

KERALA'S INTERNAL ELECTRICITY GENERATION INCREASES **50% IN 2021**

- Kerala received the highest rain fall in 60 years in 2021
- Electricity requirement in Kerala increased by 4.6% in 2021, Compound Annual Growth Rate for 2019-21 is 0.5% only, All time maximum daily consumption of 88.4 MU recorded on 19th March 2021.
- Top ten States by power consumption together contribute 72% of the total All India Electricity requirement
- All time maximum demand of 200570 MW and All time maximum daily consumption of 4508 MU at all India level recorded on 7th July 2021 .

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Generating stations in Kerala generated 10408.9 MU of Electricity in 2021 registering an increase of 50% from the total generation of 6944.8 MU last year. Total generation from Hydro Plants including small Hydro was 9913.6 MU. 153 MU of Electricity was generated from Thermal stations in the state. Wind farms in Kerala generated 132. 1 MU and Solar Plants generated 210.2 MU .

The increase in Internal Generation in 2021 was 3464.1 MU from that of last year. Hydro generation increased by 3283.7 MU (49.5%) . Thermal generation increased by 104.8 MU. There was an increase of 1.1 MU in Wind generation and the Solar generation increased by 74.5 MU (54.9%). Major portion (95%) of the increase in Internal generation is from hydro plants. Hydro generation in Kerala increased considerably during 2021 due to the wide spread rain the state received through out from the begining to the end of the year. To overcome the huge power demand and supply gap arised out of the coal shortage in the country, Ministry of Power on 14th Oct. 2021 had requested to Govt. Of Kerala to enhance the power generation from Idukki Hydro Electric station during off peak hours (8:00 AM to 6:00 PM) in addition to during peak hours till 31st Oct. 2021. In national interest, KSEBL had increased the power generation from Idukki station. Idukki power house generated 389.28 MU in October and 501.8 MU in November 2021. Generation of 501.8 MU in November is an all time record generation in a month from Idukki.

The state received 3610 mm of rainfall in 2021. This was the highest rainfall recorded in 60 years. Also it is the 6th highest rainfall in the last 120 years.

The Electricity requirement in Kerala was 26281 MU during 2021. This is 1.9% of the Total electricity requirement of our country. The increase in electricity requirement was 1155.6 MU (4.6%) than that of the year 2020. The Compound Annual Growth Rate (CAGR) of electricity requirement during 2019-21 period is 0.5% only. The reasons for the reduced growth are the lock-down declared in the state from 09-05-2021 onwards till the end of May and the heavy rainfall the state received through out the year. The Electricity consumptions in the months of January, February and May 2021 were less than that during the same months in the previous year. The maximum demand during the year was 4284 MW recorded on 31st March 2021. This is 2.4% higher than the last year's MD of 4182 MW recorded on 18-03-2020. The All Time Maximum Demand of Kerala State is 4316 MW recorded on 13th April 2019. All Time Maximum Daily Consumption of 88.4 MU was recorded on 19th March 2021.

The share of internal generation in Total Electricity requirement of Kerala during the year 2021 is 39.6%. It was 27.6% in 2020 and 24% in 2019. Net Import of Electricity decreased by 12.7% (2308.5 MU) in 2021 compared to 2020.

TOP TEN STATES BY POWER CONSUMPTION CONTRIBUTE 72% OF THE TOTAL REQUIREMENT OF THE COUNTRY

Top Ten states by power consumption in 2021 and their share in total electricity requirement of our country are :

Maharashtra (12.9%), Gujarat (9.3%), Uttar Pradesh (9.2%), Tamil Nadu (8.4%), Rajasthan (6.4%), Madhya Pradesh (6.2%), Telengana (5.3%), Karnataka (5.2%) Andhra Pradesh (4.9%) and Punjab (4.5%). These ten states together contribute 72.3% of the Electricity requirement of our country in 2021.

All time Maximum Demand of 200570 MW and All time maximum daily electricity requirement of 4508 MU at All India Level were recorded on 7th July 2021.

Total Electricity requirement at All India level in 2021 was 1379036 Million Units . The growth in 2021 compared to 2020 is 9.4%. The Compound Annual Growth rate (CAGR) for the period 2019 – 2021 is 3.2%.

