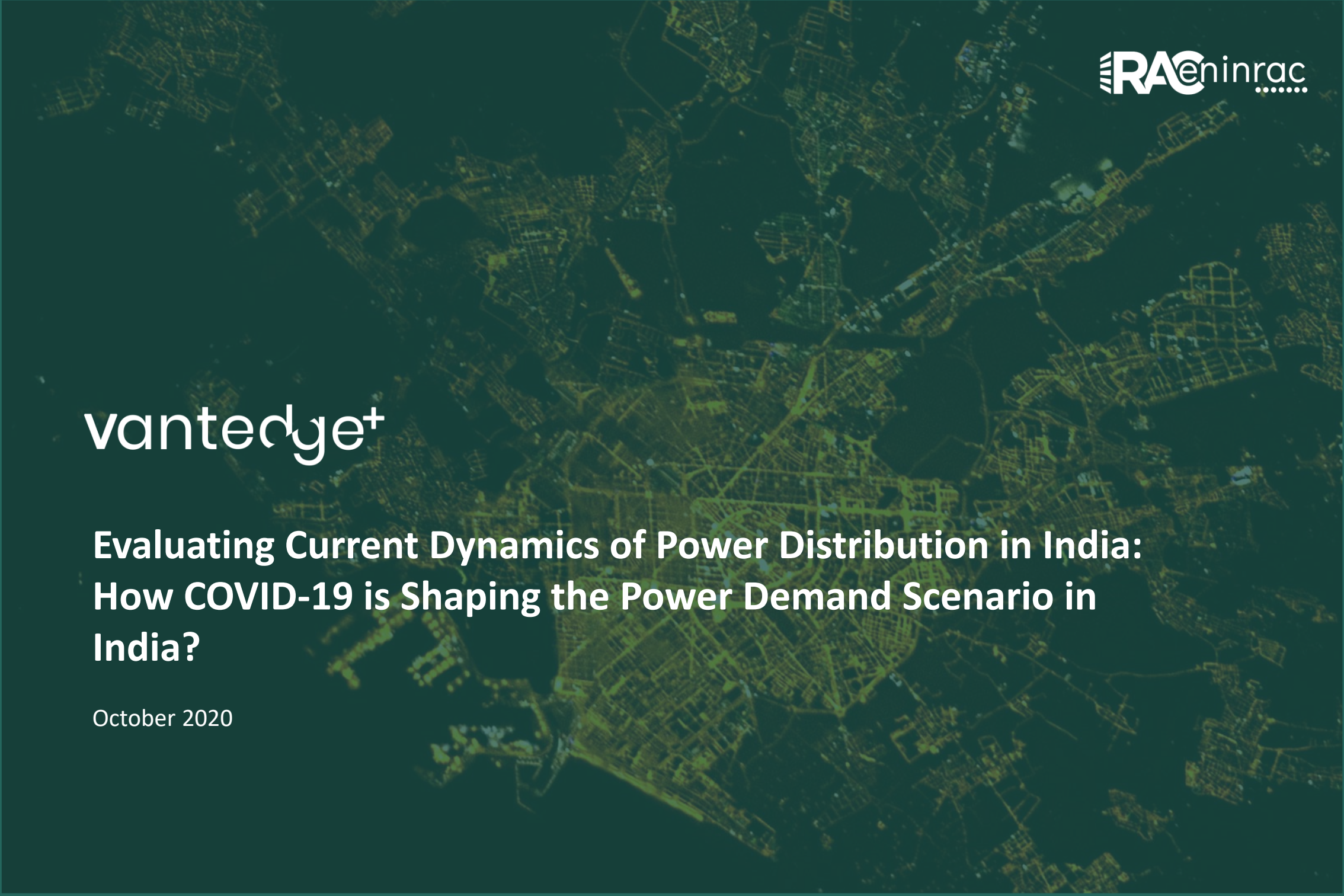


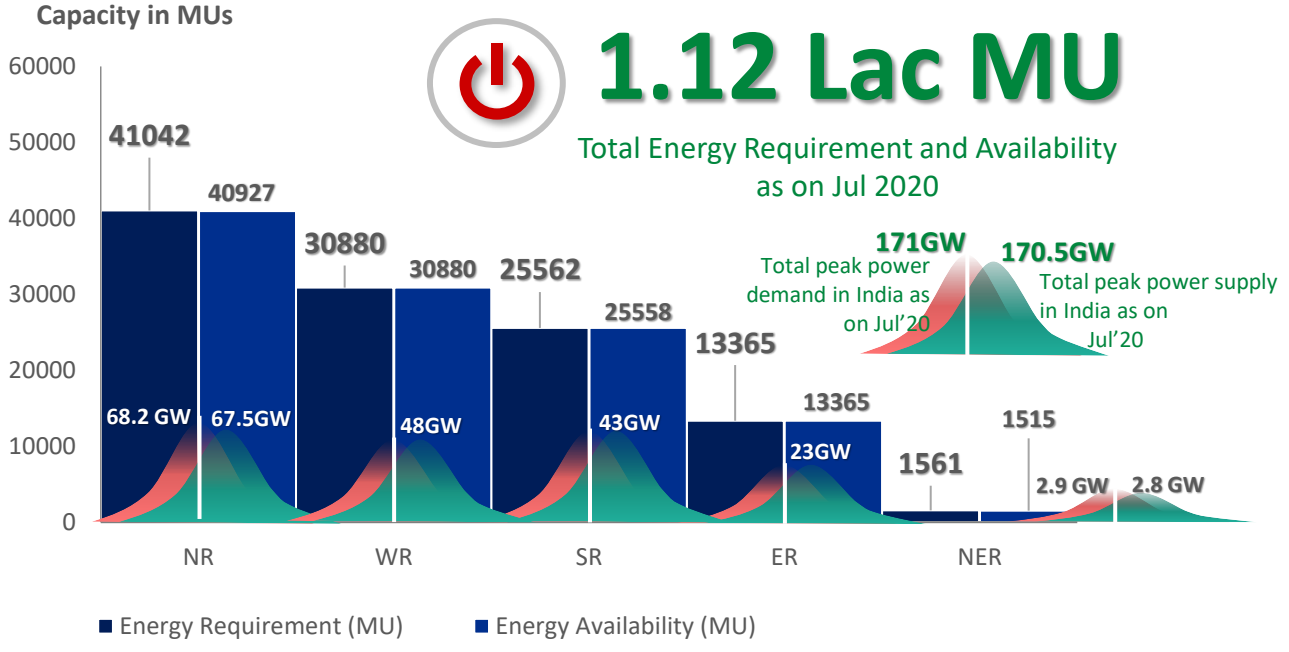
Evaluating Current Dynamics of Power Distribution in India: How COVID-19 is Shaping the Power Demand Scenario in India?

October 2020

COVID-19 & Impact on Distribution

On March 23rd, 2020, India began unprecedented 21-day lockdown to fight spread of Coronavirus. In this troubling times of 'social distancing' and 'work of home', the power distribution sector is also bound to get an adverse impact of this pandemic. The COVID-19 lockdown has led to shut down of all but essential commercial & industrial activities in the country. Around, 1.3 Billion citizens are confided to their respective homes and in most of the cases are only allowed to 'work from home'. Consequently, the electricity demand from industrial and commercial customers has reduced significantly while the residential demand is expected to have increased. End consumer wise peak power demand and supply can be seen in Exhibit 1. Thus, a key risk from COVID-19 pandemic for already struggling distribution utilities arises from the loss of revenues from commercial and industrial consumers which forma a major pie in the revenue generation of such utilities. Further, fixed cost components in tariffs are fairly-low. Discoms will face huge working capital issues which will be a serious challenge atleast till Apr'2021.

