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COVID19 :

CONSEQUENCES ON

INDIAN

POWER SECTOR



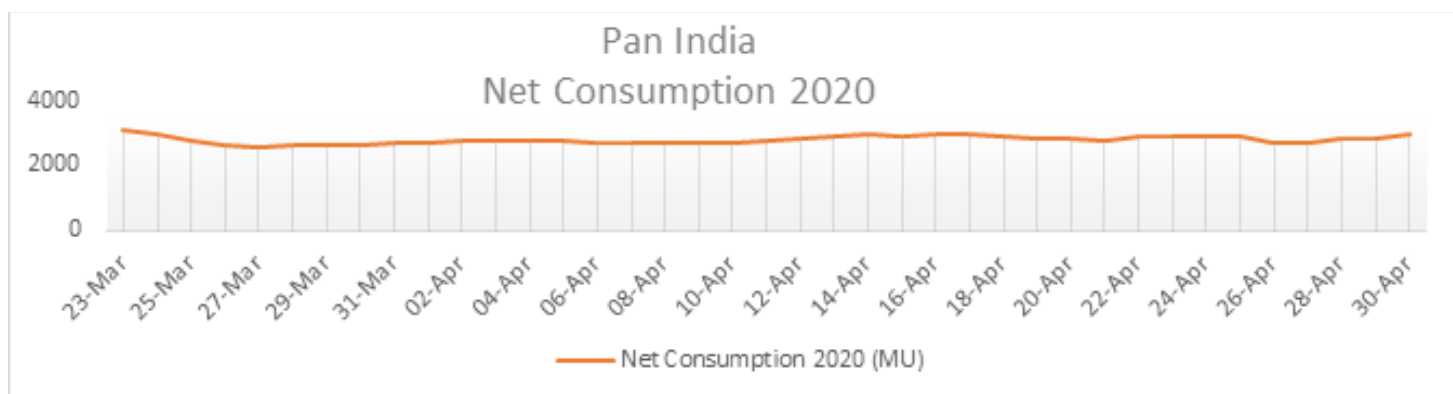
Introduction:

The novel Coronavirus disease or COVID-19, is a global pandemic which has affected over 2.5 million people across 200 countries as of April 30, 2020. COVID-19 has become one of the worst known health, social and economic crisis of modern times. In India, this Pandemic has affected sectors like Aviation, Tourism, hospitality, retail, manufacturing and automotive industry.

Impact on Indian Power Sector:

The COVID-19 lockdown has led to the shutdown of all but essential commercial activities across the country. Approximately 1.3 billion citizens are obliged to remain within their homes and, in many cases, only allowed to work from home. Consequently, the electricity demand from industrial and, commercial customers has reduced significantly while the residential demand has increased slightly.