The following top ranking states registered higher growths in 2021 than the All India average of 9.4%. Maharashtra (17%), Gujarat (13%), Tamil Nadu (12%) Telengana (11.6%), Andhra Pradesh (9.9%), Punjab (9.6%). Growth Rate of Uttar Pradesh, Rajasthan, Karnataka and Madhya Pradesh were less than the All India average growth rate.

CAGR of Electricity requirement for the period 2019 to 2021 of Maharashtra state was 6.3%. Punjab and Telengana registered 4.9% growth. The other top ranking states that registered CAGR higher than All India CAGR are Madhya Pradesh (4.8), Rajasthan (4.1) and Gujarat (3.5).

Due to coal shortage, India experienced a power supply shortage in October 2021. As per CEA report the power supply shortage was 1231 MU. The percentage deficit was 1.1%. Northern region recorded a shortage of 779 MU (2.3%), Western region 219 MU (0.6%) and Eastern region 172 MU(1.2%). The shortage mainly affected the states of Rajasthan, UP, Punjab, Haryana, Gujarat, Bihar and Jharkhand and the Union territory of Jammu & Kashmir. According to newspaper reports, this power supply shortage is the highest in five years. The power supply shortage recorded in Gujarat is the highest for any month more than a decade and that in Rajasthan and Haryana are the highest in nine years. Punjab deficit is the highest in seven years¹.

Despite surging Covid-19 cases in some months during the year and the coal supply shortages in September – October, electricity requirement in India in 2021 grew at a rate of 9.4% compared to last year. (CAGR: 3.2% for the period 2019-21).

¹ Source : <https://www.thehindu.com/news/national/october-2021-saw-highest-power-shortage-in-over-5-years/article37361732.ece>

Annexure

**Table-1 : Kerala Peak demand and Electricity Requirement, Internal Generation
and Net import**

Table-2 : Kerala Rainfall details

Table -3 : Electricity Requirement of Top ten States & All India

Table – 4 : Peak Demand of Top ten States & All India

Table -5 : Power supply position in October 2021

Table – 1 : KERALA : PEAK DEMAND & ELECTRICITY REQUIREMENT , INTERNAL GENERATION AND NET IMPORT

PARTICULARS	2019	2020	2021	GROWTH 2020		GROWTH 2021	
				Qty.	%	Qty.	%
PEAK DEMAND IN MW & Date on which it occurred	4316	4182	4284	(-) 134	(-) 3.1	102	2.4
	13-04-2019	18-03-2020	31-03-2021				
Requirement in MU	26019.3	25125.4	26281	(-) 894.1	(-) 3.4	1155.6	4.6
MU / Day	71.3	68.7	72	(-) 2.6	(-) 3.6	3.3	4.8
Internal Generation in MU							
Hydro	5973	6629.9	9913.6	656.9	10	3283.7	49.5
Thermal	54.5	48.2	153.0	(-)6.3	(-)11.6	104.8	217
Wind	121.4	131.0	132.1	9.6	7.9	1.1	0.8
Solar	118.7	135.7	210.2	17	14.3	74.5	54.9
Total	6267.6	6944.8	10408.9	677.2	10.8	3464.1	49.9
Net Import	19751.7	18180.6	15872.1	(-) 1571.1	(-) 8	2380.5	(-)12.7
Share of Int. Gen. in Total Ele. Requirement in %	24.0	27.6	39.6				

Source : InSDES compilation of Data available at <https://www.sldckerala.com/system/statistics>

Table – 2 : KERALA : RAIN FALL DETAILS

YEAR	RAINFALL IN mm	REMARKS
1961	4258	Report in Times of India dated 26 Nov. 2021
1924	4226.4	
1933	4073	
1959	3746	
1907	3671.2	
1946	3565.5	
2018	3520.1	
2021	3610.2	Report in The Hindu dated 31 Dec. 2021

Source : Reports in The Times of India and The Hindu available at :

<https://timesofindia.indiatimes.com/city/kochi/at-3522mm-state-records-highest-rainfall-since-1961/articleshow/87918277.cms> &

<https://www.thehindu.com/news/national/kerala/kerala-records-its-highest-annual-rainfall-in-60-years-in-2021/article38082426.ece>