Exhibit 1 – Energy Requirement & Availability (MU) and Peak Power Demand – Supply (GW) Situation in India as on Aug'2020 (Region Wise)



NR- Northern Region , WR – Western Region, SR – Southern Region, ER – Eastern Region and NER – North-eastern Region

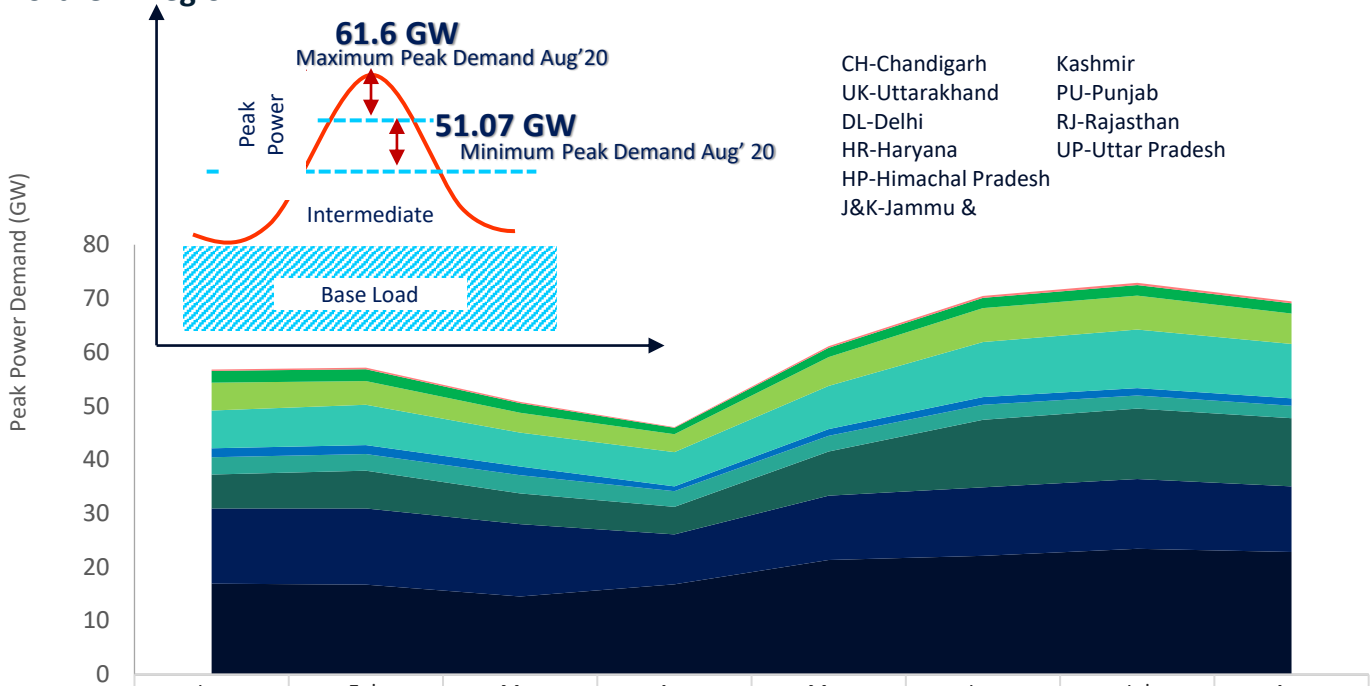
Source: eninrac research, CEA, Ministry of Power

Power Demand Scenario – Northern Region

The power demand in India rose after it dipped during the COVID19 introduced nationwide lockdown. As per National Load Dispatch Centre (NLDC) after the lockdown was lifted, the average daily power demand stood at 3,595 million units (MU) for the period between June 1, 2020, and August 27, 2020. During the 69-day lockdown period between March 24, 2020, to May 31, 2020, demand averaged 3,037 MU. In the northern region as well the energy demand witnessed during Jan'20 was 29997 MU, which fall to 23770 MU in Apr'20, indicating a downfall of 6227 MU. The period from May'20-Aug'20 witnessed a rise in the energy demand of 8769 MU. The peak power demand in the region also increased from 57 GW to 64.8 GW from May'20 – Aug'20 which declined by almost 10GW from Jan'20-Apr'20. State wise peak power demand from Jan-Aug'20 can be seen in Exhibit 2.

During Aug'20, the average energy demand/day in the northern region states was observed to be 1273 MU, against which 1272 MU was met.

Exhibit 2 – Month wise Peak Power Demand (In GW) from Jan'20 – Aug'20 for States in Northern Region



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
CH	0.26	0.29	0.21	0.15	0.29	0.36	0.38	0.34
UK	2.2	2.2	1.8	1.2	1.7	1.9	2	1.9
DL	5.2	4.4	3.7	3.3	5.4	6.3	6.3	5.7
HR	7	7.5	6.3	6.4	8	10.3	10.9	10.1
HP	1.7	1.7	1.6	0.9	1.3	1.4	1.4	1.4
J&K	3.2	3.1	3.4	2.9	2.9	2.8	2.4	2.3
PU	6.3	7	5.7	5.1	8.2	12.6	13.1	12.7
RJ	14	14.2	13.5	9.3	12	12.7	13	12.2
UP	16.9	16.7	14.5	16.8	21.3	22.1	23.4	22.8

Source: eninrac research, CEA, NRLDC

Power Supply Scenario – Northern Region

During Aug'2020, northern region witnessed a cumulative energy supply of 39539 MU against 29654 MU observed in Jan'20. The period from Jan-Aug'20 witnessed an increase of 9885 MU in the total energy supply. Whereas , the same during Jan-Aug'19 observed a rise of 9016 MU. In Mar'20 , when a nationwide lockdown was imposed in India, the peak power supply in the northern region was 23378 MU which dripped down to 21913 MU in Apr'20. Whereas during 2019, energy supply in the region rose by 1966 MU from Mar to Apr'19. The month wise peak power supply from Jan-Aug'20 for all northern states can be seen in Exhibit 3.

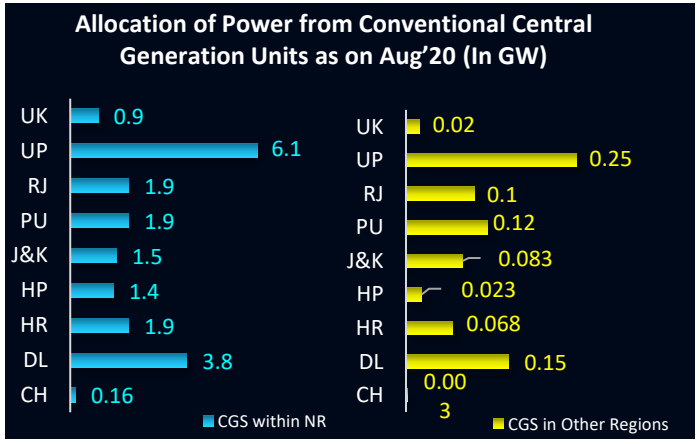
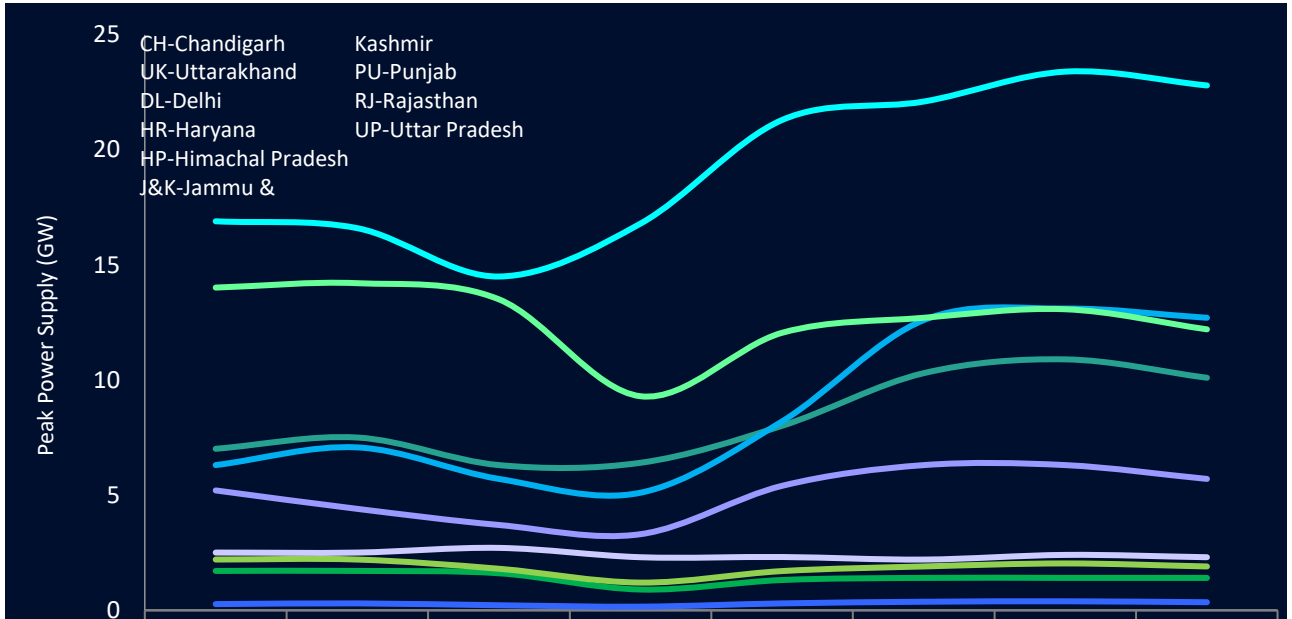