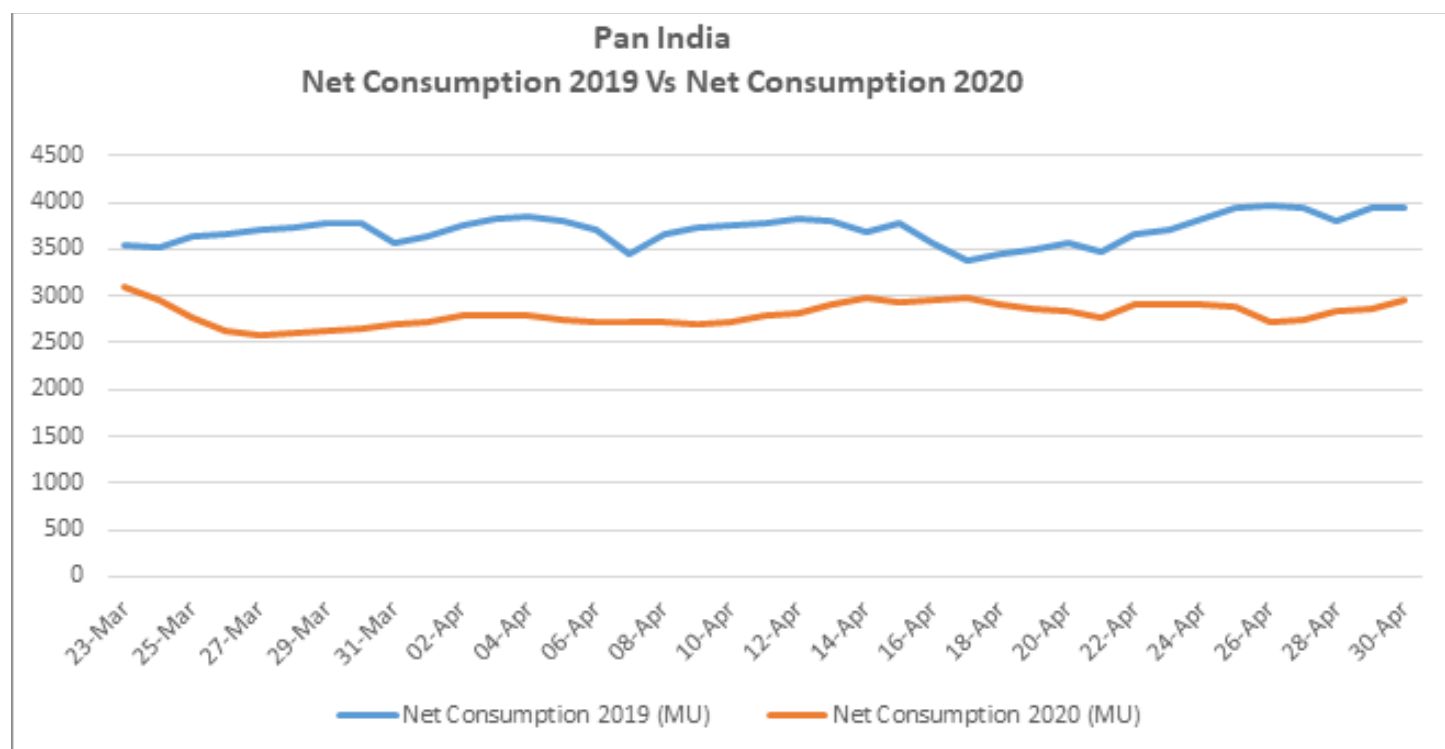
The Energy Consumption pattern is as illustrated below:

