	678,765	706,598	735,539	765,673
Andhra Pradesh	106,276	111,767	117,532	123,586	129,941	136,612	143,626
Telangana	106,794	112,311	118,105	124,187	130,573	137,277	144,325
Karnataka	129,843	136,281	143,028	150,098	157,505	165,264	173,405
Kerala	43,843	45,781	47,800	49,905	52,099	54,384	56,769
Tamil Nadu	218,662	231,022	244,061	257,816	272,326	287,630	303,794
Puducherry	5,149	5,412	5,687	5,976	6,279	6,597	6,931



State/Region	2031	2032	2033	2034	2035	2036	2037
Southern Region	610,567	642,574	676,213	711,568	748,723	787,764	828850
Bihar	79,833	86,118	92,888	100,179	108,030	116,485	125602
Jharkhand	37,339	39,987	42,819	45,847	49,084	52,543	56246
Odisha	67,424	71,838	76,533	81,527	86,836	92,482	98495
West Bengal	157,657	167,307	177,529	188,355	199,819	211,959	224837
Sikkim	828	869	912	958	1,006	1,056	1108
Eastern Region	343,081	366,119	390,681	416,866	444,775	474,525	506288
Assam	5,090	15,630	16,187	16,763	17,357	17,971	18607
Manipur	1,287	1,325	1,364	1,404	1,445	1,487	1530
Meghalaya	3,985	4,192	4,409	4,637	4,876	5,127	5391
Nagaland	1,754	1,857	1,967	2,082	2,205	2,334	2471
Tripura	3,326	3,552	3,793	4,051	4,325	4,618	4931
Arunachal Pradesh	1,298	1,363	1,431	1,503	1,578	1,657	1740
Mizoram	1,426	1,535	1,653	1,780	1,916	2,063	2221
North Eastern Region	28,166	29,454	30,804	32,220	33,702	35,257	36891
Andaman & Nicobar Islands	561	589	618	649	681	715	751
Lakshadweep	101	106	111	117	123	129	135
All-India	2,336,601	2,458,985	2,587,841	2,723,517	2,866,365	3,016,778	3175410

Table A5.3: CAGR of Forecasted Electrical Energy Requirement (PAM Optimistic Scenario)

State/Region	FY 2016-17 to FY 2021-22	FY 2021-22 to FY 2026-27	FY 2016-17 to FY 2026-27	FY 2026-27 to FY 2036-37	FY 2016-17 to FY 2036-37
Delhi	6.28	6.44	6.36	6.39	6.38
Haryana	6.46	6.33	6.39	6.28	6.34
Himachal Pradesh	5	5	5	5	5
Jammu & Kashmir	3.34	3.64	3.49	3.44	3.46
Punjab	4.73	4.69	4.71	4.61	4.66
Rajasthan	6.12	6.04	6.08	5.99	6.04
Uttar Pradesh	4.51	4.72	4.61	4.64	4.62
Uttarakhand	8.49	7.68	8.08	7.53	7.8
Chandigarh	4.59	4.77	4.68	4.69	4.69
Northern Region	5.42	5.49	5.46	5.48	5.47
Goa	3.37	3.69	3.53	3.66	3.59
Gujarat	3.88	4.52	4.2	4.47	4.33
Chhattisgarh	3.61	3.97	3.79	3.94	3.86



State/Region	FY 2016-17 to FY 2021-22	FY 2021-22 to FY 2026-27	FY 2016-17 to FY 2026-27	FY 2026-27 to FY 2036-37	FY 2016-17 to FY 2036-37
Madhya Pradesh	3.65	3.88	3.76	3.85	3.81
Maharashtra	3.7	3.97	3.84	3.94	3.89
D. & N. Haveli	5	5	5	5	5
Daman & Diu	5	5	5	5	5
Western Region	3.77	4.14	3.95	4.11	4.03
Andhra Pradesh	5.12	5.2	5.16	5.16	5.16
Telangana	5.12	5.2	5.16	5.16	5.16
Karnataka	4.52	5	4.76	4.96	4.86
Kerala	4.35	4.48	4.41	4.42	4.41
Tamil Nadu	5.62	5.69	5.66	5.65	5.65
Puducherry	5.54	5.13	5.33	5.09	5.21
Southern Region	5.1	5.27	5.19	5.24	5.21
Bihar	8.83	7.94	8.39	7.87	8.13
Jharkhand	6.51	7.11	6.81	7.09	6.95
Odisha	6.22	6.6	6.41	6.54	6.47
West Bengal	7.89	6.25	7.07	6.12	6.59
Sikkim	4.97	4.98	4.98	4.99	4.98
Eastern Region	7.57	6.77	7.17	6.71	6.94
Assam	3.23	3.78	3.51	3.57	3.54
Manipur	2.38	3.25	2.81	2.95	2.88
Meghalaya	6.32	5.25	5.78	5.18	5.48
Nagaland	6.11	5.95	6.03	5.89	5.96
Tripura	5.63	6.85	6.24	6.8	6.52
Arunachal Pradesh	4.99	5	4.99	5	5
Mizoram	6.48	7.81	7.15	7.69	7.42
North Eastern Region	4.14	4.61	4.38	4.58	4.48
Andaman & Nicobar Islands	4.97	5	4.99	4.98	4.98
Lakshadweep	5.39	5.01	5.2	4.98	5.09
All-India	5.09	5.22	5.16	5.24	5.2

Table A5.4: Forecasted Electrical Energy Requirement (PAM Pessimistic Scenario) in MUs

State/Region	2017	2018	2019	2020	2021	2022	2023
Delhi	31,588	33,625	35,584	37,554	39,592	41,725	43,966
Haryana	50,958	54,723	58,028	61,223	64,486	67,886	71,452
Himachal Pradesh	9,262	9,725	10,211	10,722	11,258	11,821	12,412



State/Region	2017	2018	2019	2020	2021	2022	2023
Jammu & Kashmir	17,810	18,297	18,819	19,353	19,894	20,441	20,993
Punjab	50,740	53,378	55,694	57,874	60,046	62,260	64,537
Rajasthan	71,560	76,544	80,883	85,073	89,348	93,794	98,447
Uttar Pradesh	110,295	115,211	119,878	124,471	129,132	133,917	138,850
Uttarakhand	13,452	14,883	16,094	17,256	18,445	19,690	21,003
Chandigarh	1,668	1,745	1,817	1,888	1,960	2,034	2,109
Northern Region	357,333	378,131	397,008	415,414	434,161	453,568	473,769
Goa	5,040	5,197	5,352	5,510	5,674	5,843	6,017
Gujarat	102,981	105,580	109,367	113,512	117,852	122,358	127,028
Chhattisgarh	25,714	26,533	27,400	28,291	29,211	30,161	31,143
Madhya Pradesh	61,601	63,736	65,867	67,981	70,140	72,362	74,653
Maharashtra	143,165	148,033	153,106	158,164	163,331	168,653	174,145
D. & N. Haveli	6,221	6,532	6,859	7,202	7,562	7,940	8,337
Daman & Diu	2,454	2,577	2,706	2,841	2,983	3,132	3,289
Western Region	347,176	358,188	370,657	383,501	396,753	410,449	424,612
Andhra Pradesh	52,501	55,418	57,999	60,511	63,083	65,752	68,532
Telangana	52,756	55,688	58,281	60,806	63,390	66,072	68,865
Karnataka	67,154	69,770	72,601	75,536	78,583	81,749	85,042
Kerala	23,929	25,008	25,991	26,941	27,902	28,890	29,909
Tamil Nadu	101,157	107,197	112,772	118,257	123,885	129,746	135,872
Puducherry	2,509	2,689	2,828	2,953	3,077	3,206	3,339
Southern Region	300,006	315,770	330,472	345,004	359,920	375,415	391,559
Bihar	26,326	29,193	31,758	34,186	36,604	39,090	41,693
Jharkhand	14,675	15,564	16,503	17,476	18,494	19,564	20,692
Odisha	28,086	29,804	31,522	33,269	35,068	36,936	38,888
West Bengal	62,728	69,635	75,274	80,176	84,735	89,195	93,700
Sikkim	419	440	462	485	509	534	561
Eastern Region	132,234	144,636	155,519	165,592	175,410	185,319	195,534
Assam	9,282	9,453	9,706	9,986	10,275	10,568	10,864
Manipur	867	864	881	902	925	947	969
Meghalaya	1,854	2,041	2,157	2,254	2,349	2,446	2,547
Nagaland	776	833	879	923	968	1,014	1,063
Tripura	1,394	1,434	1,508	1,593	1,684	1,780	1,882
Arunachal Pradesh	656	689	723	759	797	837	879
Mizoram	531	549	582	620	662	706	754
North Eastern Region	15,360	15,863	16,436	17,037	17,660	18,298	18,958



State/Region	2017	2018	2019	2020	2021	2022	2023
Andaman & Nicobar Islands	284	298	313	329	345	362	380
Lakshadweep	50	53	56	59	62	65	68
All-India	1,152,443	1,212,939	1,270,461	1,326,936	1,384,311	1,443,476	1,504,880

State/Region	2024	2025	2026	2027	2028	2029	2030
Delhi	46,323	48,804	51,415	54,163	57,054	60,095	63,293
Haryana	75,198	79,138	83,281	87,638	92,215	97,024	102,074
Himachal Pradesh	13,033	13,685	14,369	15,087	15,841	16,633	17,465
Jammu & Kashmir	21,548	22,104	22,662	23,219	23,782	24,356	24,942
Punjab	66,883	69,303	71,799	74,372	77,028	79,772	82,607
Rajasthan	103,326	108,444	113,815	119,452	125,360	131,551	138,037
Uttar Pradesh	143,940	149,193	154,614	160,207	165,985	171,958	178,131
Uttarakhand	22,393	23,865	25,423	27,072	28,823	30,683	32,661
Chandigarh	2,188	2,269	2,352	2,439	2,528	2,620	2,716
Northern Region	494,832	516,805	539,730	563,649	588,616	614,692	641,926
Goa	6,196	6,381	6,571	6,766	6,967	7,174	7,386
Gujarat	131,866	136,877	142,068	147,444	153,013	158,784	164,763
Chhattisgarh	32,156	33,202	34,282	35,397	36,547	37,733	38,955
Madhya Pradesh	77,016	79,454	81,970	84,565	87,236	89,987	92,820
Maharashtra	179,816	185,671	191,715	197,957	204,389	211,020	217,853
D. & N. Haveli	8,754	9,192	9,652	10,135	10,642	11,174	11,733
Daman & Diu	3,453	3,626	3,807	3,997	4,197	4,407	4,627
Western Region	439,257	454,403	470,065	486,261	502,991	520,279	538,137
Andhra Pradesh	71,428	74,446	77,592	80,871	84,283	87,834	91,528
Telangana	71,775	74,809	77,970	81,265	84,694	88,262	91,973
Karnataka	88,467	92,029	95,733	99,586	103,587	107,741	112,054
Kerala	30,961	32,047	33,169	34,327	35,523	36,757	38,032
Tamil Nadu	142,282	148,990	156,011	163,358	171,038	179,068	187,460
Puducherry	3,478	3,622	3,773	3,929	4,092	4,262	4,438
Southern Region	408,391	425,943	444,248	463,336	483,217	503,924	525,485
Bihar	44,441	47,356	50,454	53,750	57,256	60,984	64,949
Jharkhand	21,884	23,143	24,474	25,881	27,367	28,936	30,592
Odisha	40,933	43,079	45,332	47,700	50,187	52,799	55,540
West Bengal	98,329	103,129	108,125	113,335	118,773	124,452	130,387
Sikkim	589	618	649	681	715	751	789
Eastern Region	206,176	217,325	229,034	241,347	254,298	267,922	282,257



State/Region	2024	2025	2026	2027	2028	2029	2030
Assam	11,160	11,458	11,755	12,052	12,352	12,659	12,973
Manipur	991	1,012	1,032	1,052	1,072	1,092	1,112
Meghalaya	2,652	2,761	2,875	2,992	3,114	3,241	3,373
Nagaland	1,114	1,167	1,223	1,282	1,343	1,408	1,475
Tripura	1,989	2,103	2,223	2,349	2,482	2,623	2,772
Arunachal Pradesh	923	969	1,017	1,068	1,121	1,177	1,236
Mizoram	804	858	914	974	1,038	1,106	1,179
North Eastern Region	19,633	20,328	21,039	21,769	22,522	23,306	24,120
Andaman & Nicobar Islands	399	419	440	462	485	509	534
Lakshadweep	71	75	79	83	87	91	96
All-India	1,568,759	1,635,298	1,704,635	1,776,907	1,852,216	1,930,723	2,012,555

State/Region	2031	2032	2033	2034	2035	2036	2037
Delhi	66,655	70,190	73,906	77,812	81,917	86,230	90770
Haryana	107,378	112,949	118,797	124,938	131,385	138,152	145268
Himachal Pradesh	18,338	19,255	20,218	21,229	22,290	23,405	24576
Jammu & Kashmir	25,539	26,148	26,769	27,403	28,049	28,708	29382
Punjab	85,534	88,559	91,682	94,906	98,236	101,674	105232
Rajasthan	144,831	151,947	159,398	167,199	175,368	183,919	192887
Uttar Pradesh	184,509	191,100	197,908	204,942	212,206	219,709	227477
Uttarakhand	34,764	36,998	39,373	41,896	44,578	47,426	50456
Chandigarh	2,814	2,916	3,022	3,131	3,243	3,359	3479
Northern Region	670,362	700,062	731,073	763,456	797,272	832,582	869527
Goa	7,605	7,829	8,060	8,296	8,540	8,789	9045
Gujarat	170,958	177,375	184,023	190,909	198,041	205,427	213088
Chhattisgarh	40,214	41,511	42,848	44,226	45,645	47,106	48614
Madhya Pradesh	95,736	98,738	101,828	105,010	108,284	111,653	115127
Maharashtra	224,895	232,152	239,628	247,331	255,267	263,441	271877
D. & N. Haveli	12,320	12,936	13,583	14,262	14,975	15,724	16510
Daman & Diu	4,858	5,101	5,356	5,624	5,905	6,200	6510
Western Region	556,586	575,642	595,326	615,658	636,657	658,340	680771
Andhra Pradesh	95,369	99,365	103,519	107,838	112,329	116,998	121860
Telangana	95,834	99,848	104,022	108,363	112,876	117,567	122454
Karnataka	116,531	121,177	125,999	131,002	136,192	141,578	147177
Kerala	39,348	40,706	42,108	43,554	45,047	46,587	48180



State/Region	2031	2032	2033	2034	2035	2036	2037
Tamil Nadu	196,231	205,396	214,973	224,978	235,430	246,348	257772
Puducherry	4,621	4,811	5,009	5,214	5,428	5,650	5881
Southern Region	547,934	571,303	595,630	620,949	647,302	674,728	703324
Bihar	69,165	73,646	78,408	83,470	88,849	94,563	100644
Jharkhand	32,339	34,182	36,127	38,177	40,340	42,621	45031
Odisha	58,419	61,439	64,609	67,935	71,425	75,085	78933
West Bengal	136,589	143,070	149,841	156,916	164,306	172,025	180107
Sikkim	828	869	912	958	1,006	1,056	1108
Eastern Region	297,340	313,206	329,897	347,456	365,926	385,350	405823
Assam	13,293	13,619	13,952	14,292	14,639	14,993	15356
Manipur	1,133	1,154	1,175	1,196	1,218	1,240	1262
Meghalaya	3,509	3,651	3,798	3,951	4,109	4,274	4446
Nagaland	1,545	1,619	1,695	1,776	1,860	1,947	2038
Tripura	2,928	3,094	3,268	3,452	3,645	3,850	4067
Arunachal Pradesh	1,298	1,363	1,431	1,503	1,578	1,657	1740
Mizoram	1,256	1,337	1,424	1,517	1,615	1,720	1832
North Eastern Region	24,962	25,837	26,743	27,687	28,664	29,681	30741
Andaman & Nicobar Islands	561	589	618	649	681	715	751
Lakshadweep	101	106	111	117	123	129	135
All-India	2,097,846	2,186,745	2,279,398	2,375,972	2,476,625	2,581,525	2691072