Exhibit 3 – Month wise Peak Power Supply (In GW) from Jan'20 – Aug'20 for States in Northern Region

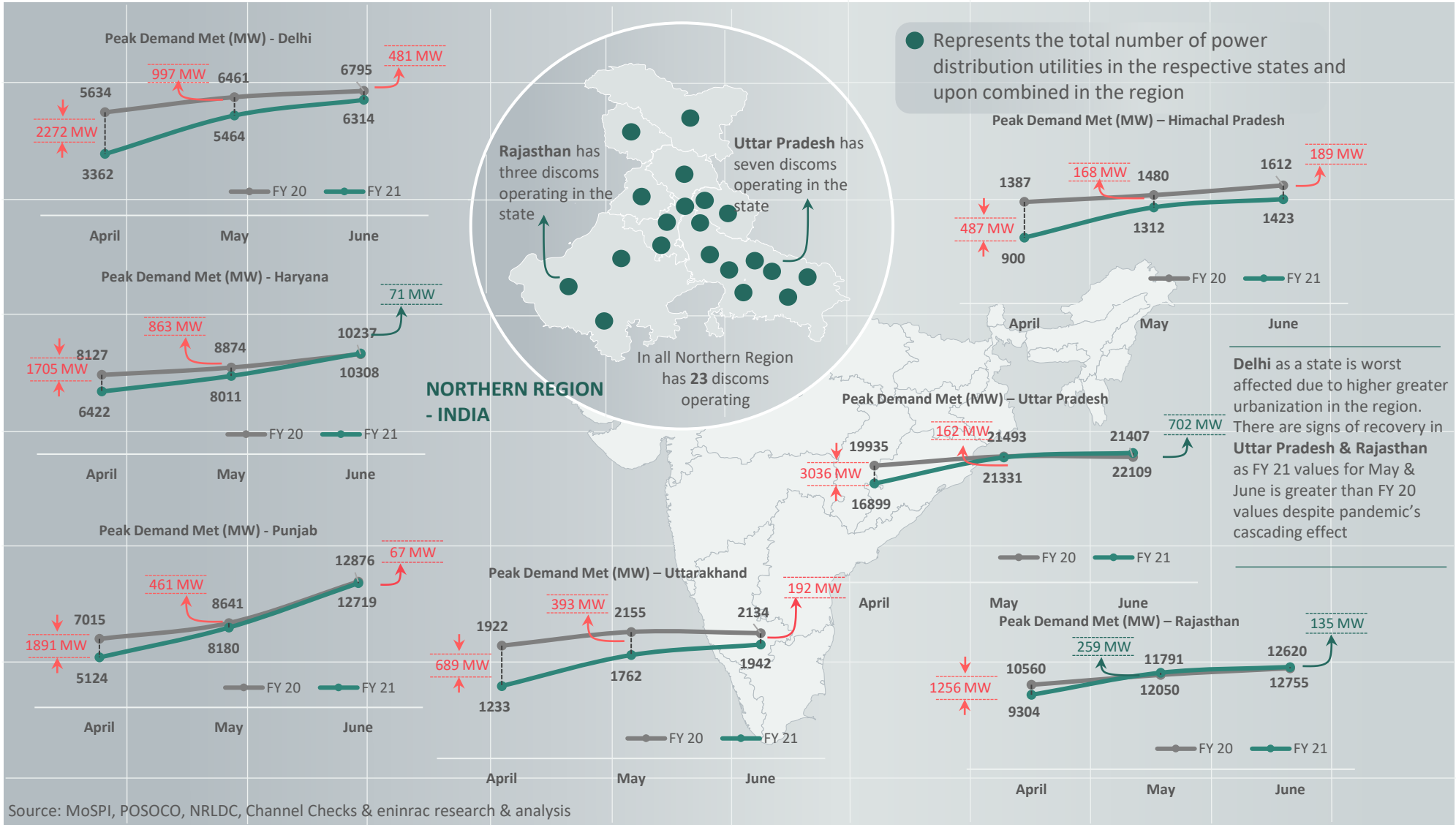


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
CH	0.26	0.29	0.21	0.15	0.29	0.36	0.38	0.34
DL	5.2	4.4	3.7	3.3	5.4	6.3	6.3	5.7
HR	7.01	7.5	6.3	6.4	8.01	10.3	10.9	10.1
HP	1.7	1.7	1.6	0.9	1.31	1.4	1.4	1.4
J&K	2.5	2.5	2.7	2.3	2.31	2.2	2.4	2.3
PU	6.3	7.07	5.7	5.1	8.2	12.6	13.1	12.7
RJ	14.01	14.2	13.5	9.3	12.05	12.7	13.07	12.2
UP	16.9	16.6	14.5	16.8	21.3	22.1	23.4	22.8
UK	2.2	2.2	1.8	1.2	1.7	1.9	2.03	1.9

Source: eninrac research, CEA, NRLDC

Power Demand Supply Situation – Comparison Q1 2020 & Q1 2021

Exhibit 4 – Power Demand Supply Situation– Northern Region FY 20 & FY 21 (Q1 Comparative Analysis)



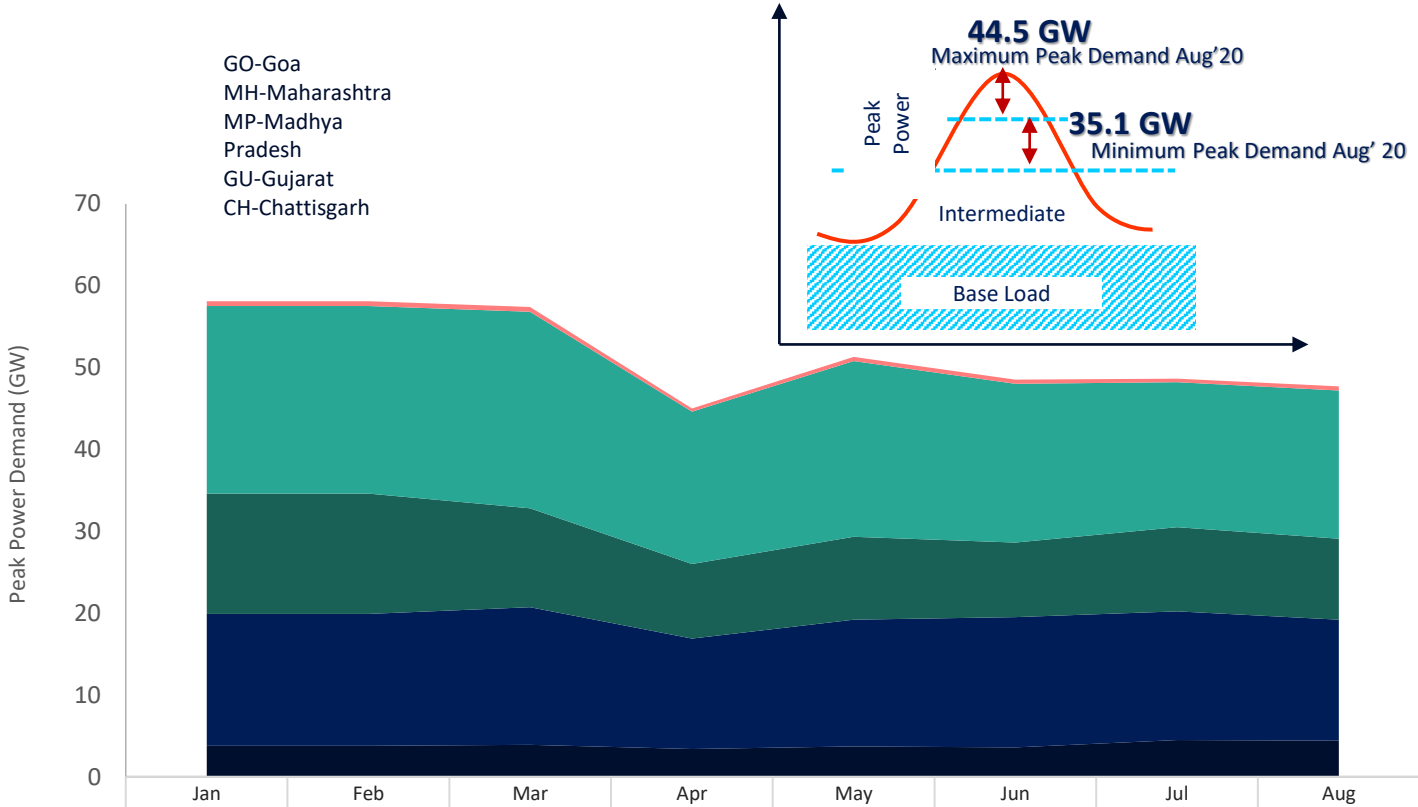
Source: MoSPI, POSOCO, NRLDC, Channel Checks & eninrac research & analysis

Power Demand Scenario – Western Region

In the western region the energy demand witnessed during Jan'20 was 33615 MU, which fall to 26872 MU in Apr'20, indicating a downfall of 6743 MU. The period from May'20-Aug'20, energy demand in western region witnessed a sinusoidal movement as in May'20, it was estimated to be 31451 MU, which dripped in Jun'20 to 27836 MU. While the energy demand again picked up in Jul'20 to be 30134 MU and fall again in the month of Aug to28692 MU. Variations in the peak power demand was also observed in the western region from May'20 – Aug'20. The same in the month of May was 51.1 GW and in Jun'20 it fall to 47.6 GW. It further minorly picked up in July to 47.9 and again reduced to46 GW in Aug'20. State wise peak power demand from Jan-Aug'20 can be seen in Exhibit 5.