TABLE – 3 : ELECTRICITY REQUIREMENT OF TOP TEN STATES & ALL INDIA

NAME OF STATE	YEARLY ELECTRICITY REQUIREMENT in MU			GROWTH IN 2021 in %	CAGR 2019-21	SHARE IN % OF TOTAL
	2019	2020	2021			
MAHARASHTRA	157032	151690	177472	17	6.3	12.9
GUJARAT	120056	113555	128574	13.2	3.5	9.3
UTTAR PRADESH	120721	120047	126250	5.2	2.3	9.2
TAMIL NADU	111092	103156	115678	12.1	2.0	8.4
RAJASTHAN	81154	83192	87901	5.7	4.1	6.4
MADHYA PRADESH	77912	81840	85549	4.5	4.8	6.2
TELENGANA	66417	65485	73098	11.6	4.9	5.3
KARNATAKA	71434	69416	71481	3.5	0.3	5.2
ANDHRA PRADESH	63776	61409	67503	9.9	2.9	4.9
PUNJAB	56619	56804	62255	9.6	4.9	4.5
ALL INDIA	1294769	1260128	1379036	9.4	3.2	

Source : InSDDES compilation of data available at <https://www.posoco.in/Reports>

TABLE – 4 : PEAK DEMAND OF TOP TEN STATES & ALL INDIA

NAME OF STATE	PEAK DEMAND IN MW		
	2019	2020	2021
MAHARASHTRA	24146	24550	25644
GUJARAT	18424	17298	19431
UTTAR PRADESH	21632	23867	24795
TAMIL NADU	16386	15591	16846
RAJASTHAN	13464	14277	15696
MADHYA PRADESH	14623	15547	15917
KARNATAKA	12881	13258	14367
TELENGANA	11182	13168	13688
ANDHRA PRADESH	9854	10207	11472
PUNJAB	13606	13148	13361
ALL INDIA	182610	182888	200570

Source : InSDES compilation of Data available at <https://www.posoco.in/Reports/Monthly Reports>

Table -5 : POWER SUPPLY POSITION IN OCTOBER 2021

State / Region	October 2021			
	Energy Requirement	Energy Supplied	Energy not supplied MU	%
Chandigarh	126	126	0	0.0
Delhi	2663	2663	0	0.0
Haryana	4767	4654	113	2.4
Himachal Pradesh	1032	1030	2	0.1
UT of J&K and Ladak	1472	1366	107	7.3
Punjab	4927	4807	121	2.5
Rajasthan	7263	7022	242	3.3
Uttar Pradesh	10651	10450	200	1.9
Uttarakhand	1342	1328	14	1.1
Northern Region	34245	33446	799	2.3
Chattisgarh	2821	2818	4	0.1
Gujarat	10928	10714	215	2.0
Madhya Pradesh	6880	6880	0	0.0
Maharashtra	13853	13853	0	0.0
Daman & Diu	230	230	0	0.0
Dadra & Nagar Haveli	582	582	0	0.0
Goa	394	394	0	0.0
Western Region	35690	35471	219	0.6
Andhra Pradesh	5834	5818	16	0.3
Telengana	5861	5856	6	0.1
Karnataka	5355	5345	10	0.2
Kerala	2201	2200	1	0.1
Tamil Nadu	8874	8870	5	0.1
Puduchery	249	249	0	0.0
Lakshadweep	4	4	0	0.0
Southern Region	28375	28337	38	0.1
Bihar	3052	2968	84	2.8
DVC	1993	1991	1	0.1
Jharkhand	955	876	79	8.3
Odisha	2399	3296	2	0.1
West Bengal	4782	4777	5	0.1
Sikkim	47	47	0	0.0
Andaman - Nicobar	26	26	0	0.0
Eastern Region	14128	13956	172	1.2
Arunachal Pradesh	72	72	0	0.3
Assam	996	996	0	0.0
Manipur	82	82	0	0.0
Meghalaya	179	179	0	0.0
Mizoram	57	54	4	6.3
Nagaland	75	75	0	0.0
Tripura	128	128	0	0.0
North-Eastern Region	1591	1587	4	0.2
All India	114028	112797	1231	1.1

Source : InSDES compilation of Data available at <https://cea.nic.in/executive-summary/report/?lang=en>