Table A5.4: CAGR of Forecasted Electrical Energy Requirement (PAM Pessimistic Scenario)

State/Region	FY 2016-17 to FY 2021-22	FY 2021-22 to FY 2026-27	FY 2016-17 to FY 2026-27	FY 2026-27 to FY 2036-37	FY 2016-17 to FY 2036-37
Delhi	5.72	5.36	5.54	5.3	5.42
Haryana	5.9	5.24	5.57	5.18	5.38
Himachal Pradesh	5	5	5	5	5
Jammu & Kashmir	2.79	2.58	2.69	2.38	2.53
Punjab	4.18	3.62	3.9	3.53	3.71
Rajasthan	5.56	4.96	5.26	4.91	5.08
Uttar Pradesh	3.96	3.65	3.8	3.57	3.69
Uttarakhand	7.92	6.57	7.24	6.42	6.83
Chandigarh	4.05	3.7	3.87	3.62	3.74
Northern Region	4.89	4.44	4.66	4.43	4.55
Goa	3	2.98	2.99	2.95	2.97
Gujarat	3.51	3.8	3.65	3.75	3.7
Chhattisgarh	3.24	3.25	3.25	3.22	3.24
Madhya Pradesh	3.27	3.17	3.22	3.13	3.18
Maharashtra	3.33	3.26	3.29	3.22	3.26



State/Region	FY 2016-17 to FY 2021-22	FY 2021-22 to FY 2026-27	FY 2016-17 to FY 2026-27	FY 2026-27 to FY 2036-37	FY 2016-17 to FY 2036-37
D. & N. Haveli	5	5	5	5	5
Daman & Diu	5	5	5	5	5
Western Region	3.41	3.45	3.43	3.42	3.42
Andhra Pradesh	4.6	4.23	4.41	4.19	4.3
Telangana	4.6	4.23	4.41	4.19	4.3
Karnataka	4.01	4.03	4.02	3.98	4
Kerala	3.84	3.51	3.67	3.45	3.56
Tamil Nadu	5.1	4.72	4.91	4.67	4.79
Puducherry	5.02	4.15	4.59	4.12	4.35
Southern Region	4.59	4.3	4.44	4.26	4.35
Bihar	8.23	6.58	7.4	6.47	6.94
Jharkhand	5.92	5.76	5.84	5.69	5.77
Odisha	5.63	5.25	5.44	5.17	5.3
West Bengal	7.29	4.91	6.09	4.74	5.42
Sikkim	4.97	4.98	4.98	4.99	4.98
Eastern Region	6.98	5.43	6.2	5.33	5.77
Assam	2.63	2.66	2.65	2.45	2.55
Manipur	1.78	2.13	1.95	1.84	1.89
Meghalaya	5.7	4.11	4.9	4.04	4.47
Nagaland	5.5	4.8	5.15	4.74	4.95
Tripura	5.01	5.7	5.36	5.64	5.5
Arunachal Pradesh	4.99	5	4.99	5	5
Mizoram	5.86	6.65	6.25	6.52	6.39
North Eastern Region	3.56	3.53	3.55	3.51	3.53
Andaman & Nicobar Islands	4.97	5	4.99	4.98	4.98
Lakshadweep	5.39	5.01	5.2	4.98	5.09
All-India	4.61	4.24	4.43	4.24	4.33

Table A5.5: Forecasted Peak Electricity Demand (PAM Baseline Scenario) in MW

State	2017	2018	2019	2020	2021	2022	2023
Delhi	5,819	6,033	6,326	6,670	7,048	7,457	7,892
Haryana	9,107	9,688	10,248	10,833	11,451	12,108	12,805
Himachal Pradesh	1,586	1,665	1,748	1,835	1,927	2,023	2,124
Jammu & Kashmir	2,653	2,715	2,780	2,859	2,949	3,047	3,150
Punjab	10,754	11,080	11,507	11,989	12,499	13,035	13,594
Rajasthan	11,478	12,186	12,786	13,424	14,124	14,886	15,701
Uttar Pradesh	16,188	16,892	17,609	18,331	19,087	19,891	20,740
Uttarakhand	2,095	2,261	2,416	2,579	2,757	2,951	3,159
Chandigarh	335	345	357	372	387	404	422
Goa	476	483	486	491	499	509	520
Gujarat	13,647	13,824	14,057	14,363	14,718	15,104	15,506
Chhattisgarh	3,957	4,030	4,092	4,164	4,252	4,349	4,450



State	2017	2018	2019	2020	2021	2022	2023
Madhya Pradesh	10,141	10,106	10,229	10,425	10,651	10,892	11,141
Maharashtra	20,182	20,601	20,940	21,328	21,782	22,279	22,798
D. & N. Haveli	790	830	872	916	962	1,010	1,061
Daman & Diu	320	336	353	371	390	410	431
Andhra Pradesh	7,236	7,597	7,888	8,210	8,560	8,936	9,331
Telangana	8,312	8,728	9,061	9,431	9,834	10,266	10,720
Karnataka	10,736	11,108	11,489	11,933	12,422	12,946	13,497
Kerala	3,899	4,059	4,191	4,337	4,497	4,668	4,846
Tamil Nadu	14,497	15,293	15,955	16,678	17,462	18,303	19,190
Puducherry	364	388	404	421	439	458	478
Bihar	4,422	5,220	5,839	6,386	6,921	7,472	8,051
Jharkhand	2,479	2,808	3,041	3,249	3,464	3,696	3,944
Odisha	5,345	6,289	6,897	7,402	7,894	8,406	8,944
West Bengal	13,104	16,248	18,275	19,828	21,244	22,651	24,086
Sikkim	119	125	131	138	145	152	160
Assam	1,571	1,597	1,633	1,677	1,725	1,776	1,828
Manipur	164	167	170	174	179	183	188
Meghalaya	354	382	397	412	428	445	463
Nagaland	139	149	155	162	169	176	184
Tripura	282	290	302	316	332	349	367
Arunachal Pradesh	148	155	163	171	180	189	198
Mizoram	106	108	113	119	126	134	142
Andaman & Nicobar Islands	40	42	44	46	48	50	53
Lakshadweep	8	8	8	8	8	8	8
All India	158,994	165,745	173,694	182,355	191,679	201,481	211,783

State	2024	2025	2026	2027	2028	2029	2030
Delhi	8,355	8,839	9,343	9,868	10,414	10,983	11,575
Haryana	13,543	14,314	15,114	15,947	16,813	17,713	18,648
Himachal Pradesh	2,230	2,342	2,459	2,582	2,711	2,847	2,989
Jammu & Kashmir	3,256	3,362	3,466	3,569	3,670	3,772	3,874
Punjab	14,177	14,774	15,378	15,993	16,620	17,257	17,906
Rajasthan	16,564	17,463	18,391	19,355	20,353	21,389	22,460
Uttar Pradesh	21,631	22,547	23,479	24,427	25,394	26,379	27,382
Uttarakhand	3,381	3,615	3,859	4,116	4,387	4,671	4,970
Chandigarh	440	459	478	497	517	538	558
Goa	531	543	554	566	577	589	601
Gujarat	15,920	16,340	16,762	17,188	17,619	18,055	18,497
Chhattisgarh	4,554	4,660	4,765	4,872	4,979	5,086	5,195
Madhya Pradesh	11,396	11,653	11,909	12,167	12,427	12,688	12,951
Maharashtra	23,332	23,872	24,413	24,956	25,504	26,056	26,612
D. & N. Haveli	1,114	1,170	1,229	1,290	1,355	1,423	1,494
Daman & Diu	453	476	500	525	551	579	608



State	2024	2025	2026	2027	2028	2029	2030
Andhra Pradesh	9,743	10,166	10,596	11,037	11,490	11,955	12,430
Telangana	11,194	11,679	12,173	12,680	13,201	13,734	14,281
Karnataka	14,071	14,656	15,251	15,860	16,483	17,121	17,772
Kerala	5,031	5,218	5,406	5,598	5,792	5,990	6,191
Tamil Nadu	20,119	21,075	22,054	23,063	24,104	25,176	26,281
Puducherry	499	520	542	564	587	610	634
Bihar	8,666	9,314	9,996	10,715	11,473	12,272	13,114
Jharkhand	4,209	4,489	4,783	5,090	5,412	5,749	6,101
Odisha	9,511	10,103	10,716	11,353	12,015	12,703	13,417
West Bengal	25,567	27,087	28,643	30,243	31,894	33,597	35,354
Sikkim	168	176	185	194	204	214	225
Assam	1,882	1,934	1,984	2,034	2,083	2,132	2,181
Manipur	193	197	202	206	210	214	217
Meghalaya	481	500	519	538	557	577	597
Nagaland	193	201	210	218	228	237	246
Tripura	386	406	426	447	469	491	514
Arunachal Pradesh	208	218	229	240	252	265	278
Mizoram	150	159	168	177	187	197	207
Andaman & Nicobar Islands	56	59	62	65	68	71	75
Lakshadweep	8	8	8	8	8	8	8
All India	222,346	233,155	244,342	255,911	267,866	280,211	292,947

State	2031	2032	2033	2034	2035	2036	2037
Delhi	12,189	12,828	13,495	14,193	14,926	15,695	16,504
Haryana	19,618	20,624	21,675	22,774	23,925	25,132	26,400
Himachal Pradesh	3,138	3,295	3,460	3,633	3,815	4,006	4,207
Jammu & Kashmir	3,976	4,077	4,180	4,284	4,391	4,500	4,612
Punjab	18,567	19,238	19,926	20,634	21,364	22,118	22,899
Rajasthan	23,569	24,715	25,909	27,155	28,458	29,821	31,249
Uttar Pradesh	28,403	29,441	30,505	31,600	32,729	33,896	35,105
Uttarakhand	5,284	5,615	5,964	6,333	6,725	7,140	7,581
Chandigarh	579	601	623	646	669	693	718
Goa	612	624	636	648	660	672	684
Gujarat	18,943	19,395	19,853	20,322	20,800	21,289	21,789
Chhattisgarh	5,304	5,414	5,525	5,638	5,754	5,871	5,990
Madhya Pradesh	13,215	13,480	13,749	14,023	14,302	14,586	14,876
Maharashtra	27,171	27,734	28,304	28,883	29,473	30,074	30,687
D. & N. Haveli	1,569	1,647	1,729	1,815	1,906	2,001	2,101
Daman & Diu	638	670	704	739	776	815	856
Andhra Pradesh	12,918	13,416	13,931	14,465	15,018	15,591	16,186
Telangana	14,840	15,413	16,005	16,618	17,254	17,912	18,595



State	2031	2032	2033	2034	2035	2036	2037
Karnataka	18,437	19,116	19,816	20,541	21,290	22,065	22,868
Kerala	6,394	6,601	6,813	7,031	7,256	7,487	7,725
Tamil Nadu	27,418	28,587	29,800	31,063	32,377	33,744	35,169
Puducherry	659	684	710	736	764	793	823
Bihar	14,001	14,934	15,920	16,964	18,073	19,250	20,504
Jharkhand	6,468	6,852	7,254	7,677	8,122	8,592	9,089
Odisha	14,158	14,927	15,728	16,566	17,444	18,365	19,335
West Bengal	37,168	39,037	40,976	42,996	45,104	47,305	49,613
Sikkim	236	248	260	273	287	301	316
Assam	2,229	2,278	2,326	2,376	2,426	2,478	2,531
Manipur	221	225	229	233	236	240	244
Meghalaya	617	638	660	681	704	728	753
Nagaland	256	266	276	287	298	310	322
Tripura	538	562	588	615	642	671	701
Arunachal Pradesh	292	307	322	338	355	373	392
Mizoram	218	230	242	254	268	281	295
Andaman & Nicobar Islands	79	83	87	91	96	101	106
Lakshadweep	8	8	8	8	8	8	8
All India	306,077	319,794	334,126	349,101	364,747	381,093	398,172

Table A5.5: CAGR of forecasted Peak Electricity Demand (PAM Baseline Scenario)

State/Region	FY 2016-17 to FY 2021-22	FY 2021-22 to FY 2026-27	FY 2016-17 to FY 2026-27	FY 2026-27 to FY 2036-37	FY 2016-17 to FY 2036-37
Delhi	5.09	5.76	5.42	5.28	5.35
Haryana	5.86	5.66	5.76	5.17	5.47
Himachal Pradesh	4.99	5.00	4.99	5	5
Jammu & Kashmir	2.81	3.21	3.01	2.6	2.8
Punjab	3.92	4.18	4.05	3.65	3.85
Rajasthan	5.34	5.39	5.36	4.91	5.14
Uttar Pradesh	4.21	4.19	4.2	3.69	3.95
Uttarakhand	7.09	6.88	6.99	6.3	6.64
Chandigarh	3.82	4.23	4.02	3.75	3.89
Goa	1.35	2.15	1.75	1.91	1.83
Gujarat	2.05	2.62	2.33	2.4	2.37
Chhattisgarh	1.91	2.30	2.1	2.09	2.09
Madhya Pradesh	1.44	2.24	1.84	2.03	1.93
Maharashtra	2.00	2.30	2.15	2.09	2.12
D. & N. Haveli	5.04	5.02	5.03	5	5.01
Daman & Diu	5.08	5.07	5.08	5.01	5.04
Andhra Pradesh	4.31	4.31	4.31	3.9	4.11
Telangana	4.31	4.31	4.31	3.9	4.11
Karnataka	3.81	4.14	3.98	3.73	3.85



State/Region	FY 2016-17 to FY 2021-22	FY 2021-22 to FY 2026-27	FY 2016-17 to FY 2026-27	FY 2026-27 to FY 2036-37	FY 2016-17 to FY 2036-37
Kerala	3.67	3.70	3.68	3.27	3.48
Tamil Nadu	4.77	4.73	4.75	4.31	4.53
Puducherry	4.70	4.25	4.48	3.85	4.16
Bihar	11.06	7.48	9.25	6.7	7.97
Jharkhand	8.32	6.61	7.46	5.97	6.71
Odisha	9.48	6.20	7.82	5.47	6.64
West Bengal	11.57	5.95	8.72	5.07	6.88
Sikkim	5.02	5.00	5.01	5	5
Assam	2.48	2.75	2.62	2.21	2.41
Manipur	2.22	2.40	2.31	1.71	2.01
Meghalaya	4.68	3.87	4.27	3.42	3.85
Nagaland	4.83	4.37	4.6	3.98	4.29
Tripura	4.36	5.07	4.71	4.6	4.66
Arunachal Pradesh	5.01	4.89	4.95	5.03	4.99
Mizoram	4.80	5.72	5.26	5.24	5.25
Andaman & Nicobar Islands	4.56	5.39	4.97	5.01	4.99
Lakshadweep	0.00	0.00	0	0	0
All-India	4.85	4.90	4.87	4.52	4.7

Table A5.6: Forecasted Peak Electricity Demand (PAM Optimistic Scenario) in MW

State	2017	2018	2019	2020	2021	2022	2023
Delhi	5819	6033	6326	6682	7070	7485	7925
Haryana	9107	9688	10248	10852	11487	12155	12858
Himachal Pradesh	1586	1665	1748	1835	1927	2023	2124
Jammu & Kashmir	2653	2715	2780	2864	2959	3059	3163
Punjab	10754	11080	11507	12010	12539	13085	13650
Rajasthan	11478	12186	12786	13450	14172	14946	15767
Uttar Pradesh	16188	16892	17609	18360	19144	19965	20825
Uttarakhand	2095	2261	2416	2584	2767	2962	3172
Chandigarh	335	345	357	372	389	406	423
Goa	476	483	486	491	500	510	521
Gujarat	13647	13824	14057	14373	14740	15131	15535
Chhattisgarh	3957	4030	4092	4167	4259	4357	4459
Madhya Pradesh	10141	10106	10229	10436	10669	10912	11162
Maharashtra	20182	20601	20940	21343	21815	22319	22841
D. & N. Haveli	790	830	872	916	962	1010	1061
Daman & Diu	320	336	353	371	390	410	431
Andhra Pradesh	7236	7597	7888	8227	8589	8969	9366
Telangana	8312	8728	9061	9451	9867	10303	10758
Karnataka	10736	11108	11489	11959	12464	12994	13546
Kerala	3899	4059	4191	4346	4512	4685	4864