During Aug'20, the cumulative average energy demand/day in the western region states was observed to be 949 MU and 100% of it was met.

Exhibit 5 – Month wise Peak Power Demand (In GW) from Jan'20 – Aug'20 for States in Western Region



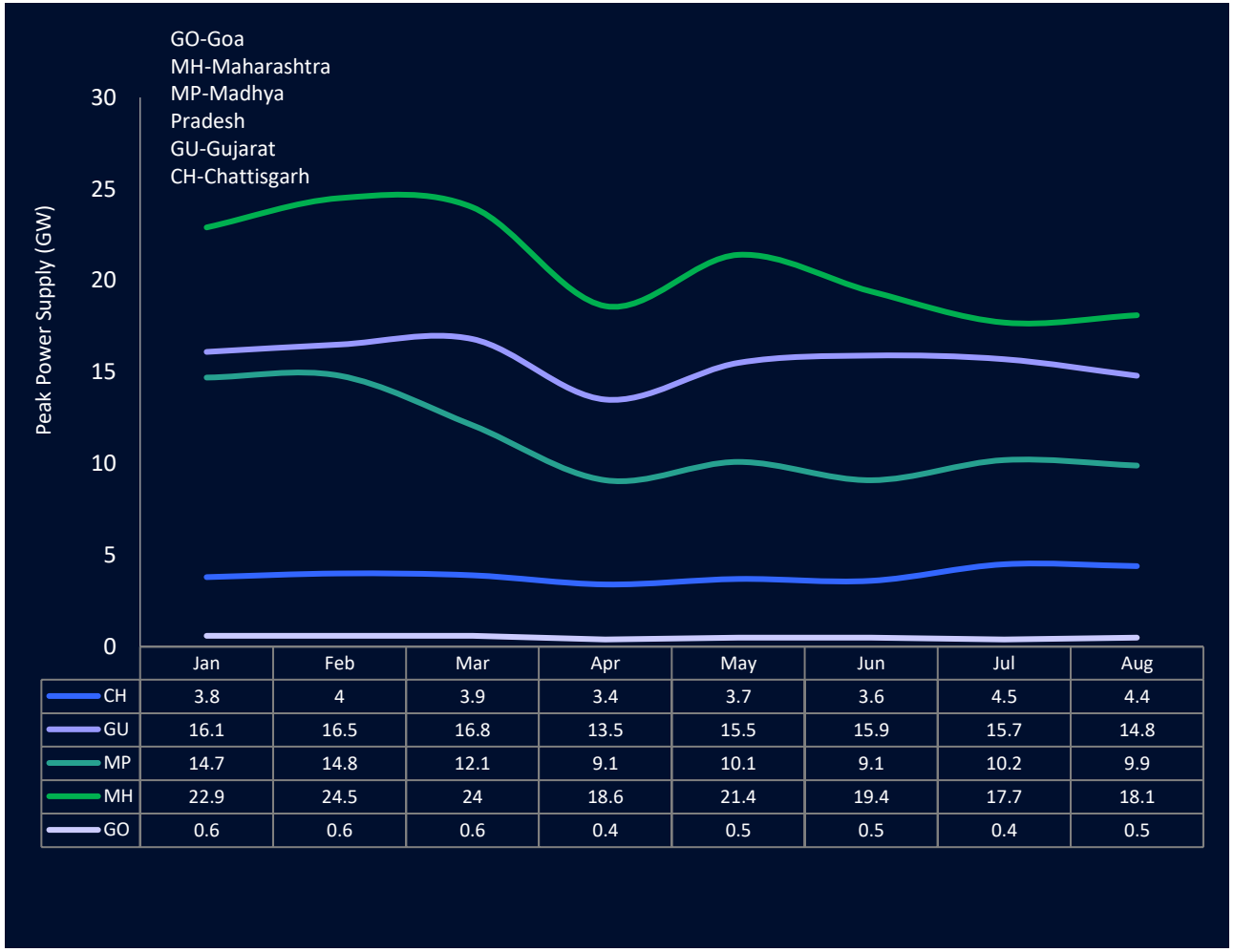
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
GO	0.6	0.6	0.6	0.4	0.5	0.5	0.45	0.5
MH	22.9	22.9	24.01	18.6	21.5	19.4	17.7	18.1
MP	14.7	14.7	12.1	9.1	10.1	9.1	10.3	9.9
GU	16.1	16.1	16.8	13.5	15.5	15.9	15.7	14.8
CH	3.8	3.8	3.9	3.4	3.7	3.6	4.5	4.4

Source: eninrac research, CEA, WRLDC

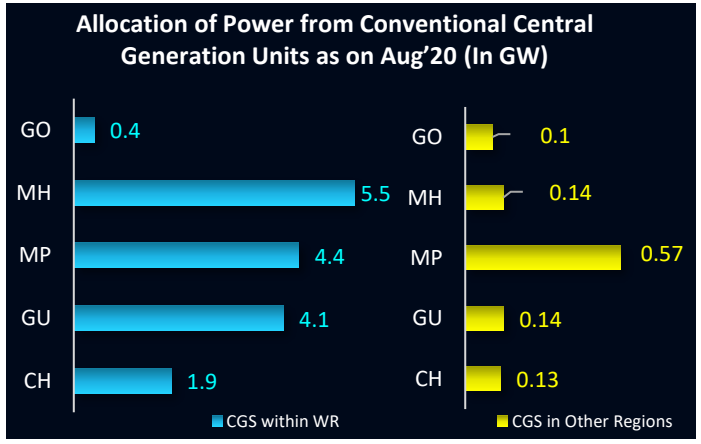
Power Supply Scenario – Western Region

During Aug'2020, western region witnessed a cumulative energy supply of 28692 MU against 33614 MU observed in Jan'20. The period from Jan-Aug'20 witnessed an decline of 4922 MU in the total energy supply. The same during Jan-Aug'19 also observed a fall of 2581 MU. In Mar'20 , when a nationwide lockdown was imposed in India, the energy supply in the western region was 31676 MU which dripped down to 26872 MU in Apr'20. Whereas during 2019, energy demand in the region rose by 1438 MU from Mar to Apr'19. The month wise peak power supply from Jan-Aug'20 for key western states can be seen in Exhibit 6.