State	2017	2018	2019	2020	2021	2022	2023
Tamil Nadu	14497	15293	15955	16713	17521	18370	19260
Puducherry	364	388	404	422	440	459	479
Bihar	4422	5220	5839	6398	6945	7505	8091
Jharkhand	2479	2808	3041	3255	3477	3712	3963
Odisha	5345	6289	6897	7416	7922	8443	8988
West Bengal	13104	16248	18275	19865	21319	22751	24206
Sikkim	119	125	131	138	145	152	160
Assam	1571	1597	1633	1680	1731	1782	1835
Manipur	164	167	170	174	179	184	189
Meghalaya	354	382	397	413	430	447	465
Nagaland	139	149	155	162	169	177	185
Tripura	282	290	302	317	333	351	369
Arunachal Pradesh	148	155	163	171	180	189	198
Mizoram	106	108	113	120	127	134	142
Andaman & Nicobar Islands	40	42	44	46	48	50	53
Lakshadweep	8	8	8	8	8	8	8
All India	158,994	165,745	174,215	183,124	192,487	202,330	212,676

State	2024	2025	2026	2027	2028	2029	2030
Delhi	8391	8884	9406	9958	10543	11161	11814
Haryana	13601	14386	15217	16095	17023	18003	19038
Himachal Pradesh	2230	2342	2459	2582	2711	2847	2989
Jammu & Kashmir	3270	3379	3490	3603	3718	3836	3957
Punjab	14238	14848	15482	16141	16827	17541	18283
Rajasthan	16635	17552	18519	19540	20616	21750	22945
Uttar Pradesh	21723	22659	23633	24646	25701	26797	27939
Uttarakhand	3395	3633	3886	4155	4443	4749	5076
Chandigarh	442	461	481	502	524	546	570
Goa	532	544	556	568	580	593	606
Gujarat	15950	16376	16812	17260	17718	18189	18671
Chhattisgarh	4563	4670	4780	4892	5006	5124	5243
Madhya Pradesh	11418	11680	11948	12222	12502	12788	13080
Maharashtra	23377	23925	24487	25062	25650	26250	26864
D. & N. Haveli	1114	1170	1229	1290	1355	1423	1494
Daman & Diu	453	476	500	525	551	579	608
Andhra Pradesh	9780	10213	10665	11136	11629	12142	12678
Telangana	11235	11732	12250	12793	13358	13948	14563
Karnataka	14123	14723	15349	16002	16681	17388	18124
Kerala	5049	5242	5441	5648	5862	6083	6313
Tamil Nadu	20193	21171	22196	23270	24394	25572	26804
Puducherry	500	522	545	569	594	619	646
Bihar	8711	9372	10077	10833	11643	12511	13442



State	2024	2025	2026	2027	2028	2029	2030
Jharkhand	4232	4517	4822	5146	5492	5861	6254
Odisha	9561	10165	10803	11478	12193	12950	13752
West Bengal	25702	27256	28878	30579	32367	34252	36239
Sikkim	168	176	185	194	204	214	225
Assam	1889	1943	1997	2052	2109	2166	2225
Manipur	194	198	203	208	212	217	222
Meghalaya	483	502	522	543	564	586	609
Nagaland	193	202	211	220	230	241	251
Tripura	388	408	429	451	474	499	525
Arunachal Pradesh	208	218	229	240	252	265	278
Mizoram	151	160	169	179	189	200	212
Andaman & Nicobar Islands	56	59	62	65	68	71	75
Lakshadweep	8	8	8	8	8	8	8
All India	223,551	234,982	246,998	259,628	272,904	286,858	301,527

State	2031	2032	2033	2034	2035	2036	2037
Delhi	12505	13235	14007	14823	15685	16595	17558
Haryana	20131	21285	22504	23791	25149	26583	28099
Himachal Pradesh	3138	3295	3460	3633	3815	4006	4207
Jammu & Kashmir	4082	4211	4343	4479	4619	4763	4911
Punjab	19055	19858	20693	21562	22466	23405	24383
Rajasthan	24203	25529	26925	28395	29943	31573	33292
Uttar Pradesh	29126	30362	31647	32985	34376	35823	37331
Uttarakhand	5426	5798	6196	6621	7074	7558	8075
Chandigarh	594	620	647	674	703	733	764
Goa	619	632	646	660	674	689	704
Gujarat	19165	19672	20191	20724	21269	21829	22404
Chhattisgarh	5366	5491	5619	5749	5883	6019	6158
Madhya Pradesh	13379	13683	13994	14312	14637	14968	15306
Maharashtra	27491	28132	28787	29456	30140	30838	31552
D. & N. Haveli	1569	1647	1729	1815	1906	2001	2101
Daman & Diu	638	670	704	739	776	815	856
Andhra Pradesh	13236	13817	14424	15056	15714	16401	17117
Telangana	15204	15872	16568	17294	18051	18839	19662
Karnataka	18890	19687	20516	21379	22277	23210	24182
Kerala	6551	6797	7052	7317	7590	7874	8169
Tamil Nadu	28094	29445	30858	32337	33884	35503	37199
Puducherry	674	704	734	766	799	833	868
Bihar	14441	15512	16661	17893	19214	20630	22150
Jharkhand	6672	7118	7593	8099	8638	9212	9824
Odisha	14603	15504	16459	17471	18543	19679	20885



State	2031	2032	2033	2034	2035	2036	2037
West Bengal	38336	40549	42885	45350	47952	50698	53601
Sikkim	236	248	260	273	287	301	316
Assam	2286	2347	2411	2476	2542	2610	2680
Manipur	227	232	237	243	248	253	258
Meghalaya	633	658	684	711	738	767	797
Nagaland	263	274	287	299	312	326	341
Tripura	552	580	610	641	674	708	744
Arunachal Pradesh	292	307	322	338	355	373	392
Mizoram	224	237	251	265	281	297	314
Andaman & Nicobar Islands	79	83	87	91	96	101	106
Lakshadweep	8	8	8	8	8	8	8
All India	316,945	333,152	350,187	368,093	386,915	406,700	427,497

Table A5.6: CAGR of Forecasted Peak Electricity Demand (PAM Optimistic Scenario)

State/Region	FY 2016-17 to FY 2021-22	FY 2021-22 to FY 2026-27	FY 2016-17 to FY 2026-27	FY 2026-27 to FY 2036-37	FY 2016-17 to FY 2036-37
Delhi	5.16	5.88	5.52	5.84	5.68
Haryana	5.94	5.78	5.86	5.73	5.8
Himachal Pradesh	4.99	5	4.99	5	5
Jammu & Kashmir	2.89	3.33	3.11	3.15	3.13
Punjab	4	4.29	4.14	4.21	4.18
Rajasthan	5.42	5.51	5.46	5.47	5.47
Uttar Pradesh	4.28	4.3	4.29	4.24	4.27
Uttarakhand	7.17	7	7.09	6.87	6.98
Chandigarh	3.92	4.34	4.13	4.29	4.21
Goa	1.39	2.18	1.78	2.17	1.98
Gujarat	2.09	2.67	2.38	2.64	2.51
Chhattisgarh	1.94	2.34	2.14	2.33	2.24
Madhya Pradesh	1.48	2.29	1.88	2.28	2.08
Maharashtra	2.03	2.35	2.19	2.33	2.26
D. & N. Haveli	5.04	5.02	5.03	5	5.01
Daman & Diu	5.08	5.07	5.08	5.01	5.04
Andhra Pradesh	4.39	4.42	4.41	4.39	4.4
Telangana	4.39	4.42	4.41	4.39	4.4
Karnataka	3.89	4.25	4.07	4.22	4.14
Kerala	3.74	3.81	3.78	3.76	3.77
Tamil Nadu	4.85	4.84	4.85	4.8	4.82
Puducherry	4.75	4.39	4.57	4.31	4.44
Bihar	11.16	7.62	9.37	7.41	8.39
Jharkhand	8.41	6.75	7.58	6.68	7.13
Odisha	9.57	6.33	7.94	6.17	7.05
West Bengal	11.67	6.09	8.84	5.77	7.3



State/Region	FY 2016-17 to FY 2021-22	FY 2021-22 to FY 2026-27	FY 2016-17 to FY 2026-27	FY 2026-27 to FY 2036-37	FY 2016-17 to FY 2036-37
Sikkim	5.02	5	5.01	5	5
Assam	2.55	2.86	2.71	2.71	2.71
Manipur	2.33	2.48	2.41	2.18	2.29
Meghalaya	4.78	3.97	4.37	3.91	4.14
Nagaland	4.95	4.45	4.7	4.48	4.59
Tripura	4.47	5.14	4.81	5.13	4.97
Arunachal Pradesh	5.01	4.89	4.95	5.03	4.99
Mizoram	4.8	5.96	5.38	5.78	5.58
Andaman & Nicobar Islands	4.56	5.39	4.97	5.01	4.99
Lakshadweep	0	0	0	0	0
All-India	4.94	5.11	5.03	5.11	5.07

Table A5.7: Forecasted Peak Electricity Demand (PAM Pessimistic Scenario) in MW

State	2017	2018	2019	2020	2021	2022	2023
Delhi	5819	6033	6326	6648	6982	7330	7691
Haryana	9107	9688	10248	10795	11341	11898	12474
Himachal Pradesh	1586	1665	1748	1835	1927	2023	2124
Jammu & Kashmir	2653	2715	2780	2848	2919	2991	3065
Punjab	10754	11080	11507	11947	12380	12810	13244
Rajasthan	11478	12186	12786	13374	13980	14614	15276
Uttar Pradesh	16188	16892	17609	18274	18919	19566	20227
Uttarakhand	2095	2261	2416	2570	2730	2898	3074
Chandigarh	335	345	357	371	384	397	411
Goa	476	483	486	490	497	506	515
Gujarat	13647	13824	14057	14343	14657	14985	15322
Chhattisgarh	3957	4030	4092	4159	4235	4315	4398
Madhya Pradesh	10141	10106	10229	10403	10594	10792	10994
Maharashtra	20182	20601	20940	21298	21688	22101	22525
D. & N. Haveli	790	830	872	916	962	1010	1061
Daman & Diu	320	336	353	371	390	410	431
Andhra Pradesh	7236	7597	7888	8175	8469	8774	9090
Telangana	8312	8728	9061	9390	9729	10079	10441
Karnataka	10736	11108	11489	11882	12290	12711	13147
Kerala	3899	4059	4191	4319	4449	4583	4720
Tamil Nadu	14497	15293	15955	16606	17276	17971	18692
Puducherry	364	388	404	419	434	450	466
Bihar	4422	5220	5839	6363	6850	7329	7815
Jharkhand	2479	2808	3041	3237	3428	3624	3828
Odisha	5345	6289	6897	7375	7812	8244	8680
West Bengal	13104	16248	18275	19755	21023	22213	23376
Sikkim	119	125	131	138	145	152	160



State	2017	2018	2019	2020	2021	2022	2023
Assam	1571	1597	1633	1669	1706	1743	1780
Manipur	164	167	170	173	177	180	183
Meghalaya	354	382	397	410	423	437	450
Nagaland	139	149	155	161	167	173	179
Tripura	282	290	302	315	328	343	357
Arunachal Pradesh	148	155	163	171	180	189	198
Mizoram	106	108	113	119	125	131	138
Andaman & Nicobar Islands	40	42	44	46	48	50	53
Lakshadweep	8	8	8	8	8	8	8
All India	158,994	165,745	172,649	179,840	187,330	195,133	203,260

State	2024	2025	2026	2027	2028	2029	2030
Delhi	8068	8463	8877	9310	9764	10240	10737
Haryana	13073	13700	14355	15041	15759	16509	17295
Himachal Pradesh	2230	2342	2459	2582	2711	2847	2989
Jammu & Kashmir	3139	3214	3288	3362	3437	3513	3590
Punjab	13687	14141	14608	15087	15580	16088	16611
Rajasthan	15968	16691	17446	18235	19059	19919	20816
Uttar Pradesh	20905	21603	22322	23061	23822	24607	25415
Uttarakhand	3260	3456	3662	3879	4109	4351	4607
Chandigarh	425	439	454	469	485	501	518
Goa	524	533	542	552	561	571	581
Gujarat	15668	16020	16380	16747	17121	17504	17894
Chhattisgarh	4483	4569	4657	4747	4838	4931	5026
Madhya Pradesh	11201	11411	11625	11843	12064	12290	12519
Maharashtra	22959	23402	23853	24313	24781	25258	25742
D. & N. Haveli	1114	1170	1229	1290	1355	1423	1494
Daman & Diu	453	476	500	525	551	579	608
Andhra Pradesh	9417	9756	10107	10470	10846	11235	11637
Telangana	10817	11206	11609	12027	12459	12906	13368
Karnataka	13598	14064	14546	15044	15559	16090	16638
Kerala	4862	5007	5156	5310	5467	5629	5795
Tamil Nadu	19443	20223	21034	21877	22752	23661	24605
Puducherry	482	499	517	535	554	574	594
Bihar	8318	8843	9395	9977	10593	11245	11934
Jharkhand	4040	4262	4494	4739	4996	5266	5550
Odisha	9128	9590	10070	10570	11092	11638	12208
West Bengal	24538	25714	26918	28159	29444	30779	32167
Sikkim	168	176	185	194	204	214	225
Assam	1816	1853	1890	1926	1962	1999	2037
Manipur	186	189	192	195	197	200	203
Meghalaya	464	479	494	509	525	541	557



State	2024	2025	2026	2027	2028	2029	2030
Nagaland	186	193	200	207	214	222	230
Tripura	373	389	406	423	441	460	480
Arunachal Pradesh	208	218	229	240	252	265	278
Mizoram	145	152	160	168	176	185	194
Andaman & Nicobar Islands	56	59	62	65	68	71	75
Lakshadweep	8	8	8	8	8	8	8
All India	211,726	220,544	229,730	239,299	249,266	259,648	270,462

State	2031	2032	2033	2034	2035	2036	2037
Delhi	11258	11804	12375	12972	13598	14252	14937
Haryana	18116	18974	19872	20811	21792	22817	23890
Himachal Pradesh	3138	3295	3460	3633	3815	4006	4207
Jammu & Kashmir	3669	3749	3831	3914	3998	4084	4172
Punjab	17149	17704	18275	18863	19468	20091	20734
Rajasthan	21752	22728	23746	24808	25915	27070	28276
Uttar Pradesh	26247	27105	27988	28898	29836	30801	31797
Uttarakhand	4878	5164	5467	5786	6124	6482	6861
Chandigarh	535	553	571	590	609	629	650
Goa	592	602	612	623	634	645	656
Gujarat	18292	18698	19113	19537	19969	20410	20861
Chhattisgarh	5122	5220	5320	5421	5524	5629	5736
Madhya Pradesh	12752	12989	13229	13474	13723	13976	14234
Maharashtra	26235	26737	27247	27766	28294	28831	29378
D. & N. Haveli	1569	1647	1729	1815	1906	2001	2101
Daman & Diu	638	670	704	739	776	815	856
Andhra Pradesh	12053	12483	12927	13386	13860	14351	14859
Telangana	13845	14339	14849	15377	15922	16485	17068
Karnataka	17204	17788	18391	19012	19654	20315	20998
Kerala	5966	6141	6321	6506	6696	6891	7092
Tamil Nadu	25584	26601	27656	28752	29888	31068	32295
Puducherry	615	636	659	682	705	730	756
Bihar	12665	13438	14258	15125	16044	17016	18047
Jharkhand	5849	6164	6494	6842	7207	7591	7995
Odisha	12805	13430	14083	14767	15482	16230	17014
West Bengal	33612	35117	36686	38319	40022	41795	43647
Sikkim	236	248	260	273	287	301	316
Assam	2075	2113	2152	2192	2233	2274	2316
Manipur	206	209	212	215	218	220	222
Meghalaya	574	592	610	629	648	667	687
Nagaland	238	247	256	265	274	284	294
Tripura	500	522	544	567	591	616	642