Exhibit 6 – Month wise Peak Power Supply (In GW) from Jan'20 – Aug'20 for States in Western Region



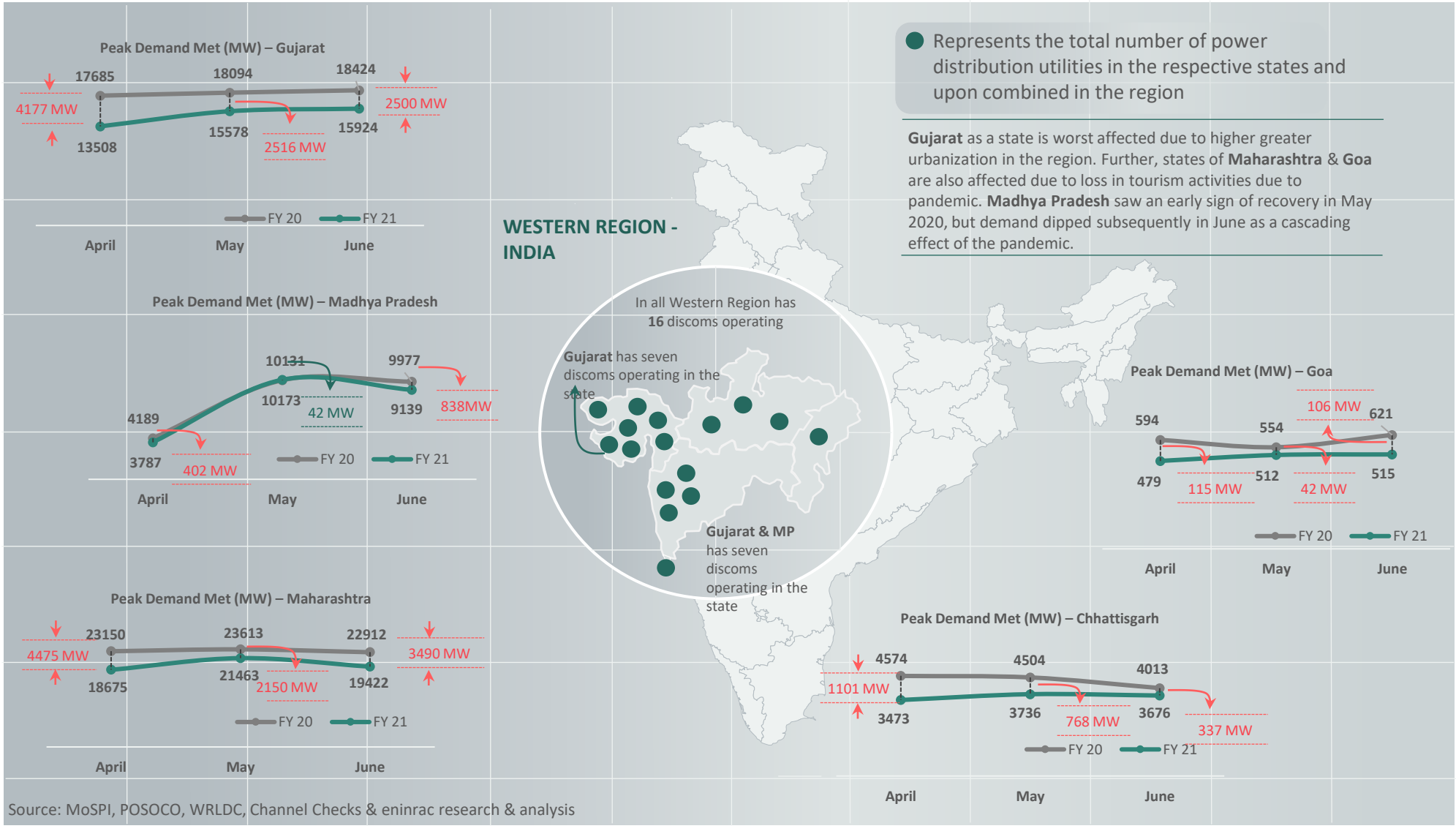
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
CH	3.8	4	3.9	3.4	3.7	3.6	4.5	4.4
GU	16.1	16.5	16.8	13.5	15.5	15.9	15.7	14.8
MP	14.7	14.8	12.1	9.1	10.1	9.1	10.2	9.9
MH	22.9	24.5	24	18.6	21.4	19.4	17.7	18.1
GO	0.6	0.6	0.6	0.4	0.5	0.5	0.4	0.5



Source: eninrac research, CEA, WRLDC

Power Demand Supply Situation – Comparison Q1 2020 & Q1 2021

Exhibit 7 – Power Demand Supply Situation – Western Region FY 20 & FY 21 (Q1 Comparative Analysis)



Source: MoSPI, POSOCO, WRLDC, Channel Checks & eninrac research & analysis

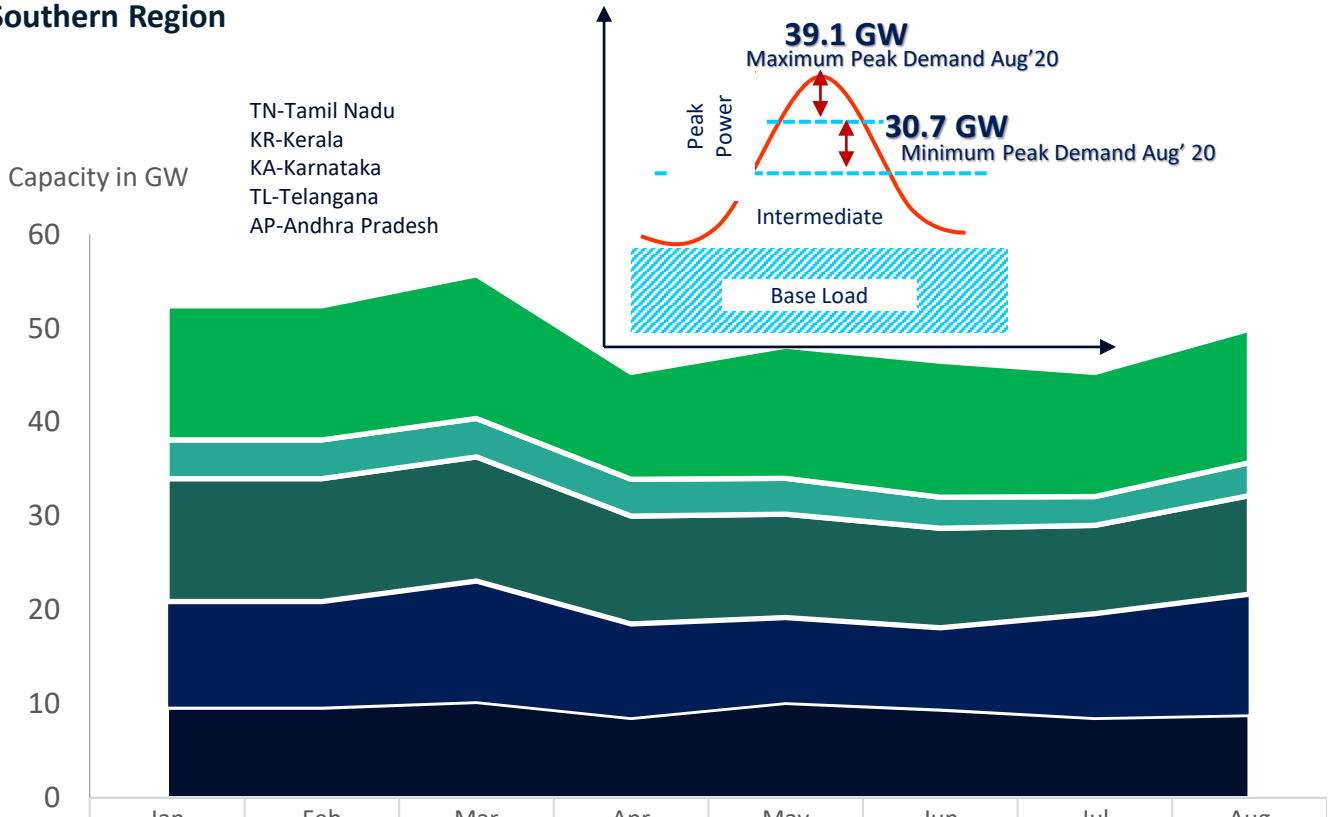
Power Demand Scenario – Southern Region

In the southern region the energy demand witnessed during Jan'20 was 29887 MU, which fall to 25169 MU in Apr'20, indicating a downfall of 4718 MU. During May'20 the energy demand increased to 27959 MU which again fall to 25808 MU during Jun'20. Further, it decline to 25536 MU in July'20 and increased to 26345 MU in Aug'20. State wise peak power demand from Jan-Aug'20 can be seen in Exhibit 8.

During Aug'20, the cumulative average energy demand/day in the southern region states was observed to be 855 MU and 100% of it was met.

Of this total per day energy demand, maximum requirement was from the states – Tamil Nadu (281 MU) & Telangana (184 MU). Whereas Andhra Pradesh and Karnataka observed per day energy requirement of 163 MU and 158 MU respectively during Aug'20 and in Kerala it was 63 MU.