State	2031	2032	2033	2034	2035	2036	2037
Arunachal Pradesh	292	307	322	338	355	373	392
Mizoram	203	213	224	235	246	258	271
Andaman & Nicobar Islands	79	83	87	91	96	101	106
Lakshadweep	8	8	8	8	8	8	8
All India	281,727	293,462	305,684	318,416	331,679	345,493	359,882

Table A5.7: CAGR of Forecasted Peak Electricity Demand (PAM Pessimistic Scenario)

State/Region	FY 2016-17 to FY 2021-22	FY 2021-22 to FY 2026-27	FY 2016-17 to FY 2026-27	FY 2026-27 to FY 2036-37	FY 2016-17 to FY 2036-37
Delhi	4.73	4.9	4.81	4.84	4.83
Haryana	5.49	4.8	5.15	4.74	4.94
Himachal Pradesh	4.99	5	4.99	5	5
Jammu & Kashmir	2.43	2.37	2.4	2.18	2.29
Punjab	3.56	3.33	3.44	3.23	3.34
Rajasthan	4.95	4.53	4.74	4.48	4.61
Uttar Pradesh	3.86	3.34	3.6	3.26	3.43
Uttarakhand	6.7	6	6.35	5.87	6.11
Chandigarh	3.45	3.39	3.42	3.32	3.37
Goa	1.23	1.76	1.49	1.74	1.62
Gujarat	1.89	2.25	2.07	2.22	2.14
Chhattisgarh	1.75	1.93	1.84	1.91	1.87
Madhya Pradesh	1.25	1.88	1.56	1.86	1.71
Maharashtra	1.83	1.93	1.88	1.91	1.9
D. & N. Haveli	5.04	5.02	5.03	5	5.01
Daman & Diu	5.08	5.07	5.08	5.01	5.04
Andhra Pradesh	3.93	3.6	3.76	3.56	3.66
Telangana	3.93	3.6	3.76	3.56	3.66
Karnataka	3.43	3.43	3.43	3.39	3.41
Kerala	3.29	2.99	3.14	2.94	3.04
Tamil Nadu	4.39	4.01	4.2	3.97	4.09
Puducherry	4.33	3.52	3.93	3.52	3.72
Bihar	10.63	6.36	8.48	6.11	7.29
Jharkhand	7.89	5.51	6.69	5.37	6.03
Odisha	9.05	5.1	7.06	4.88	5.96
West Bengal	11.13	4.86	7.95	4.48	6.2
Sikkim	5.02	5	5.01	5	5
Assam	2.1	2.02	2.06	1.86	1.96
Manipur	1.88	1.61	1.75	1.31	1.53
Meghalaya	4.3	3.1	3.7	3.04	3.37
Nagaland	4.47	3.65	4.06	3.57	3.82
Tripura	3.99	4.28	4.14	4.26	4.2
Arunachal Pradesh	5.01	4.89	4.95	5.03	4.99



State/Region	FY 2016-17 to FY 2021-22	FY 2021-22 to FY 2026-27	FY 2016-17 to FY 2026-27	FY 2026-27 to FY 2036-37	FY 2016-17 to FY 2036-37
Mizoram	4.33	5.1	4.71	4.9	4.81
Andaman & Nicobar Islands	4.56	5.39	4.97	5.01	4.99
Lakshadweep	0	0	0	0	0
All-India	4.18	4.17	4.17	4.17	4.17

Table A5.8: Forecasted Total Electrical Energy Requirement (SUR Model Baseline) in MUs

State/Region	2017	2018	2019	2020	2021	2022	2023
Delhi	29,737	30,166	30,651	31,161	31,691	32,230	32,777
Haryana	52,214	55,498	59,417	63,764	68,536	73,663	79,170
Himachal Pradesh	9,262	9,725	10,211	10,722	11,258	11,821	12,412
Jammu & Kashmir	17,979	18,604	19,382	20,229	21,135	22,068	23,027
Punjab	52,795	54,712	57,030	59,555	62,265	65,088	68,030
Rajasthan	73,428	77,481	82,313	87,643	93,456	99,655	106,264
Uttar Pradesh	113,462	119,293	126,448	134,378	143,041	152,234	161,985
Uttarakhand	15,233	16,583	18,184	19,978	21,974	24,156	26,541
Chandigarh	1,657	1,691	1,732	1,775	1,821	1,868	1,916
Northern Region	365,767	383,753	405,368	429,205	455,177	482,783	512,122
Goa	4,268	4,298	4,333	4,369	4,407	4,444	4,483
Gujarat	100,834	103,604	106,830	110,282	113,929	118,002	122,212
Chhattisgarh	25,587	26,881	28,484	30,269	32,227	34,560	37,062
Madhya Pradesh	62,412	64,958	68,083	71,524	75,254	79,604	84,206
Maharashtra	142,771	146,988	152,029	157,482	163,296	169,807	176,577
D. & N. Haveli	6,221	6,532	6,859	7,202	7,562	7,940	8,337
Daman & Diu	2,454	2,577	2,706	2,841	2,983	3,132	3,289
Western Region	344,547	355,838	369,324	383,969	399,658	417,489	436,166
Andhra Pradesh	55,734	58,797	62,546	66,717	71,297	76,468	82,014
Telangana	56,005	59,083	62,851	67,042	71,645	76,841	82,414
Karnataka	68,091	70,200	72,763	75,554	78,544	81,917	85,435
Kerala	25,106	26,262	27,681	29,247	30,951	32,802	34,759
Tamil Nadu	108,565	114,928	122,671	131,290	140,766	151,677	163,427
Puducherry	2,691	2,765	2,858	2,959	3,068	3,199	3,336
Southern Region	316,192	332,035	351,370	372,809	396,271	422,904	451,385
Bihar	25,522	27,349	29,554	32,026	34,767	37,743	40,972
Jharkhand	14,890	15,050	15,234	15,427	15,628	15,832	16,038
Odisha	29,307	30,568	32,084	33,744	35,538	37,426	39,411
West Bengal	75,955	81,255	87,856	95,317	103,641	112,670	122,462
Sikkim	419	440	462	485	509	534	561
Eastern Region	146,093	154,662	165,190	176,999	190,083	204,205	219,444
Assam	9,237	9,864	10,749	11,778	12,944	14,403	15,993
Manipur	667	677	691	707	724	746	767
Meghalaya	2,192	2,277	2,389	2,515	2,653	2,827	3,011



State/Region	2017	2018	2019	2020	2021	2022	2023
Nagaland	737	762	792	825	859	895	933
Tripura	1,309	1,379	1,464	1,557	1,658	1,774	1,897
Arunachal Pradesh	656	689	723	759	797	837	879
Mizoram	484	524	572	625	684	748	818
North Eastern Region	15,282	16,172	17,380	18,766	20,319	22,230	24,298
Andaman & Nicobar Islands	284	298	313	329	345	362	380
Lakshadweep	50	53	56	59	62	65	68
All-India	1,188,215	1,242,811	1,309,001	1,382,136	1,461,915	1,550,038	1,643,863

State/Region	2024	2025	2026	2027	2028	2029	2030
Delhi	33,321	33,861	34,403	34,947	35,492	36,038	36,585
Haryana	84,950	91,002	97,404	104,165	111,294	118,804	126,706
Himachal Pradesh	13,033	13,685	14,369	15,087	15,841	16,633	17,465
Jammu & Kashmir	23,973	24,898	25,819	26,750	27,690	28,636	29,588
Punjab	71,000	73,992	77,045	80,165	83,349	86,595	89,901
Rajasthan	113,142	120,284	127,780	135,632	143,844	152,426	161,383
Uttar Pradesh	172,011	182,285	192,953	204,036	215,533	227,442	239,761
Uttarakhand	29,095	31,824	34,763	37,936	41,359	45,046	49,013
Chandigarh	1,964	2,011	2,059	2,106	2,154	2,202	2,250
Northern Region	542,489	573,842	606,595	640,824	676,556	713,822	752,652
Goa	4,520	4,557	4,594	4,630	4,666	4,702	4,738
Gujarat	126,461	130,742	135,105	139,551	144,077	148,683	153,366
Chhattisgarh	39,669	42,379	45,231	48,225	51,361	54,643	58,073
Madhya Pradesh	88,936	93,787	98,826	104,043	109,440	115,018	120,773
Maharashtra	183,429	190,354	197,438	204,667	212,038	219,550	227,197
D. & N. Haveli	8,754	9,192	9,652	10,135	10,642	11,174	11,733
Daman & Diu	3,453	3,626	3,807	3,997	4,197	4,407	4,627
Western Region	455,222	474,637	494,653	515,248	536,421	558,177	580,507
Andhra Pradesh	87,801	93,825	100,169	106,836	113,830	121,156	128,820
Telangana	88,229	94,281	100,657	107,357	114,384	121,746	129,448
Karnataka	88,996	92,596	96,283	100,049	103,892	107,811	111,802
Kerala	36,767	38,820	40,948	43,154	45,435	47,792	50,222
Tamil Nadu	175,760	188,670	202,335	216,760	231,973	247,999	264,859
Puducherry	3,474	3,614	3,756	3,902	4,050	4,202	4,355
Southern Region	481,027	511,806	544,148	578,058	613,564	650,706	689,506
Bihar	44,394	48,011	51,873	55,986	60,363	65,013	69,948
Jharkhand	16,242	16,443	16,644	16,844	17,043	17,242	17,440
Odisha	41,443	43,515	45,658	47,869	50,147	52,493	54,905
West Bengal	132,763	143,557	155,010	167,153	180,005	193,585	207,907
Sikkim	589	618	649	681	715	751	789
Eastern Region	235,431	252,144	269,834	288,533	308,273	329,084	350,989
Assam	17,634	19,306	21,032	22,854	24,766	26,765	28,847



State/Region	2024	2025	2026	2027	2028	2029	2030
Manipur	787	805	821	837	853	868	882
Meghalaya	3,200	3,393	3,593	3,800	4,014	4,234	4,461
Nagaland	971	1,009	1,049	1,089	1,130	1,173	1,216
Tripura	2,025	2,159	2,300	2,447	2,601	2,763	2,932
Arunachal Pradesh	923	969	1,017	1,068	1,121	1,177	1,236
Mizoram	893	973	1,058	1,150	1,248	1,354	1,467
North Eastern Region	26,433	28,614	30,870	33,245	35,733	38,334	41,041
Andaman & Nicobar Islands	399	419	440	462	485	509	534
Lakshadweep	71	75	79	83	87	91	96
All-India	1,741,072	1,841,537	1,946,619	2,056,453	2,171,119	2,290,723	2,415,325

State/Region	2031	2032	2033	2034	2035	2036	2037
Delhi	37,133	37,688	38,250	38,820	39,397	39,982	40,576
Haryana	135,011	143,846	153,244	163,239	173,870	185,174	197,213
Himachal Pradesh	18,338	19,255	20,218	21,229	22,290	23,405	24,576
Jammu & Kashmir	30,544	31,528	32,540	33,581	34,652	35,753	36,889
Punjab	93,263	96,744	100,346	104,074	107,932	111,924	116,064
Rajasthan	170,722	180,585	191,000	201,997	213,607	225,864	238,824
Uttar Pradesh	252,485	265,854	279,899	294,653	310,150	326,423	343,550
Uttarakhand	53,279	57,909	62,934	68,389	74,308	80,731	87,709
Chandigarh	2,298	2,348	2,398	2,449	2,501	2,554	2,608
Northern Region	793,073	835,757	880,829	928,431	978,707	1,031,810	1,088,009
Goa	4,773	4,808	4,844	4,880	4,916	4,952	4,988
Gujarat	158,124	163,254	168,543	173,994	179,613	185,404	191,382
Chhattisgarh	61,651	65,698	70,001	74,578	79,445	84,620	90,132
Madhya Pradesh	126,707	133,301	140,225	147,494	155,126	163,136	171,560
Maharashtra	234,975	243,372	252,053	261,027	270,304	279,893	289,822
D. & N. Haveli	12,320	12,936	13,583	14,262	14,975	15,724	16,510
Daman & Diu	4,858	5,101	5,356	5,624	5,905	6,200	6,510
Western Region	603,408	628,470	654,605	681,859	710,284	739,929	770,904
Andhra Pradesh	136,827	145,594	154,905	164,793	175,291	186,438	198,293
Telangana	137,494	146,303	155,660	165,595	176,145	187,345	199,258
Karnataka	115,864	120,272	124,838	129,568	134,467	139,541	144,806
Kerala	52,726	55,393	58,190	61,121	64,194	67,413	70,793
Tamil Nadu	282,572	302,239	323,237	345,656	369,587	395,130	422,438
Puducherry	4,511	4,687	4,870	5,059	5,255	5,458	5,669
Southern Region	729,994	774,488	821,700	871,792	924,939	981,325	1,041,257
Bihar	75,179	80,791	86,813	93,272	100,201	107,632	115,614
Jharkhand	17,637	17,835	18,036	18,238	18,443	18,649	18,857
Odisha	57,383	59,968	62,663	65,474	68,406	71,462	74,655
West Bengal	222,989	239,129	256,399	274,876	294,641	315,779	338,433



State/Region	2031	2032	2033	2034	2035	2036	2037
Sikkim	828	869	912	958	1,006	1,056	1108
Eastern Region	374,016	398,592	424,823	452,818	482,697	514,578	548667
Assam	31,005	33,571	36,338	39,321	42,536	46,001	49748
Manipur	896	913	931	948	966	985	1004
Meghalaya	4,694	4,966	5,253	5,556	5,876	6,213	6569
Nagaland	1,260	1,305	1,352	1,401	1,451	1,503	1557
Tripura	3,109	3,303	3,510	3,728	3,960	4,206	4467
Arunachal Pradesh	1,298	1,363	1,431	1,503	1,578	1,657	1740
Mizoram	1,588	1,719	1,861	2,014	2,179	2,357	2550
North Eastern Region	43,850	47,140	50,676	54,471	58,546	62,922	67635
Andaman & Nicobar Islands	561	589	618	649	681	715	751
Lakshadweep	101	106	111	117	123	129	135
All-India	2,545,003	2,685,142	2,833,362	2,990,137	3,155,977	3,331,408	3,517,358

Table A5.8: CAGR of Forecasted Total Electrical Energy Requirement (SUR Model Baseline)

State/Region	FY 2016-17 to FY 2021-22	FY 2021-22 to FY 2026-27	FY 2016-17 to FY 2026-27	FY 2026-27 to FY 2036-37	FY 2016-17 to FY 2036-37
Delhi	1.62	1.63	1.63	1.5	1.57
Haryana	7.13	7.18	7.15	6.59	6.87
Himachal Pradesh	5	5	5	5	5
Jammu & Kashmir	4.18	3.92	4.05	3.27	3.66
Punjab	4.28	4.25	4.27	3.77	4.02
Rajasthan	6.3	6.36	6.33	5.82	6.07
Uttar Pradesh	6.06	6.03	6.04	5.35	5.7
Uttarakhand	9.66	9.45	9.55	8.74	9.15
Chandigarh	2.43	2.43	2.43	2.16	2.29
Northern Region	5.71	5.83	5.77	5.44	5.6
Goa	0.81	0.82	0.82	0.75	0.78
Gujarat	3.19	3.41	3.3	3.21	3.26
Chhattisgarh	6.2	6.89	6.54	6.45	6.5
Madhya Pradesh	4.99	5.5	5.24	5.13	5.19
Maharashtra	3.53	3.81	3.67	3.54	3.6
D. & N. Haveli	5	5	5	5	5
Daman & Diu	5	5	5	5	5
Western Region	3.92	4.3	4.11	4.11	4.11
Andhra Pradesh	6.53	6.92	6.72	6.38	6.55
Telangana	6.53	6.92	6.72	6.38	6.55
Karnataka	3.77	4.08	3.92	3.77	3.84
Kerala	5.49	5.64	5.57	5.07	5.32
Tamil Nadu	6.92	7.4	7.16	6.9	7.03
Puducherry	3.52	4.05	3.79	3.81	3.8
Southern Region	5.99	6.45	6.22	6.06	6.14