Exhibit 8 – Month wise Peak Power Demand (In GW) from Jan'20 – Aug'20 for States in Southern Region



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
TN	14.3	14.3	15.3	11.4	14.06	14.5	13.2	14.2
KR	4.1	4.1	4.1	3.9	3.8	3.3	3.1	3.5
KA	13.1	13.1	13.2	11.5	11.02	10.6	9.4	10.5
TL	11.3	11.3	12.9	10.01	9.1	8.7	11.1	12.9
AP	9.6	9.6	10.2	8.5	10.1	9.4	8.5	8.8

Source: eninrac research, CEA, SRLDC

Power Demand Scenario – Southern Region

During Aug'2020, southern region witnessed a cumulative energy supply of 26339 MU against 29883 MU observed in Jan'20. The period from Jan-Aug'20 witnessed an decline of 3544 MU in the total energy supply. The same during Jan-Aug'19 observed a minor fall of 11 MU. In Mar'20 , when a nationwide lockdown was imposed in India, the peak power supply in the southern region was 53.4 GW which dripped down to 42.7 GW in Apr'20. During 2019, peak power demand in the region fall by 0.43 GW from Mar to Apr'19. The month wise peak power supply from Jan-Aug'20 for key southern states can be seen in Exhibit 9.

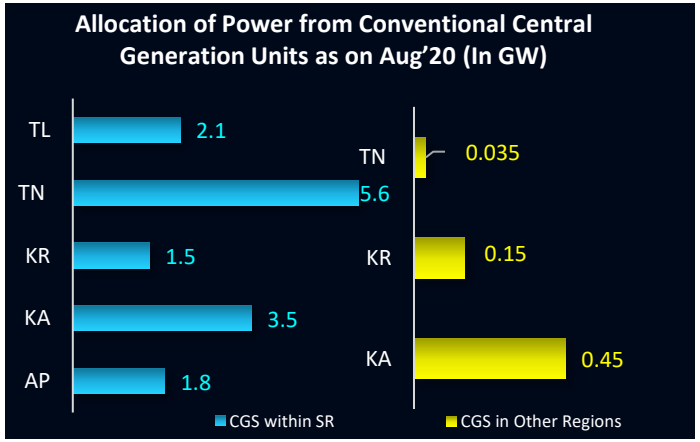
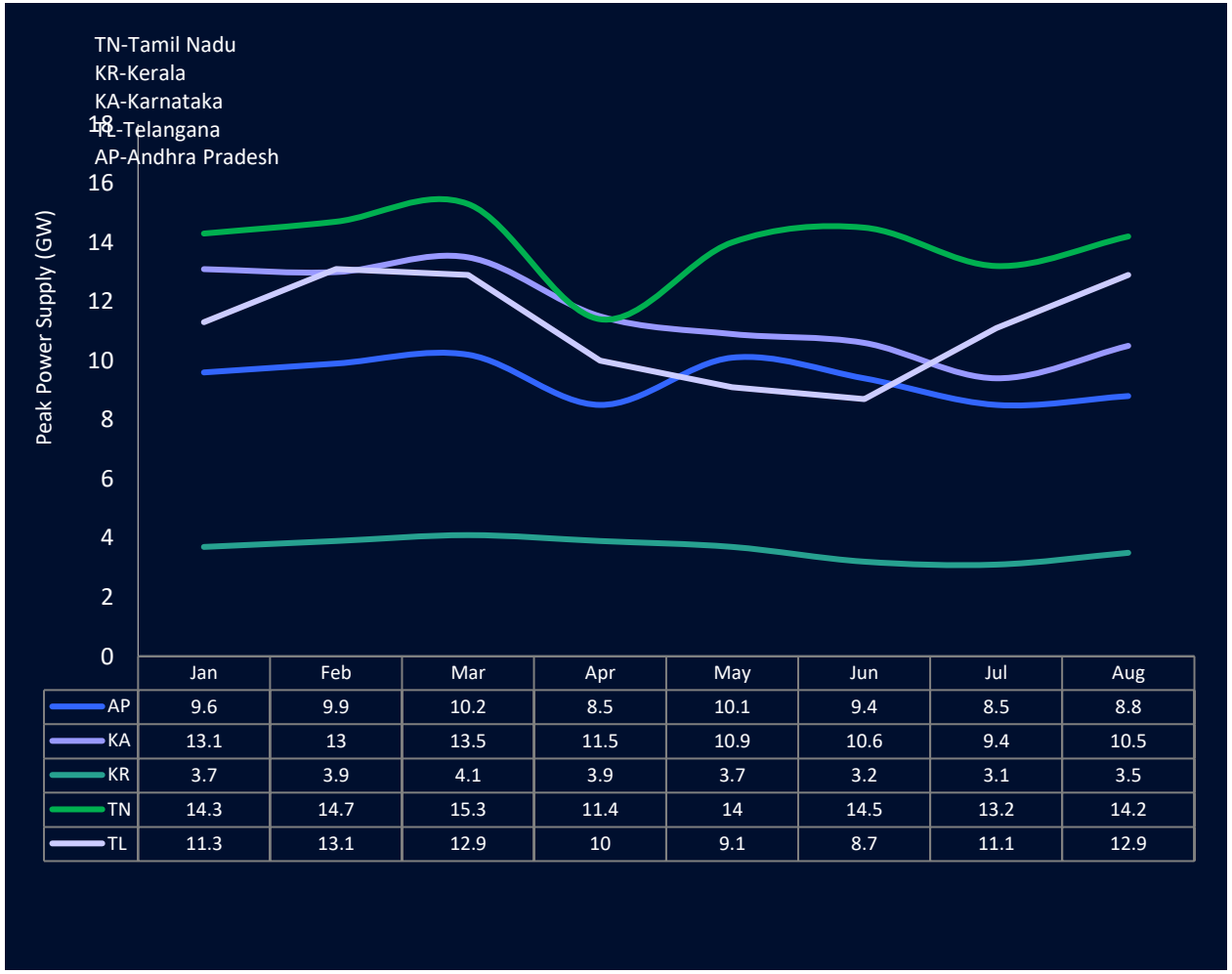


Exhibit 9 – Month wise Peak Power Supply (In GW) from Jan'20 – Aug'20 for States in Southern Region