State/Region	FY 2016-17 to FY 2021-22	FY 2021-22 to FY 2026-27	FY 2016-17 to FY 2026-27	FY 2026-27 to FY 2036-37	FY 2016-17 to FY 2036-37
Bihar	8.14	8.21	8.17	7.52	7.85
Jharkhand	1.23	1.25	1.24	1.14	1.19
Odisha	5.01	5.05	5.03	4.54	4.79
West Bengal	8.21	8.21	8.21	7.31	7.76
Sikkim	4.97	4.98	4.98	4.99	4.98
Eastern Region	6.93	7.16	7.04	6.64	6.84
Assam	9.29	9.67	9.48	8.09	8.78
Manipur	2.26	2.33	2.3	1.84	2.07
Meghalaya	5.22	6.09	5.66	5.63	5.64
Nagaland	3.96	4	3.98	3.64	3.81
Tripura	6.27	6.64	6.46	6.2	6.33
Arunachal Pradesh	4.99	5	4.99	5	5
Mizoram	9.1	8.98	9.04	8.29	8.66
North Eastern Region	7.78	8.38	8.08	7.36	7.72
Andaman & Nicobar Islands	4.97	5	4.99	4.98	4.98
Lakshadweep	5.39	5.01	5.2	4.98	5.09
All-India	5.46	5.82	5.64	5.51	5.58

Table A5.9: Forecasted Total Electrical Energy Requirement (SUR Model Optimistic) in MUs

State/Region	2017	2018	2019	2020	2021	2022	2023
Delhi	29,737	30,166	30,680	31,202	31,732	32,272	32,820
Haryana	52,214	55,498	59,656	64,123	68,922	74,078	79,616
Himachal Pradesh	9,262	9,725	10,211	10,722	11,258	11,821	12,412
Jammu & Kashmir	17,979	18,604	19,460	20,343	21,254	22,193	23,157
Punjab	52,795	54,712	57,217	59,829	62,552	65,389	68,344
Rajasthan	73,428	77,481	82,621	88,103	93,947	100,178	106,822
Uttar Pradesh	113,462	119,293	127,030	135,244	143,963	153,214	163,029
Uttarakhand	15,233	16,583	18,263	20,099	22,108	24,303	26,702
Chandigarh	1,657	1,691	1,735	1,780	1,826	1,873	1,921
Northern Region	365,767	383,753	406,873	431,445	457,562	485,321	514,823
Goa	4,268	4,298	4,335	4,372	4,410	4,448	4,486
Gujarat	100,834	103,604	107,046	110,595	114,252	118,336	122,558
Chhattisgarh	25,587	26,881	28,620	30,471	32,442	34,791	37,309
Madhya Pradesh	62,412	64,958	68,346	71,911	75,662	80,036	84,662
Maharashtra	142,771	146,988	152,416	158,043	163,878	170,412	177,206
D. & N. Haveli	6,221	6,532	6,859	7,202	7,562	7,940	8,337
Daman & Diu	2,454	2,577	2,706	2,841	2,983	3,132	3,289
Western Region	344,547	355,838	370,328	385,435	401,189	419,095	437,847
Andhra Pradesh	55,733	58,797	62,833	67,146	71,756	76,960	82,542
Telangana	56,005	59,083	63,139	67,473	72,106	77,335	82,944
Karnataka	68,091	70,200	72,979	75,868	78,871	82,258	85,790



State/Region	2017	2018	2019	2020	2021	2022	2023
Kerala	25,106	26,262	27,798	29,421	31,135	32,997	34,965
Tamil Nadu	108,565	114,928	123,233	132,133	141,670	152,651	164,477
Puducherry	2,691	2,765	2,867	2,972	3,082	3,213	3,351
Southern Region	316,191	332,035	352,849	375,013	398,620	425,414	454,069
Bihar	25,522	27,349	29,692	32,235	34,994	37,989	41,240
Jharkhand	14,890	15,050	15,246	15,445	15,646	15,850	16,057
Odisha	29,307	30,568	32,196	33,909	35,712	37,609	39,604
West Bengal	75,955	81,255	88,382	96,118	104,511	113,616	123,491
Sikkim	419	440	462	485	509	534	561
Eastern Region	146,093	154,662	165,978	178,192	191,372	205,598	220,953
Assam	9,237	9,864	10,880	11,979	13,165	14,649	16,266
Manipur	667	677	694	711	728	750	772
Meghalaya	2,192	2,277	2,403	2,535	2,674	2,849	3,035
Nagaland	737	762	794	828	862	898	936
Tripura	1,309	1,379	1,470	1,566	1,668	1,784	1,908
Arunachal Pradesh	656	689	723	759	797	837	879
Mizoram	484	524	574	629	688	753	823
North Eastern Region	15,282	16,172	17,538	19,007	20,582	22,520	24,619
Andaman & Nicobar Islands	284	298	313	329	345	362	380
Lakshadweep	50	53	56	59	62	65	68
All-India	1,188,214	1,242,811	1,313,935	1,389,480	1,469,732	1,558,375	1,652,759

State/Region	2024	2025	2026	2027	2028	2029	2030
Delhi	33,376	33,942	34,517	35,102	35,695	36,297	36,909
Haryana	85,566	91,956	98,821	106,188	114,093	122,573	131,672
Himachal Pradesh	13,033	13,685	14,369	15,087	15,841	16,633	17,465
Jammu & Kashmir	24,147	25,160	26,196	27,270	28,386	29,545	30,748
Punjab	71,422	74,627	77,963	81,444	85,074	88,859	92,804
Rajasthan	113,906	121,459	129,512	138,087	147,216	156,934	167,279
Uttar Pradesh	173,437	184,471	196,166	208,574	221,741	235,714	250,538
Uttarakhand	29,323	32,185	35,310	38,733	42,485	46,595	51,096
Chandigarh	1,971	2,021	2,072	2,125	2,179	2,234	2,291
Northern Region	546,181	579,506	614,926	652,610	692,710	735,384	780,802
Goa	4,525	4,564	4,603	4,642	4,682	4,722	4,762
Gujarat	126,921	131,430	136,090	140,912	145,896	151,050	156,378
Chhattisgarh	40,010	42,906	46,012	49,337	52,897	56,707	60,784
Madhya Pradesh	89,556	94,733	100,209	105,989	112,092	118,535	125,337
Maharashtra	184,270	191,616	199,253	207,179	215,406	223,945	232,809
D. & N. Haveli	8,754	9,192	9,652	10,135	10,642	11,174	11,733
Daman & Diu	3,453	3,626	3,807	3,997	4,197	4,407	4,627
Western Region	457,489	478,067	499,626	522,191	545,812	570,540	596,430
Andhra Pradesh	88,528	94,948	101,835	109,213	117,112	125,568	134,620



State/Region	2024	2025	2026	2027	2028	2029	2030
Telangana	88,959	95,411	102,331	109,745	117,683	126,180	135,276
Karnataka	89,473	93,312	97,316	101,484	105,822	110,337	115,037
Kerala	37,047	39,249	41,577	44,038	46,639	49,390	52,297
Tamil Nadu	177,212	190,925	205,693	221,583	238,675	257,056	276,821
Puducherry	3,494	3,643	3,799	3,961	4,130	4,306	4,489
Southern Region	484,713	517,488	552,551	590,024	630,061	672,837	718,540
Bihar	44,767	48,595	52,748	57,249	62,126	67,411	73,138
Jharkhand	16,266	16,478	16,693	16,910	17,130	17,352	17,577
Odisha	41,704	43,912	46,235	48,675	51,240	53,935	56,768
West Bengal	134,198	145,804	158,381	172,010	186,784	202,798	220,153
Sikkim	589	618	649	681	715	751	789
Eastern Region	237,524	255,407	274,706	295,525	317,995	342,247	368,425
Assam	18,022	19,922	21,968	24,217	26,688	29,403	32,384
Manipur	793	814	834	855	876	898	920
Meghalaya	3,233	3,443	3,666	3,903	4,155	4,423	4,707
Nagaland	975	1,016	1,058	1,103	1,148	1,196	1,246
Tripura	2,040	2,182	2,333	2,494	2,667	2,851	3,047
Arunachal Pradesh	923	969	1,017	1,068	1,121	1,177	1,236
Mizoram	900	984	1,074	1,174	1,282	1,400	1,529
North Eastern Region	26,886	29,330	31,950	34,814	37,937	41,348	45,069
Andaman & Nicobar Islands	399	419	440	462	485	509	534
Lakshadweep	71	75	79	83	87	91	96
All-India	1,753,263	1,860,292	1,974,278	2,095,709	2,225,087	2,362,956	2,509,896

State/Region	2031	2032	2033	2034	2035	2036	2037
Delhi	37,530	38,161	38,802	39,452	40,113	40,783	41,464
Haryana	141,432	151,900	163,127	175,166	188,074	201,914	216,772
Himachal Pradesh	18,338	19,255	20,218	21,229	22,290	23,405	24,576
Jammu & Kashmir	31,997	33,293	34,638	36,035	37,483	38,986	40,549
Punjab	96,917	101,204	105,671	110,327	115,179	120,234	125,511
Rajasthan	178,289	190,006	202,474	215,741	229,855	244,870	260,866
Uttar Pradesh	266,265	282,947	300,640	319,403	339,298	360,391	382,795
Uttarakhand	56,027	61,427	67,340	73,814	80,902	88,661	97,164
Chandigarh	2,348	2,408	2,468	2,530	2,593	2,658	2,725
Northern Region	829,143	880,601	935,378	993,697	1,055,787	1,121,902	1,192,422
Goa	4,803	4,844	4,885	4,927	4,968	5,010	5,052
Gujarat	161,885	167,818	173,960	180,317	186,897	193,707	200,765
Chhattisgarh	65,147	70,087	75,393	81,091	87,209	93,777	100,840
Madhya Pradesh	132,516	140,496	148,942	157,880	167,338	177,347	187,955
Maharashtra	242,008	251,936	262,254	272,978	284,122	295,702	307,754
D. & N. Haveli	12,320	12,936	13,583	14,262	14,975	15,724	16,510



State/Region	2031	2032	2033	2034	2035	2036	2037
Daman & Diu	4,858	5,101	5,356	5,624	5,905	6,200	6,510
Western Region	623,537	653,218	684,373	717,079	751,414	787,467	825,386
Andhra Pradesh	144,308	154,972	166,405	178,660	191,797	205,876	220,988
Telangana	145,011	155,727	167,216	179,531	192,732	206,879	222,065
Karnataka	119,929	125,234	130,765	136,530	142,538	148,800	155,337
Kerala	55,369	58,664	62,148	65,832	69,727	73,845	78,206
Tamil Nadu	298,073	321,774	347,320	374,851	404,519	436,485	470,977
Puducherry	4,679	4,892	5,114	5,346	5,589	5,841	6,104
Southern Region	767,369	821,263	878,968	940,750	1,006,902	1,077,726	1,153,677
Bihar	79,342	86,062	93,340	101,223	109,758	118,999	129,018
Jharkhand	17,804	18,034	18,266	18,502	18,739	18,980	19,224
Odisha	59,744	62,870	66,154	69,604	73,228	77,033	81,036
West Bengal	238,957	259,329	281,396	305,296	331,176	359,196	389,587
Sikkim	828	869	912	958	1,006	1,056	1,108
Eastern Region	396,675	427,164	460,068	495,583	533,907	575,264	619,973
Assam	35,657	39,549	43,854	48,612	53,871	59,680	66,115
Manipur	943	969	997	1,025	1,053	1,083	1,114
Meghalaya	5,009	5,359	5,733	6,132	6,558	7,012	7,497
Nagaland	1,298	1,351	1,407	1,465	1,525	1,588	1,654
Tripura	3,257	3,489	3,736	4,001	4,284	4,587	4,911
Arunachal Pradesh	1,298	1,363	1,431	1,503	1,578	1,657	1,740
Mizoram	1,669	1,822	1,989	2,171	2,370	2,586	2,822
North Eastern Region	49,131	53,902	59,147	64,909	71,239	78,193	85,853
Andaman & Nicobar Islands	561	589	618	649	681	715	751
Lakshadweep	101	106	111	117	123	129	135
All-India	2,666,517	2,836,843	3,018,663	3,212,784	3,420,053	3,641,396	3,878,197

Table A5.9: CAGR of Forecasted Total Electrical Energy Requirement (SUR Model Optimistic)

State/Region	FY 2016-17 to FY 2021-22	FY 2021-22 to FY 2026-27	FY 2016-17 to FY 2026-27	FY 2026-27 to FY 2036-37	FY 2016-17 to FY 2036-37
Delhi	1.65	1.7	1.67	1.68	1.68
Haryana	7.25	7.47	7.36	7.4	7.38
Himachal Pradesh	5	5	5	5	5
Jammu & Kashmir	4.3	4.21	4.25	4.05	4.15
Punjab	4.37	4.49	4.43	4.42	4.42
Rajasthan	6.41	6.63	6.52	6.57	6.54
Uttar Pradesh	6.19	6.36	6.28	6.26	6.27
Uttarakhand	9.79	9.77	9.78	9.63	9.71
Chandigarh	2.48	2.56	2.52	2.52	2.52
Northern Region	5.82	6.1	5.96	6.21	6.09
Goa	0.83	0.86	0.84	0.85	0.85
Gujarat	3.25	3.55	3.4	3.6	3.5



State/Region	FY 2016-17 to FY 2021-22	FY 2021-22 to FY 2026-27	FY 2016-17 to FY 2026-27	FY 2026-27 to FY 2036-37	FY 2016-17 to FY 2036-37
Chhattisgarh	6.34	7.24	6.79	7.41	7.1
Madhya Pradesh	5.1	5.78	5.44	5.9	5.67
Maharashtra	3.6	3.98	3.79	4.04	3.91
D. & N. Haveli	5	5	5	5	5
Daman & Diu	5	5	5	5	5
Western Region	4	4.5	4.25	4.68	4.46
Andhra Pradesh	6.67	7.25	6.96	7.3	7.13
Telangana	6.67	7.25	6.96	7.3	7.13
Karnataka	3.85	4.29	4.07	4.35	4.21
Kerala	5.62	5.94	5.78	5.91	5.85
Tamil Nadu	7.05	7.74	7.4	7.83	7.61
Puducherry	3.61	4.27	3.94	4.42	4.18
Southern Region	6.11	6.76	6.44	6.94	6.69
Bihar	8.28	8.55	8.41	8.46	8.44
Jharkhand	1.26	1.3	1.28	1.29	1.29
Odisha	5.11	5.29	5.2	5.23	5.22
West Bengal	8.39	8.65	8.52	8.52	8.52
Sikkim	4.97	4.98	4.98	4.99	4.98
Eastern Region	7.07	7.53	7.3	7.69	7.49
Assam	9.66	10.58	10.12	10.57	10.34
Manipur	2.37	2.66	2.51	2.68	2.6
Meghalaya	5.38	6.5	5.94	6.75	6.34
Nagaland	4.03	4.2	4.11	4.13	4.12
Tripura	6.39	6.93	6.66	7.01	6.83
Arunachal Pradesh	4.99	5	4.99	5	5
Mizoram	9.24	9.29	9.27	9.17	9.22
North Eastern Region	8.06	9.1	8.58	9.45	9.01
Andaman & Nicobar Islands	4.97	5	4.99	4.98	4.98
Lakshadweep	5.39	5.01	5.2	4.98	5.09
All-India	5.57	6.1	5.84	6.35	6.09

Table A5.10: Forecasted Total Electrical Energy Requirement (SUR Model Pessimistic) in MUs

State/Region	2017	2018	2019	2020	2021	2022	2023
Delhi	29,737	30,166	30,595	31,029	31,469	31,915	32,367
Haryana	52,214	55,498	58,939	62,590	66,466	70,579	74,944
Himachal Pradesh	9,262	9,725	10,211	10,722	11,258	11,821	12,412
Jammu & Kashmir	17,979	18,604	19,225	19,856	20,495	21,142	21,795
Punjab	52,795	54,712	56,653	58,655	60,719	62,847	65,040
Rajasthan	73,428	77,481	81,695	86,138	90,823	95,761	100,967
Uttar Pradesh	113,462	119,293	125,285	131,554	138,112	144,969	152,136
Uttarakhand	15,233	16,583	18,025	19,581	21,258	23,065	25,013



State/Region	2017	2018	2019	2020	2021	2022	2023
Chandigarh	1,657	1,691	1,725	1,760	1,796	1,832	1,868
Northern Region	365,767	383,753	402,353	421,885	442,396	463,931	486,542
Goa	4,268	4,298	4,328	4,358	4,388	4,419	4,450
Gujarat	100,834	103,604	106,397	109,257	112,185	115,491	118,885
Chhattisgarh	25,587	26,881	28,212	29,610	31,076	32,852	34,729
Madhya Pradesh	62,412	64,958	67,555	70,256	73,065	76,395	79,875
Maharashtra	142,771	146,988	151,252	155,639	160,153	165,267	170,544
D. & N. Haveli	6,221	6,532	6,859	7,202	7,562	7,940	8,337
Daman & Diu	2,454	2,577	2,706	2,841	2,983	3,132	3,289
Western Region	344,547	355,838	367,309	379,163	391,412	405,496	420,109
Andhra Pradesh	55,733	58,797	61,971	65,316	68,843	72,822	77,032
Telangana	56,005	59,083	62,273	65,634	69,178	73,177	77,407
Karnataka	68,091	70,200	72,330	74,524	76,784	79,369	82,040
Kerala	25,106	26,262	27,446	28,680	29,967	31,356	32,806
Tamil Nadu	108,565	114,928	121,546	128,540	135,931	144,462	153,523
Puducherry	2,691	2,765	2,840	2,917	2,995	3,094	3,196
Southern Region	316,191	332,035	348,406	365,611	383,698	404,280	426,004
Bihar	25,522	27,349	29,279	31,343	33,553	35,917	38,447
Jharkhand	14,890	15,050	15,209	15,369	15,532	15,696	15,861
Odisha	29,307	30,568	31,859	33,203	34,603	36,059	37,575
West Bengal	75,955	81,255	86,804	92,716	99,013	105,717	112,854
Sikkim	419	440	462	485	509	534	561
Eastern Region	146,093	154,662	163,613	173,116	183,210	193,923	205,298
Assam	9,237	9,864	10,490	11,137	11,802	12,662	13,556
Manipur	667	677	685	693	700	712	723
Meghalaya	2,192	2,277	2,363	2,451	2,543	2,664	2,791
Nagaland	737	762	788	815	843	871	901
Tripura	1,309	1,379	1,452	1,528	1,609	1,700	1,796
Arunachal Pradesh	656	689	723	759	797	837	879
Mizoram	484	524	567	613	662	715	772
North Eastern Region	15,282	16,172	17,068	17,996	18,956	20,161	21,418
Andaman & Nicobar Islands	284	298	313	329	345	362	380
Lakshadweep	50	53	56	59	62	65	68
All-India	1,188,214	1,242,811	1,299,118	1,358,159	1,420,079	1,488,218	1,559,819

State/Region	2024	2025	2026	2027	2028	2029	2030
Delhi	32,825	33,290	33,760	34,236	34,718	35,206	35,700
Haryana	79,575	84,491	89,706	95,230	101,086	107,292	113,866
Himachal Pradesh	13,033	13,685	14,369	15,087	15,841	16,633	17,465
Jammu & Kashmir	22,453	23,113	23,775	24,452	25,147	25,858	26,587
Punjab	67,298	69,625	72,020	74,490	77,040	79,670	82,384
Rajasthan	106,456	112,242	118,342	124,763	131,521	138,633	146,115



State/Region	2024	2025	2026	2027	2028	2029	2030
Uttar Pradesh	159,626	167,450	175,619	184,168	193,115	202,474	212,261
Uttarakhand	27,111	29,371	31,804	34,434	37,278	40,354	43,678
Chandigarh	1,906	1,943	1,982	2,021	2,060	2,101	2,142
Northern Region	510,283	535,210	561,377	588,881	617,806	648,221	680,198
Goa	4,481	4,512	4,543	4,575	4,606	4,638	4,670
Gujarat	122,371	125,949	129,624	133,399	137,278	141,262	145,355
Chhattisgarh	36,713	38,810	41,027	43,365	45,832	48,434	51,177
Madhya Pradesh	83,515	87,320	91,299	95,444	99,769	104,281	108,986
Maharashtra	175,988	181,606	187,403	193,367	199,511	205,837	212,349
D. & N. Haveli	8,754	9,192	9,652	10,135	10,642	11,174	11,733
Daman & Diu	3,453	3,626	3,807	3,997	4,197	4,407	4,627
Western Region	435,275	451,015	467,355	484,282	501,835	520,033	538,897
Andhra Pradesh	81,485	86,195	91,178	96,436	101,989	107,849	114,031
Telangana	81,882	86,615	91,622	96,906	102,486	108,374	114,587
Karnataka	84,801	87,653	90,601	93,640	96,775	100,007	103,340
Kerala	34,319	35,898	37,545	39,262	41,055	42,925	44,876
Tamil Nadu	163,145	173,364	184,216	195,721	207,925	220,864	234,582
Puducherry	3,301	3,410	3,522	3,638	3,757	3,880	4,006
Southern Region	448,933	473,135	498,684	525,603	553,987	583,899	615,422
Bihar	41,154	44,051	47,151	50,462	54,001	57,781	61,819
Jharkhand	16,029	16,198	16,369	16,541	16,715	16,890	17,067
Odisha	39,153	40,795	42,503	44,279	46,126	48,046	50,041
West Bengal	120,449	128,529	137,124	146,258	155,981	166,326	177,331
Sikkim	589	618	649	681	715	751	789
Eastern Region	217,374	230,191	243,796	258,221	273,538	289,794	307,047
Assam	14,483	15,436	16,413	17,445	18,538	19,693	20,914
Manipur	733	743	751	760	769	777	786
Meghalaya	2,923	3,061	3,205	3,356	3,512	3,676	3,847
Nagaland	931	963	995	1,029	1,064	1,100	1,137
Tripura	1,898	2,006	2,119	2,239	2,365	2,497	2,638
Arunachal Pradesh	923	969	1,017	1,068	1,121	1,177	1,236
Mizoram	833	899	969	1,045	1,127	1,215	1,309
North Eastern Region	22,724	24,077	25,469	26,942	28,496	30,135	31,867
Andaman & Nicobar Islands	399	419	440	462	485	509	534
Lakshadweep	71	75	79	83	87	91	96
All-India	1,635,059	1,714,122	1,797,200	1,884,474	1,976,234	2,072,682	2,174,061

State/Region	2031	2032	2033	2034	2035	2036	2037
Delhi	36,200	36,707	37,219	37,738	38,263	38,795	39,334
Haryana	120,831	128,210	136,024	144,300	153,064	162,343	172,185
Himachal Pradesh	18,338	19,255	20,218	21,229	22,290	23,405	24,576
Jammu & Kashmir	27,334	28,099	28,883	29,684	30,506	31,347	32,211



State/Region	2031	2032	2033	2034	2035	2036	2037
Punjab	85,183	88,069	91,046	94,115	97,280	100,542	103,913
Rajasthan	153,987	162,267	170,976	180,135	189,766	199,893	210,560
Uttar Pradesh	222,495	233,196	244,383	256,076	268,296	281,067	294,446
Uttarakhand	47,270	51,153	55,348	59,881	64,778	70,067	75,788
Chandigarh	2,184	2,226	2,269	2,313	2,358	2,403	2,449
Northern Region	713,822	749,182	786,366	825,471	866,601	909,862	955,462
Goa	4,702	4,735	4,767	4,800	4,833	4,866	4,899
Gujarat	149,558	154,095	158,762	163,561	168,497	173,572	178,800
Chhattisgarh	54,070	57,341	60,803	64,466	68,342	72,442	76,788
Madhya Pradesh	113,891	119,349	125,055	131,021	137,258	143,777	150,606
Maharashtra	219,054	226,298	233,765	241,464	249,400	257,579	266,026
D. & N. Haveli	12,320	12,936	13,583	14,262	14,975	15,724	16,510
Daman & Diu	4,858	5,101	5,356	5,624	5,905	6,200	6,510
Western Region	558,453	579,855	602,091	625,198	649,210	674,160	700,139
Andhra Pradesh	120,555	127,681	135,212	143,170	151,579	160,463	169,866
Telangana	121,142	128,303	135,871	143,868	152,318	161,245	170,694
Karnataka	106,776	110,508	114,361	118,340	122,448	126,689	131,077
Kerala	46,910	49,071	51,326	53,679	56,133	58,694	61,372
Tamil Nadu	249,122	265,238	282,362	300,557	319,887	340,419	362,269
Puducherry	4,136	4,284	4,436	4,594	4,757	4,925	5,099
Southern Region	648,641	685,085	723,568	764,208	807,122	852,435	900,377
Bihar	66,131	70,735	75,651	80,898	86,500	92,478	98,869
Jharkhand	17,245	17,425	17,606	17,789	17,973	18,159	18,347
Odisha	52,115	54,269	56,508	58,834	61,250	63,759	66,371
West Bengal	189,034	201,480	214,712	228,779	243,729	259,615	276,536
Sikkim	828	869	912	958	1,006	1,056	1,108
Eastern Region	325,353	344,778	365,389	387,258	410,458	435,067	461,231
Assam	22,204	23,747	25,389	27,136	28,994	30,969	33,079
Manipur	795	806	818	830	842	854	866
Meghalaya	4,025	4,234	4,453	4,683	4,925	5,177	5,442
Nagaland	1,175	1,214	1,254	1,296	1,339	1,383	1,428
Tripura	2,785	2,947	3,118	3,299	3,490	3,692	3,906
Arunachal Pradesh	1,298	1,363	1,431	1,503	1,578	1,657	1,740
Mizoram	1,411	1,521	1,639	1,766	1,902	2,049	2,207
North Eastern Region	33,693	35,832	38,102	40,513	43,070	45,781	48,668
Andaman & Nicobar Islands	561	589	618	649	681	715	751
Lakshadweep	101	106	111	117	123	129	135
All-India	2,280,624	2,395,427	2,516,245	2,643,414	2,777,265	2,918,149	3,066,763



Table A5.10: CAGR of Forecasted Total Electrical Energy Requirement (SUR Model Pessimistic)

State/Region	FY 2016-17 to FY 2021-22	FY 2021-22 to FY 2026-27	FY 2016-17 to FY 2026-27	FY 2026-27 to FY 2036-37	FY 2016-17 to FY 2036-37
Delhi	1.42	1.41	1.42	1.4	1.41
Haryana	6.21	6.17	6.19	6.1	6.15
Himachal Pradesh	5	5	5	5	5
Jammu & Kashmir	3.29	2.95	3.12	2.79	2.96
Punjab	3.55	3.46	3.5	3.38	3.44
Rajasthan	5.45	5.43	5.44	5.37	5.41
Uttar Pradesh	5.02	4.9	4.96	4.8	4.88
Uttarakhand	8.65	8.34	8.5	8.21	8.35
Chandigarh	2.03	1.98	2.01	1.94	1.97
Northern Region	4.87	4.89	4.88	4.96	4.92
Goa	0.7	0.7	0.7	0.69	0.69
Gujarat	2.75	2.93	2.84	2.97	2.91
Chhattisgarh	5.13	5.71	5.42	5.88	5.65
Madhya Pradesh	4.13	4.55	4.34	4.67	4.5
Maharashtra	2.97	3.19	3.08	3.24	3.16
D. & N. Haveli	5	5	5	5	5
Daman & Diu	5	5	5	5	5
Western Region	3.31	3.61	3.46	3.75	3.61
Andhra Pradesh	5.49	5.78	5.64	5.82	5.73
Telangana	5.49	5.78	5.64	5.82	5.73
Karnataka	3.11	3.36	3.24	3.42	3.33
Kerala	4.55	4.6	4.57	4.57	4.57
Tamil Nadu	5.88	6.26	6.07	6.35	6.21
Puducherry	2.83	3.29	3.06	3.43	3.25
Southern Region	5.04	5.39	5.21	5.53	5.37
Bihar	7.07	7.04	7.05	6.96	7.01
Jharkhand	1.06	1.05	1.06	1.04	1.05
Odisha	4.23	4.19	4.21	4.13	4.17
West Bengal	6.84	6.71	6.77	6.58	6.67
Sikkim	4.97	4.98	4.98	4.99	4.98
Eastern Region	5.83	5.89	5.86	5.97	5.92
Assam	6.51	6.62	6.56	6.61	6.59
Manipur	1.31	1.31	1.31	1.31	1.31
Meghalaya	3.98	4.73	4.35	4.95	4.65
Nagaland	3.4	3.39	3.39	3.33	3.36
Tripura	5.37	5.66	5.51	5.72	5.62
Arunachal Pradesh	4.99	5	4.99	5	5
Mizoram	8.12	7.89	8	7.76	7.88
North Eastern Region	5.7	5.97	5.83	6.09	5.96
Andaman & Nicobar Islands	4.97	5	4.99	4.98	4.98
Lakshadweep	5.39	5.01	5.2	4.98	5.09
All-India	4.61	4.83	4.72	4.99	4.86



Table A5.11: Forecasted Peak Electricity Demand (SUR Model Baseline) in MW

State	2017	2018	2019	2020	2021	2022	2023
Delhi	5,622	5,745	5,885	6,034	6,190	6,350	6,514
Haryana	9,578	10,191	10,924	11,738	12,633	13,596	14,631
Himachal Pradesh	1,586	1,665	1,748	1,835	1,927	2,023	2,124
Jammu & Kashmir	2,840	2,958	3,106	3,268	3,443	3,624	3,812
Punjab	11,178	11,458	11,793	12,153	12,535	12,927	13,330
Rajasthan	11,791	12,402	13,129	13,927	14,795	15,716	16,695
Uttar Pradesh	16,623	17,525	18,635	19,870	21,223	22,663	24,197
Uttarakhand	2,295	2,456	2,644	2,851	3,077	3,319	3,579
Chandigarh	348	363	381	401	422	444	468
Goa	560	582	607	635	664	695	728
Gujarat	14,549	14,909	15,329	15,776	16,247	16,771	17,312
Chhattisgarh	4,200	4,385	4,612	4,863	5,136	5,459	5,802
Madhya Pradesh	10,956	11,428	12,009	12,650	13,347	14,163	15,028
Maharashtra	21,170	21,600	22,109	22,654	23,229	23,864	24,518
D. & N. Haveli	790	830	872	916	962	1,010	1,061
Daman & Diu	320	336	353	371	390	410	431
Andhra Pradesh	7,489	7,837	8,262	8,727	9,236	9,803	10,405
Telangana	8,604	9,004	9,491	10,027	10,610	11,262	11,953
Karnataka	11,016	11,302	11,647	12,021	12,420	12,866	13,328
Kerala	4,125	4,269	4,444	4,635	4,840	5,059	5,288
Tamil Nadu	15,487	16,199	17,055	17,994	19,012	20,166	21,389
Puducherry	411	425	441	460	480	505	531
Bihar	3,847	4,131	4,474	4,860	5,289	5,755	6,263
Jharkhand	2,200	2,265	2,340	2,421	2,507	2,597	2,689
Odisha	4,373	4,541	4,742	4,961	5,196	5,442	5,699
West Bengal	11,847	12,639	13,623	14,733	15,966	17,299	18,740
Sikkim	119	125	131	138	145	152	160
Assam	1,508	1,598	1,724	1,868	2,031	2,231	2,447
Manipur	135	137	139	142	145	149	153
Meghalaya	427	445	468	495	525	562	602
Nagaland	134	138	142	147	151	156	161
Tripura	259	265	272	280	287	296	305
Arunachal Pradesh	148	155	163	171	180	189	198
Mizoram	92	95	98	101	105	108	112
Andaman & Nicobar Islands	40	42	44	46	48	50	53
Lakshadweep	8	8	8	8	8	8	8
All India	163,148	170,644	179,732	189,774	200,728	212,828	225,710