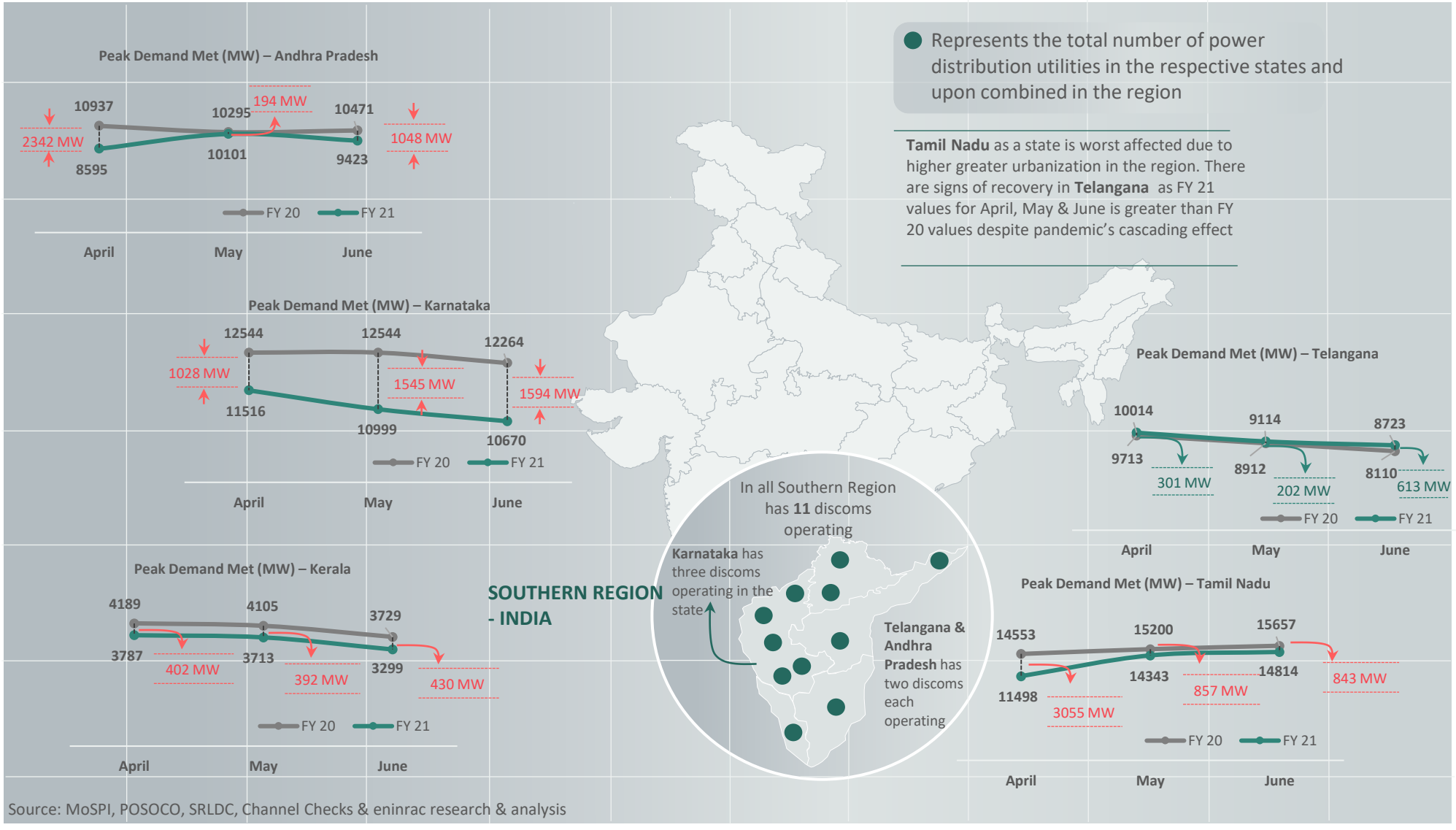


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
AP	9.6	9.9	10.2	8.5	10.1	9.4	8.5	8.8
KA	13.1	13	13.5	11.5	10.9	10.6	9.4	10.5
KR	3.7	3.9	4.1	3.9	3.7	3.2	3.1	3.5
TN	14.3	14.7	15.3	11.4	14	14.5	13.2	14.2
TL	11.3	13.1	12.9	10	9.1	8.7	11.1	12.9

Source: eninrac research, CEA, SRLDC

Power Demand Supply Situation – Comparison Q1 2020 & Q1 2021

Exhibit 10 – Power Demand Supply Situation – Southern Region FY 20 & FY 21 (Q1 Comparative Analysis)



Source: MoSPI, POSOCO, SRLDC, Channel Checks & eninrac research & analysis

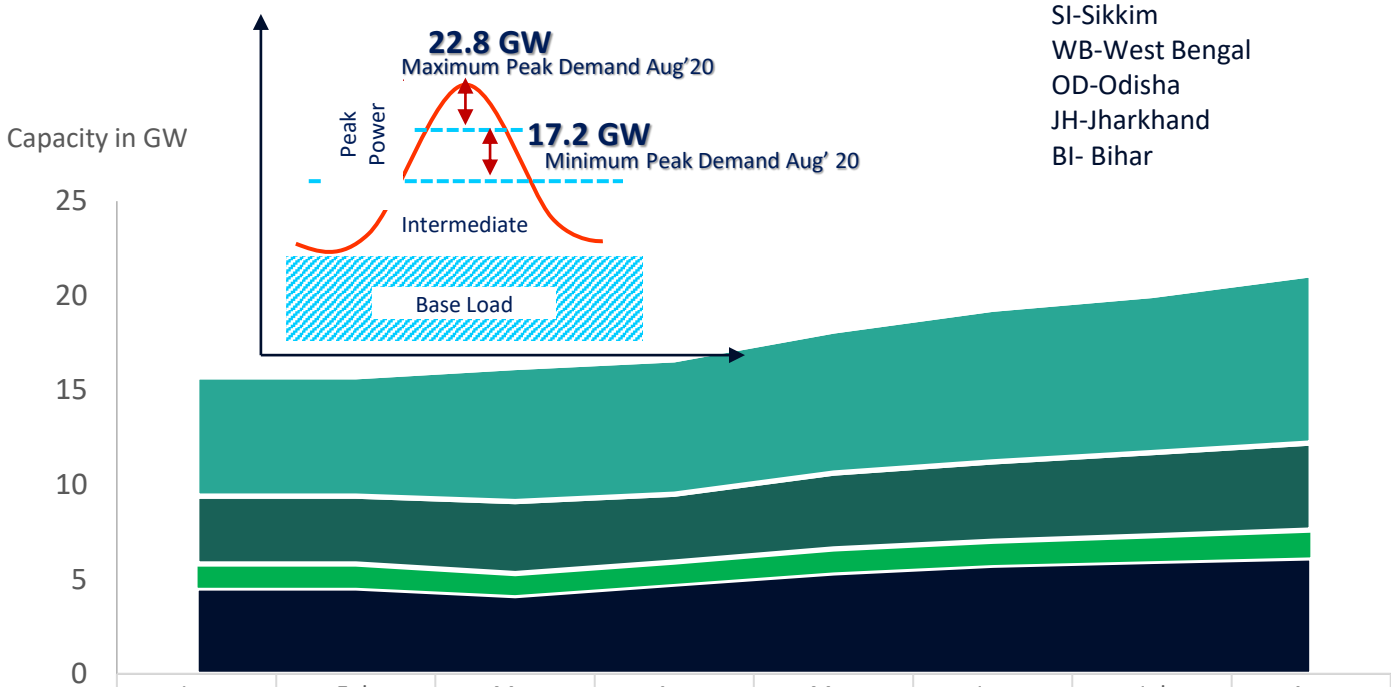
Power Demand Scenario – Eastern Region

In the eastern region the energy demand witnessed during Jan'20 was 10752 MU, which fall to 9654 MU in Apr'20, indicating a downfall of 1098 MU. During May'20 the energy demand increased to 11090 MU which jumped to 13443 MU during Aug'20, indicating a rise of 2353 MU. Further, it decline to 25536 MU in July'20 and increased to 26345 MU in Aug'20. The peak power demand in the region was estimated to be 18.3 GW during Apr'20 which further increased to 23 GW in Aug'20, indicating an addition of 4.7 GW. State wise peak power demand from Jan-Aug'20 can be seen in Exhibit 11.

During Aug'20, the cumulative average energy demand/day in the eastern region states was observed to be 461 MU, of which 459 MU was met.

Of this total per day energy demand, maximum requirement was from the states – West Bengal (169 MU) & Bihar (111 MU). Whereas Odisha and Jharkhand observed per day energy requirement of 84 MU and 28 MU respectively.

Exhibit 11– Month wise Peak Power Demand (In GW) from Jan'20 – Aug'20 for States in Eastern Region



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
SI	0.1	0.1	0.1	0.09	0.08	0.08	0.08	0.09
WB	6.3	6.3	7.1	7.1	7.5	8.08	8.3	8.9
OD	3.6	3.6	3.8	3.6	4.02	4.2	4.4	4.6
JH	1.3	1.3	1.2	1.2	1.3	1.3	1.4	1.5
BI	4.5	4.5	4.1	4.7	5.3	5.7	5.9	6.1

Source: eninrac research, CEA, ERLDC

Power Demand Scenario – Eastern Region

During Aug'2020, eastern region witnessed a cumulative energy supply of 13443 MU against 10740 MU observed in Jan'20. The period from Jan-Aug'20 witnessed an decline of 2703 MU in the total energy supply. The same during Jan-Aug'19 observed a fall of 4553 MU. In Mar'20 , when a nationwide lockdown was imposed in India, the peak power supply in the eastern region was 18.6 GW which minutely dripped down to 18 GW in Apr'20. During 2019, peak power demand in the region rose by 1.13 GW from Mar to Apr'19. The month wise peak power supply from Jan-Aug'20 for key southern states can be seen in Exhibit 12.