State	2024	2025	2026	2027	2028	2029	2030
Delhi	6,678	6,843	7,009	7,178	7,348	7,520	7,693
Haryana	15,719	16,859	18,067	19,344	20,692	22,114	23,612
Himachal Pradesh	2,230	2,342	2,459	2,582	2,711	2,847	2,989
Jammu & Kashmir	3,999	4,183	4,368	4,556	4,746	4,940	5,136
Punjab	13,732	14,131	14,534	14,940	15,350	15,763	16,178
Rajasthan	17,710	18,759	19,857	21,003	22,198	23,442	24,735
Uttar Pradesh	25,779	27,405	29,098	30,864	32,700	34,608	36,587
Uttarakhand	3,852	4,139	4,442	4,763	5,104	5,465	5,847
Chandigarh	492	517	542	568	594	622	650
Goa	760	794	829	864	900	938	976
Gujarat	17,855	18,401	18,955	19,518	20,090	20,670	21,258
Chhattisgarh	6,156	6,521	6,902	7,299	7,711	8,139	8,582
Madhya Pradesh	15,921	16,838	17,795	18,787	19,817	20,885	21,989
Maharashtra	25,171	25,824	26,484	27,150	27,821	28,498	29,180
D. & N. Haveli	1,114	1,170	1,229	1,290	1,355	1,423	1,494
Daman & Diu	453	476	500	525	551	579	608
Andhra Pradesh	11,025	11,666	12,334	13,029	13,751	14,502	15,279
Telangana	12,667	13,403	14,170	14,969	15,799	16,660	17,553
Karnataka	13,793	14,260	14,735	15,218	15,707	16,203	16,705
Kerala	5,520	5,754	5,994	6,239	6,489	6,745	7,005
Tamil Nadu	22,654	23,957	25,317	26,731	28,202	29,729	31,313
Puducherry	557	583	611	639	668	698	728
Bihar	6,803	7,374	7,986	8,639	9,335	10,076	10,865
Jharkhand	2,782	2,876	2,972	3,069	3,168	3,269	3,371
Odisha	5,961	6,227	6,500	6,781	7,069	7,364	7,666
West Bengal	20,251	21,829	23,498	25,263	27,125	29,087	31,150
Sikkim	168	176	185	194	204	214	225
Assam	2,667	2,888	3,115	3,352	3,598	3,852	4,115
Manipur	156	159	162	165	168	171	173
Meghalaya	643	685	729	774	821	870	921
Nagaland	167	172	177	182	188	193	199
Tripura	314	323	332	341	350	360	369
Arunachal Pradesh	208	218	229	240	252	265	278
Mizoram	115	119	122	126	130	134	138
Andaman & Nicobar Islands	56	59	62	65	68	71	75
Lakshadweep	8	8	8	8	8	8	8
All India	239,058	252,852	267,280	282,361	298,105	314,527	331,636



State	2031	2032	2033	2034	2035	2036	2037
Delhi	7,868	8,047	8,229	8,416	8,606	8,800	8,998
Haryana	25,188	26,867	28,654	30,558	32,584	34,742	37,043
Himachal Pradesh	3,138	3,295	3,460	3,633	3,815	4,006	4,207
Jammu & Kashmir	5,334	5,539	5,751	5,970	6,197	6,432	6,676
Punjab	16,597	17,024	17,462	17,910	18,369	18,838	19,319
Rajasthan	26,080	27,495	28,985	30,552	32,202	33,937	35,765
Uttar Pradesh	38,638	40,798	43,074	45,471	47,997	50,656	53,462
Uttarakhand	6,251	6,683	7,143	7,634	8,159	8,718	9,315
Chandigarh	679	708	740	772	806	841	878
Goa	1,015	1,056	1,098	1,142	1,187	1,235	1,285
Gujarat	21,853	22,493	23,151	23,828	24,522	25,236	25,971
Chhattisgarh	9,041	9,557	10,100	10,673	11,278	11,916	12,590
Madhya Pradesh	23,131	24,403	25,742	27,153	28,638	30,200	31,847
Maharashtra	29,867	30,600	31,350	32,117	32,901	33,703	34,525
D. & N. Haveli	1,569	1,647	1,729	1,815	1,906	2,001	2,101
Daman & Diu	638	670	704	739	776	815	856
Andhra Pradesh	16,083	16,957	17,875	18,841	19,858	20,928	22,056
Telangana	18,477	19,481	20,536	21,647	22,814	24,043	25,339
Karnataka	17,214	17,762	18,326	18,907	19,506	20,122	20,757
Kerala	7,270	7,550	7,839	8,139	8,450	8,772	9,106
Tamil Nadu	32,955	34,753	36,645	38,638	40,734	42,941	45,268
Puducherry	759	794	831	870	910	952	996
Bihar	11,703	12,604	13,572	14,613	15,732	16,935	18,230
Jharkhand	3,475	3,582	3,691	3,804	3,920	4,040	4,164
Odisha	7,974	8,295	8,627	8,972	9,331	9,702	10,088
West Bengal	33,316	35,628	38,095	40,727	43,535	46,530	49,731
Sikkim	236	248	260	273	287	301	316
Assam	4,386	4,704	5,044	5,408	5,796	6,210	6,654
Manipur	175	178	182	185	188	191	194
Meghalaya	973	1,034	1,099	1,168	1,241	1,318	1,400
Nagaland	204	210	216	222	228	235	242
Tripura	379	389	399	410	421	432	443
Arunachal Pradesh	292	307	322	338	355	373	392
Mizoram	142	146	150	154	159	163	167
Andaman & Nicobar Islands	79	83	87	91	96	101	106
Lakshadweep	8	8	8	8	8	8	8
All India	349,441	368,683	389,034	410,560	433,331	457,418	482,950



Table A5.11: CAGR of Forecasted Peak Electricity Demand (SUR Model Baseline)

State/Region	FY 2016-17 to FY 2021-22	FY 2021-22 to FY 2026-27	FY 2016-17 to FY 2026-27	FY 2026-27 to FY 2036-37	FY 2016-17 to FY 2036-37
Delhi	2.47	2.48	2.47	2.29	2.38
Haryana	7.26	7.31	7.28	6.71	7
Himachal Pradesh	4.99	5	4.99	5	5
Jammu & Kashmir	5	4.68	4.84	3.89	4.37
Punjab	2.95	2.94	2.94	2.6	2.77
Rajasthan	5.92	5.97	5.94	5.47	5.7
Uttar Pradesh	6.4	6.37	6.38	5.65	6.01
Uttarakhand	7.66	7.49	7.57	6.94	7.26
Chandigarh	4.99	5.05	5.02	4.45	4.74
Goa	4.41	4.45	4.43	4.05	4.24
Gujarat	2.88	3.08	2.98	2.9	2.94
Chhattisgarh	5.38	5.98	5.68	5.6	5.64
Madhya Pradesh	5.27	5.81	5.54	5.42	5.48
Maharashtra	2.42	2.61	2.52	2.43	2.48
D. & N. Haveli	5.04	5.02	5.03	5	5.01
Daman & Diu	5.08	5.07	5.08	5.01	5.04
Andhra Pradesh	5.53	5.85	5.69	5.41	5.55
Telangana	5.53	5.86	5.69	5.4	5.55
Karnataka	3.15	3.41	3.28	3.15	3.22
Kerala	4.17	4.28	4.22	3.85	4.04
Tamil Nadu	5.42	5.8	5.61	5.41	5.51
Puducherry	4.21	4.82	4.51	4.54	4.53
Bihar	8.39	8.46	8.43	7.75	8.09
Jharkhand	3.37	3.4	3.38	3.1	3.24
Odisha	4.47	4.5	4.48	4.05	4.27
West Bengal	7.87	7.87	7.87	7.01	7.44
Sikkim	5.02	5	5.01	5	5
Assam	8.15	8.48	8.32	7.1	7.7
Manipur	1.99	2.06	2.03	1.63	1.83
Meghalaya	5.65	6.61	6.13	6.11	6.12
Nagaland	3.09	3.13	3.11	2.89	3
Tripura	2.71	2.87	2.79	2.65	2.72
Arunachal Pradesh	5.01	4.89	4.95	5.03	4.99
Mizoram	3.26	3.13	3.19	2.86	3.03
Andaman & Nicobar Islands	4.56	5.39	4.97	5.01	4.99
Lakshadweep	0	0	0	0	0
All-India	5.46	5.82	5.64	5.51	5.58



Table A5.12: Forecasted Peak Electricity Demand (SUR Model Optimistic) in MW

State	2017	2018	2019	2020	2021	2022	2023
Delhi	5,622	5,745	5,893	6,046	6,202	6,363	6,527
Haryana	9,578	10,191	10,969	11,806	12,706	13,673	14,715
Himachal Pradesh	1,586	1,665	1,748	1,835	1,927	2,023	2,124
Jammu & Kashmir	2,840	2,958	3,121	3,290	3,466	3,648	3,838
Punjab	11,178	11,458	11,820	12,192	12,575	12,968	13,373
Rajasthan	11,791	12,402	13,175	13,996	14,868	15,794	16,777
Uttar Pradesh	16,623	17,525	18,726	20,005	21,367	22,817	24,361
Uttarakhand	2,295	2,456	2,653	2,865	3,092	3,335	3,596
Chandigarh	348	363	382	403	424	447	471
Goa	560	582	609	637	667	698	730
Gujarat	14,549	14,909	15,357	15,816	16,289	16,814	17,356
Chhattisgarh	4,200	4,385	4,631	4,891	5,166	5,491	5,836
Madhya Pradesh	10,956	11,428	12,058	12,722	13,424	14,244	15,114
Maharashtra	21,170	21,600	22,148	22,710	23,286	23,923	24,578
D. & N. Haveli	790	830	872	916	962	1,010	1,061
Daman & Diu	320	336	353	371	390	410	431
Andhra Pradesh	7,489	7,837	8,294	8,776	9,286	9,856	10,461
Telangana	8,604	9,004	9,529	10,082	10,668	11,323	12,018
Karnataka	11,016	11,302	11,676	12,063	12,463	12,911	13,375
Kerala	4,125	4,269	4,459	4,656	4,862	5,082	5,312
Tamil Nadu	15,487	16,199	17,116	18,085	19,108	20,268	21,498
Puducherry	411	425	443	463	483	507	533
Bihar	3,847	4,131	4,495	4,892	5,324	5,794	6,305
Jharkhand	2,200	2,265	2,345	2,429	2,515	2,605	2,697
Odisha	4,373	4,541	4,757	4,982	5,219	5,466	5,724
West Bengal	11,847	12,639	13,702	14,851	16,094	17,438	18,891
Sikkim	119	125	131	138	145	152	160
Assam	1,508	1,598	1,742	1,896	2,061	2,265	2,484
Manipur	135	137	140	143	146	150	154
Meghalaya	427	445	471	499	529	567	607
Nagaland	134	138	142	147	152	157	162
Tripura	259	265	273	280	288	297	306
Arunachal Pradesh	148	155	163	171	180	189	198
Mizoram	92	95	98	101	105	108	112
Andaman & Nicobar Islands	40	42	44	46	48	50	53
Lakshadweep	8	8	8	8	8	8	8
All India	163,148	170,644	180,410	190,782	201,801	213,972	226,932



State	2024	2025	2026	2027	2028	2029	2030
Delhi	6,695	6,868	7,045	7,226	7,412	7,602	7,797
Haryana	15,834	17,039	18,334	19,726	21,222	22,829	24,554
Himachal Pradesh	2,230	2,342	2,459	2,582	2,711	2,847	2,989
Jammu & Kashmir	4,033	4,235	4,444	4,661	4,889	5,127	5,376
Punjab	13,788	14,215	14,654	15,105	15,570	16,048	16,540
Rajasthan	17,822	18,932	20,110	21,361	22,687	24,093	25,585
Uttar Pradesh	26,004	27,751	29,610	31,588	33,694	35,936	38,324
Uttarakhand	3,876	4,176	4,497	4,843	5,215	5,615	6,046
Chandigarh	496	522	549	578	608	640	674
Goa	764	800	837	876	917	959	1,003
Gujarat	17,914	18,488	19,080	19,690	20,319	20,967	21,635
Chhattisgarh	6,202	6,592	7,006	7,445	7,911	8,406	8,930
Madhya Pradesh	16,038	17,018	18,058	19,158	20,324	21,559	22,867
Maharashtra	25,251	25,942	26,652	27,379	28,126	28,891	29,676
D. & N. Haveli	1,114	1,170	1,229	1,290	1,355	1,423	1,494
Daman & Diu	453	476	500	525	551	579	608
Andhra Pradesh	11,103	11,785	12,508	13,276	14,089	14,950	15,862
Telangana	12,755	13,540	14,371	15,253	16,186	17,176	18,223
Karnataka	13,855	14,353	14,868	15,401	15,952	16,521	17,110
Kerala	5,552	5,803	6,064	6,336	6,620	6,916	7,225
Tamil Nadu	22,801	24,183	25,648	27,200	28,843	30,583	32,425
Puducherry	560	589	619	651	684	718	755
Bihar	6,862	7,466	8,125	8,839	9,616	10,460	11,376
Jharkhand	2,793	2,893	2,995	3,102	3,212	3,326	3,443
Odisha	5,995	6,278	6,574	6,883	7,206	7,544	7,898
West Bengal	20,461	22,157	23,989	25,967	28,105	30,415	32,909
Sikkim	168	176	185	194	204	214	225
Assam	2,718	2,970	3,237	3,527	3,843	4,185	4,557
Manipur	157	161	165	168	172	176	180
Meghalaya	650	696	745	797	853	912	976
Nagaland	167	173	178	184	190	196	203
Tripura	315	324	334	344	354	365	375
Arunachal Pradesh	208	218	229	240	252	265	278
Mizoram	115	119	123	127	131	135	140
Andaman & Nicobar Islands	56	59	62	65	68	71	75
Lakshadweep	8	8	8	8	8	8	8
All India	240,732	255,427	271,078	287,751	305,515	324,445	344,621