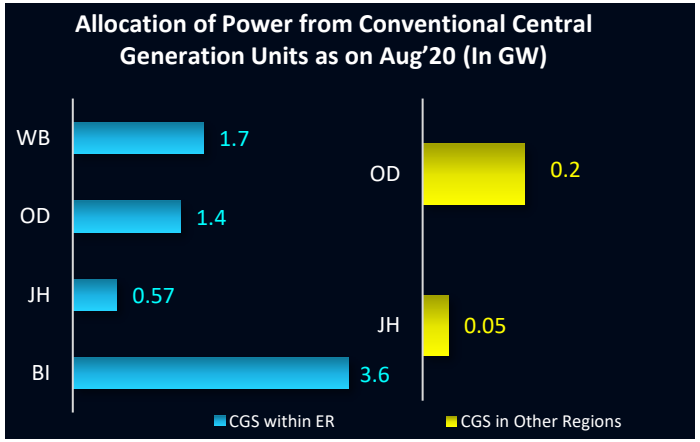
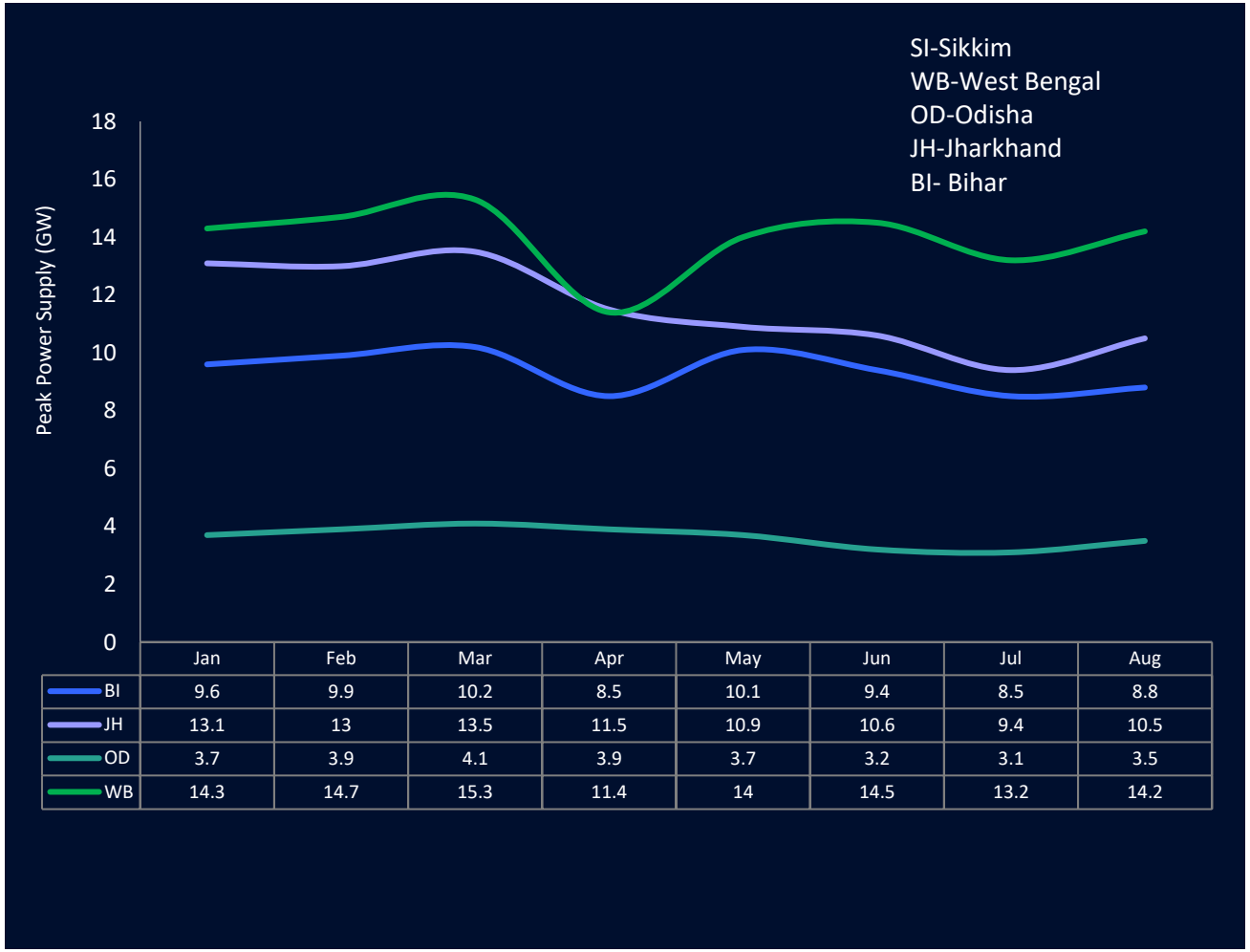


Exhibit 12 – Month wise Peak Power Supply (In GW) from Jan'20 – Aug'20 for States in Eastern Region

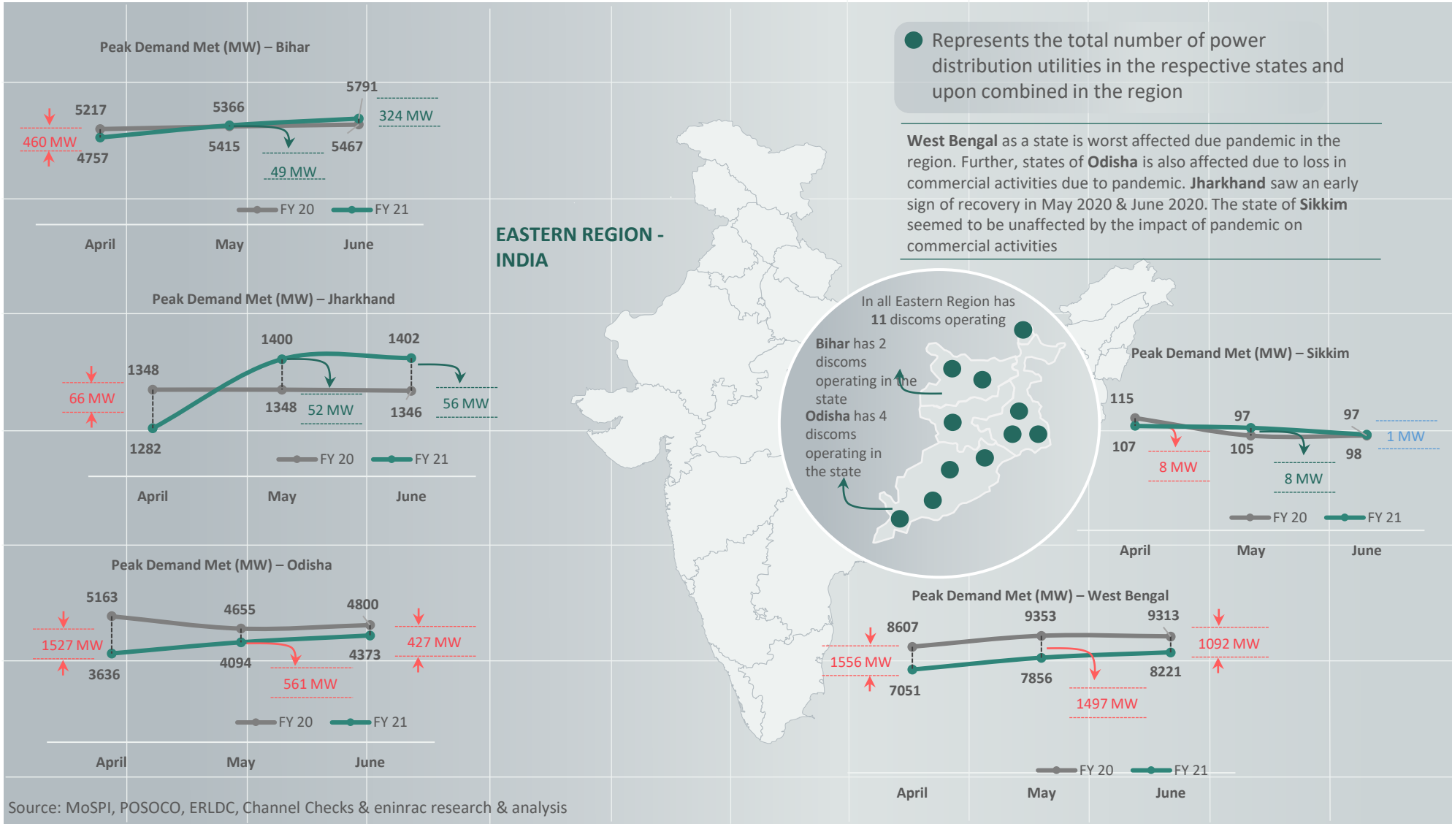


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
BI	9.6	9.9	10.2	8.5	10.1	9.4	8.5	8.8
JH	13.1	13	13.5	11.5	10.9	10.6	9.4	10.5
OD	3.7	3.9	4.1	3.9	3.7	3.2	3.1	3.5
WB	14.3	14.7	15.3	11.4	14	14.5	13.2	14.2

Source: eninrac research, CEA, ERLDC

Power Demand Supply Situation – Comparison Q1 2020 & Q1 2021

Exhibit 13 – Power Demand Supply Situation – Eastern Region FY 20 & FY 21 (Q1 Comparative Analysis)



Source: MoSPI, POSOCO, ERLDC, Channel Checks & eninrac research & analysis

> The life of a man consists not in seeing visions and in dreaming dreams, but in active charity and in willing service
>
> **- Henry Wadsworth Longfellow**

Become a Client I Contact Us I

eninrac

vantedge+ | MRAC+ | OCORE+

Contact – Head Office

Address : 5th floor, Caddie Commercial Tower, Aerocity (DIAL), New Delhi - 110037

Contact – NCR Office

Address : 7th Floor, I-Thum Towers, Noida, NCR Region, Uttar Pradesh, India

Contact – Mumbai Office

Address : 4th Floor Duru House, Juhu, Opposite JW Marriott, Mumbai, Maharashtra

connect@eninrac.com

+91 120 4147 000

www.eninrac.com