State	2031	2032	2033	2034	2035	2036	2037
Delhi	7,996	8,200	8,410	8,624	8,843	9,068	9,299
Haryana	26,408	28,399	30,536	32,831	35,295	37,941	40,785
Himachal Pradesh	3,138	3,295	3,460	3,633	3,815	4,006	4,207
Jammu & Kashmir	5,637	5,909	6,194	6,492	6,804	7,129	7,470
Punjab	17,046	17,566	18,101	18,651	19,217	19,799	20,399
Rajasthan	27,166	28,843	30,620	32,504	34,501	36,617	38,863
Uttar Pradesh	40,865	43,569	46,446	49,508	52,765	56,229	59,920
Uttarakhand	6,508	7,006	7,540	8,115	8,733	9,397	10,111
Chandigarh	709	746	785	825	868	913	960
Goa	1,050	1,098	1,148	1,201	1,256	1,314	1,375
Gujarat	22,323	23,061	23,823	24,609	25,420	26,256	27,119
Chhattisgarh	9,487	10,111	10,775	11,482	12,233	13,033	13,885
Madhya Pradesh	24,251	25,795	27,434	29,174	31,022	32,983	35,068
Maharashtra	30,482	31,340	32,221	33,125	34,054	35,006	35,985
D. & N. Haveli	1,569	1,647	1,729	1,815	1,906	2,001	2,101
Daman & Diu	638	670	704	739	776	815	856
Andhra Pradesh	16,828	17,881	18,998	20,183	21,438	22,771	24,187
Telangana	19,334	20,544	21,827	23,188	24,630	26,160	27,787
Karnataka	17,719	18,375	19,054	19,757	20,484	21,237	22,018
Kerala	7,547	7,888	8,243	8,614	9,001	9,404	9,825
Tamil Nadu	34,374	36,514	38,784	41,192	43,744	46,451	49,326
Puducherry	793	836	881	929	979	1,032	1,088
Bihar	12,371	13,451	14,624	15,898	17,280	18,780	20,410
Jharkhand	3,565	3,690	3,820	3,954	4,093	4,236	4,384
Odisha	8,267	8,653	9,056	9,477	9,916	10,376	10,857
West Bengal	35,604	38,513	41,654	45,045	48,706	52,656	56,926
Sikkim	236	248	260	273	287	301	316
Assam	4,961	5,435	5,954	6,520	7,137	7,812	8,551
Manipur	184	188	193	198	203	208	213
Meghalaya	1,044	1,123	1,208	1,300	1,398	1,503	1,616
Nagaland	209	216	223	230	237	245	253
Tripura	387	398	411	423	436	449	462
Arunachal Pradesh	292	307	322	338	355	373	392
Mizoram	144	149	154	159	164	169	174
Andaman & Nicobar Islands	79	83	87	91	96	101	106
Lakshadweep	8	8	8	8	8	8	8
All India	366,126	389,512	414,477	441,131	469,590	499,981	532,495



Table A5.12: CAGR of Forecasted Peak Electricity Demand (SUR Model Optimistic)

State/Region	FY 2016-17 to FY 2021-22	FY 2021-22 to FY 2026-27	FY 2016-17 to FY 2026-27	FY 2026-27 to FY 2036-37	FY 2016-17 to FY 2036-37
Delhi	2.51	2.58	2.54	2.55	2.55
Haryana	7.38	7.61	7.49	7.53	7.51
Himachal Pradesh	4.99	5	4.99	5	5
Jammu & Kashmir	5.13	5.02	5.08	4.83	4.95
Punjab	3.02	3.1	3.06	3.05	3.05
Rajasthan	6.02	6.22	6.12	6.17	6.14
Uttar Pradesh	6.54	6.72	6.63	6.61	6.62
Uttarakhand	7.76	7.75	7.75	7.64	7.7
Chandigarh	5.13	5.27	5.2	5.2	5.2
Goa	4.5	4.65	4.58	4.61	4.59
Gujarat	2.94	3.21	3.07	3.25	3.16
Chhattisgarh	5.51	6.28	5.89	6.43	6.16
Madhya Pradesh	5.39	6.11	5.75	6.23	5.99
Maharashtra	2.48	2.74	2.61	2.77	2.69
D. & N. Haveli	5.04	5.02	5.03	5	5.01
Daman & Diu	5.08	5.07	5.08	5.01	5.04
Andhra Pradesh	5.65	6.14	5.89	6.18	6.04
Telangana	5.65	6.14	5.89	6.18	6.04
Karnataka	3.23	3.59	3.41	3.64	3.52
Kerala	4.26	4.51	4.39	4.48	4.43
Tamil Nadu	5.53	6.06	5.79	6.13	5.96
Puducherry	4.29	5.13	4.71	5.27	4.99
Bihar	8.54	8.81	8.67	8.73	8.7
Jharkhand	3.44	3.55	3.5	3.52	3.51
Odisha	4.56	4.72	4.64	4.66	4.65
West Bengal	8.04	8.29	8.16	8.17	8.16
Sikkim	5.02	5	5.01	5	5
Assam	8.48	9.26	8.87	9.26	9.06
Manipur	2.13	2.29	2.21	2.4	2.31
Meghalaya	5.84	7.05	6.44	7.32	6.88
Nagaland	3.22	3.22	3.22	3.24	3.23
Tripura	2.78	2.98	2.88	2.99	2.94
Arunachal Pradesh	5.01	4.89	4.95	5.03	4.99
Mizoram	3.26	3.29	3.28	3.2	3.24
Andaman & Nicobar Islands	4.56	5.39	4.97	5.01	4.99
Lakshadweep	0	0	0	0	0
All-India	5.57	6.1	5.84	6.35	6.09



Table A5.13: Forecasted Peak Electricity Demand (SUR Model Pessimistic) in MW

State	2017	2018	2019	2020	2021	2022	2023
Delhi	5,622	5,745	5,869	5,995	6,125	6,257	6,391
Haryana	9,578	10,191	10,835	11,519	12,245	13,016	13,836
Himachal Pradesh	1,586	1,665	1,748	1,835	1,927	2,023	2,124
Jammu & Kashmir	2,840	2,958	3,076	3,196	3,319	3,444	3,571
Punjab	11,178	11,458	11,739	12,025	12,318	12,616	12,920
Rajasthan	11,791	12,402	13,036	13,702	14,402	15,138	15,911
Uttar Pradesh	16,623	17,525	18,455	19,430	20,452	21,524	22,648
Uttarakhand	2,295	2,456	2,626	2,806	2,996	3,198	3,413
Chandigarh	348	363	378	394	410	427	444
Goa	560	582	604	626	650	674	700
Gujarat	14,549	14,909	15,272	15,643	16,022	16,448	16,885
Chhattisgarh	4,200	4,385	4,574	4,771	4,976	5,223	5,482
Madhya Pradesh	10,956	11,428	11,911	12,414	12,938	13,561	14,214
Maharashtra	21,170	21,600	22,031	22,471	22,919	23,422	23,936
D. & N. Haveli	790	830	872	916	962	1,010	1,061
Daman & Diu	320	336	353	371	390	410	431
Andhra Pradesh	7,489	7,837	8,196	8,571	8,963	9,404	9,864
Telangana	8,604	9,004	9,417	9,848	10,298	10,803	11,333
Karnataka	11,016	11,302	11,589	11,884	12,185	12,529	12,882
Kerala	4,125	4,269	4,415	4,566	4,722	4,888	5,060
Tamil Nadu	15,487	16,199	16,931	17,696	18,494	19,405	20,359
Puducherry	411	425	438	452	467	485	504
Bihar	3,847	4,131	4,431	4,753	5,099	5,469	5,866
Jharkhand	2,200	2,265	2,330	2,397	2,466	2,537	2,610
Odisha	4,373	4,541	4,712	4,890	5,073	5,264	5,461
West Bengal	11,847	12,639	13,467	14,346	15,281	16,273	17,326
Sikkim	119	125	131	138	145	152	160
Assam	1,508	1,598	1,687	1,778	1,872	1,991	2,115
Manipur	135	137	138	139	141	143	145
Meghalaya	427	445	463	482	501	527	554
Nagaland	134	138	142	145	149	153	157
Tripura	259	265	271	277	284	291	298
Arunachal Pradesh	148	155	163	171	180	189	198
Mizoram	92	95	98	100	103	106	109
Andaman & Nicobar Islands	40	42	44	46	48	50	53
Lakshadweep	8	8	8	8	8	8	8
All India	163,148	170,644	178,375	186,482	194,984	204,340	214,171



State	2024	2025	2026	2027	2028	2029	2030
Delhi	6,529	6,669	6,812	6,958	7,107	7,258	7,413
Haryana	14,707	15,632	16,615	17,657	18,762	19,935	21,179
Himachal Pradesh	2,230	2,342	2,459	2,582	2,711	2,847	2,989
Jammu & Kashmir	3,699	3,829	3,960	4,094	4,233	4,376	4,523
Punjab	13,230	13,547	13,869	14,197	14,533	14,876	15,226
Rajasthan	16,723	17,577	18,474	19,416	20,404	21,440	22,527
Uttar Pradesh	23,825	25,058	26,349	27,703	29,124	30,614	32,177
Uttarakhand	3,640	3,881	4,136	4,408	4,697	5,005	5,332
Chandigarh	463	482	501	522	543	565	587
Goa	726	753	781	810	841	872	904
Gujarat	17,332	17,790	18,258	18,739	19,231	19,735	20,251
Chhattisgarh	5,754	6,040	6,339	6,653	6,982	7,326	7,687
Madhya Pradesh	14,898	15,615	16,367	17,152	17,974	18,833	19,730
Maharashtra	24,461	24,998	25,546	26,105	26,675	27,257	27,850
D. & N. Haveli	1,114	1,170	1,229	1,290	1,355	1,423	1,494
Daman & Diu	453	476	500	525	551	579	608
Andhra Pradesh	10,347	10,854	11,386	11,942	12,525	13,134	13,773
Telangana	11,887	12,469	13,081	13,720	14,390	15,089	15,823
Karnataka	13,245	13,618	14,002	14,395	14,799	15,212	15,637
Kerala	5,237	5,420	5,609	5,804	6,006	6,214	6,428
Tamil Nadu	21,360	22,409	23,510	24,661	25,867	27,130	28,452
Puducherry	524	544	566	588	611	635	659
Bihar	6,292	6,749	7,238	7,762	8,323	8,924	9,567
Jharkhand	2,685	2,762	2,841	2,923	3,006	3,092	3,180
Odisha	5,666	5,878	6,097	6,325	6,560	6,804	7,056
West Bengal	18,444	19,630	20,889	22,223	23,640	25,143	26,738
Sikkim	168	176	185	194	204	214	225
Assam	2,242	2,372	2,503	2,642	2,787	2,940	3,100
Manipur	147	148	150	151	153	155	156
Meghalaya	583	613	644	677	711	747	785
Nagaland	161	166	170	174	179	184	189
Tripura	305	312	320	328	336	344	352
Arunachal Pradesh	208	218	229	240	252	265	278
Mizoram	112	115	119	122	125	129	132
Andaman & Nicobar Islands	56	59	62	65	68	71	75
Lakshadweep	8	8	8	8	8	8	8
All India	224,502	235,357	246,764	258,747	271,347	284,589	298,509



State	2031	2032	2033	2034	2035	2036	2037
Delhi	7,571	7,732	7,896	8,063	8,234	8,407	8,584
Haryana	22,498	23,897	25,381	26,953	28,620	30,387	32,263
Himachal Pradesh	3,138	3,295	3,460	3,633	3,815	4,006	4,207
Jammu & Kashmir	4,674	4,830	4,991	5,156	5,326	5,501	5,682
Punjab	15,584	15,949	16,321	16,702	17,090	17,486	17,891
Rajasthan	23,667	24,863	26,116	27,431	28,808	30,253	31,770
Uttar Pradesh	33,815	35,532	37,331	39,217	41,193	43,263	45,437
Uttarakhand	5,680	6,051	6,445	6,864	7,310	7,784	8,289
Chandigarh	611	636	661	687	715	743	772
Goa	938	973	1,009	1,046	1,085	1,124	1,164
Gujarat	20,780	21,349	21,933	22,532	23,146	23,775	24,421
Chhattisgarh	8,064	8,488	8,933	9,400	9,891	10,406	10,948
Madhya Pradesh	20,669	21,715	22,813	23,963	25,168	26,431	27,757
Maharashtra	28,454	29,101	29,761	30,434	31,122	31,823	32,540
D. & N. Haveli	1,569	1,647	1,729	1,815	1,906	2,001	2,101
Daman & Diu	638	670	704	739	776	815	856
Andhra Pradesh	14,441	15,164	15,921	16,716	17,548	18,419	19,333
Telangana	16,590	17,421	18,292	19,205	20,160	21,161	22,212
Karnataka	16,072	16,543	17,026	17,522	18,031	18,554	19,092
Kerala	6,650	6,882	7,123	7,371	7,627	7,891	8,164
Tamil Nadu	29,835	31,349	32,936	34,600	36,345	38,175	40,097
Puducherry	685	714	744	776	808	842	877
Bihar	10,255	10,991	11,778	12,621	13,522	14,485	15,517
Jharkhand	3,271	3,363	3,459	3,557	3,657	3,760	3,866
Odisha	7,316	7,586	7,865	8,154	8,453	8,762	9,082
West Bengal	28,430	30,225	32,128	34,147	36,286	38,554	40,964
Sikkim	236	248	260	273	287	301	316
Assam	3,267	3,467	3,677	3,899	4,134	4,381	4,643
Manipur	158	160	162	164	166	168	170
Meghalaya	824	870	919	971	1,025	1,082	1,142
Nagaland	193	198	204	209	214	220	226
Tripura	361	370	379	389	398	408	418
Arunachal Pradesh	292	307	322	338	355	373	392
Mizoram	136	140	143	147	151	155	159
Andaman & Nicobar Islands	79	83	87	91	96	101	106
Lakshadweep	8	8	8	8	8	8	8
All India	313,141	328,904	345,493	362,954	381,332	400,676	421,081



Table A5.13: CAGR of Forecasted Peak Electricity Demand (SUR Model Pessimistic)

State/Region	FY 2016-17 to FY 2021-22	FY 2021-22 to FY 2026-27	FY 2016-17 to FY 2026-27	FY 2026-27 to FY 2036-37	FY 2016-17 to FY 2036-37
Delhi	2.16	2.15	2.15	2.12	2.14
Haryana	6.33	6.29	6.31	6.21	6.26
Himachal Pradesh	4.99	5	4.99	5	5
Jammu & Kashmir	3.93	3.52	3.72	3.33	3.53
Punjab	2.45	2.39	2.42	2.34	2.38
Rajasthan	5.12	5.1	5.11	5.05	5.08
Uttar Pradesh	5.3	5.18	5.24	5.07	5.16
Uttarakhand	6.86	6.63	6.74	6.52	6.63
Chandigarh	4.18	4.1	4.14	3.99	4.06
Goa	3.78	3.74	3.76	3.69	3.73
Gujarat	2.48	2.64	2.56	2.68	2.62
Chhattisgarh	4.46	4.96	4.71	5.11	4.91
Madhya Pradesh	4.36	4.81	4.58	4.93	4.76
Maharashtra	2.04	2.19	2.12	2.23	2.17
D. & N. Haveli	5.04	5.02	5.03	5	5.01
Daman & Diu	5.08	5.07	5.08	5.01	5.04
Andhra Pradesh	4.66	4.89	4.78	4.94	4.86
Telangana	4.66	4.9	4.78	4.94	4.86
Karnataka	2.61	2.82	2.71	2.86	2.79
Kerala	3.45	3.49	3.47	3.47	3.47
Tamil Nadu	4.61	4.91	4.76	4.98	4.87
Puducherry	3.37	3.93	3.65	4.08	3.86
Bihar	7.29	7.25	7.27	7.17	7.22
Jharkhand	2.89	2.87	2.88	2.84	2.86
Odisha	3.78	3.74	3.76	3.68	3.72
West Bengal	6.55	6.43	6.49	6.31	6.4
Sikkim	5.02	5	5.01	5	5
Assam	5.71	5.82	5.77	5.8	5.78
Manipur	1.16	1.09	1.13	1.19	1.16
Meghalaya	4.3	5.14	4.72	5.37	5.04
Nagaland	2.69	2.61	2.65	2.65	2.65
Tripura	2.36	2.42	2.39	2.45	2.42
Arunachal Pradesh	5.01	4.89	4.95	5.03	4.99
Mizoram	2.87	2.85	2.86	2.68	2.77
Andaman & Nicobar Islands	4.56	5.39	4.97	5.01	4.99
Lakshadweep	0	0	0	0	0
All-India	4.61	4.83	4.72	4.99	4.86