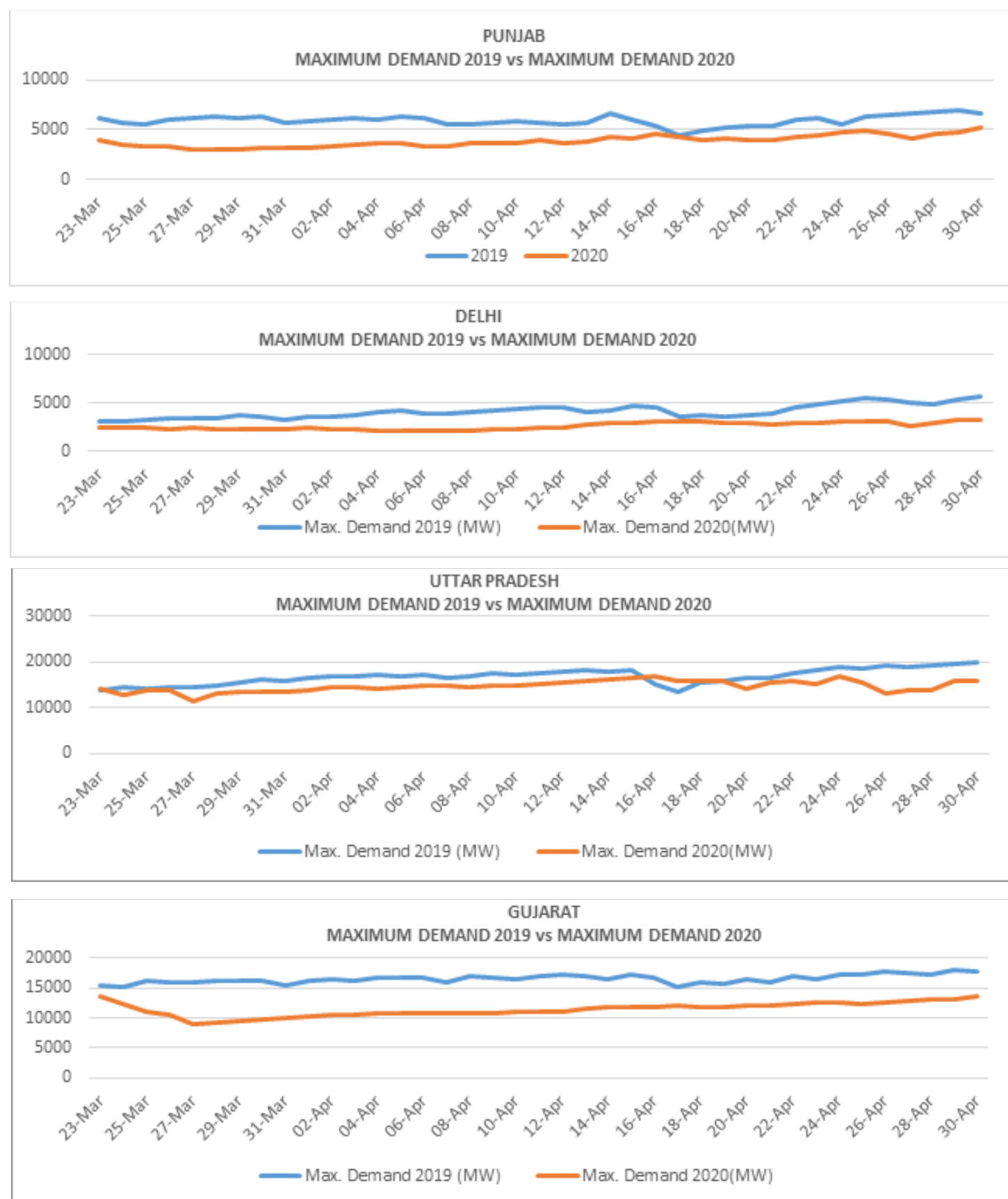


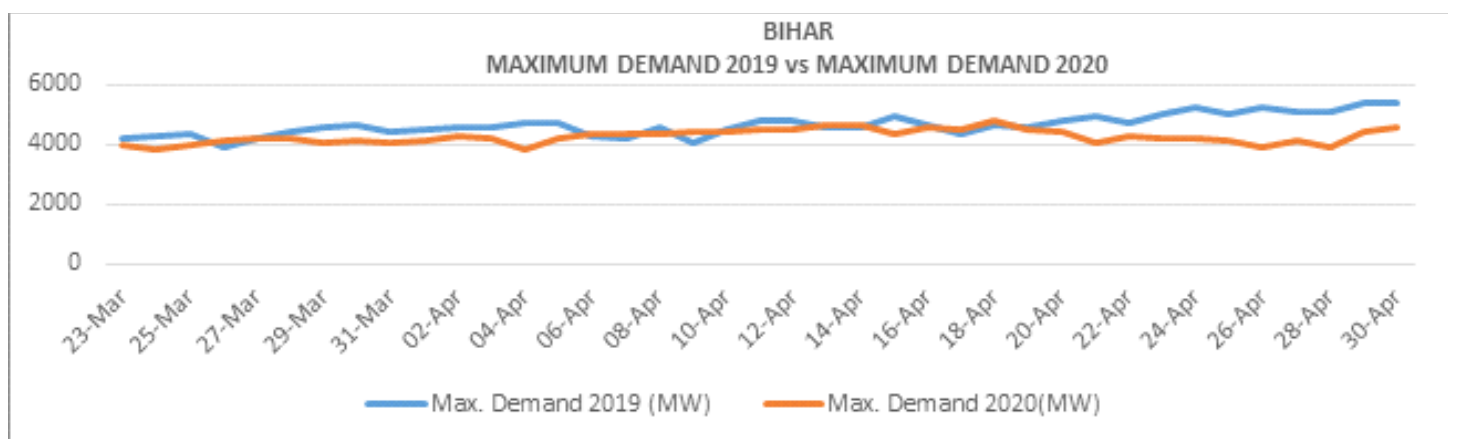
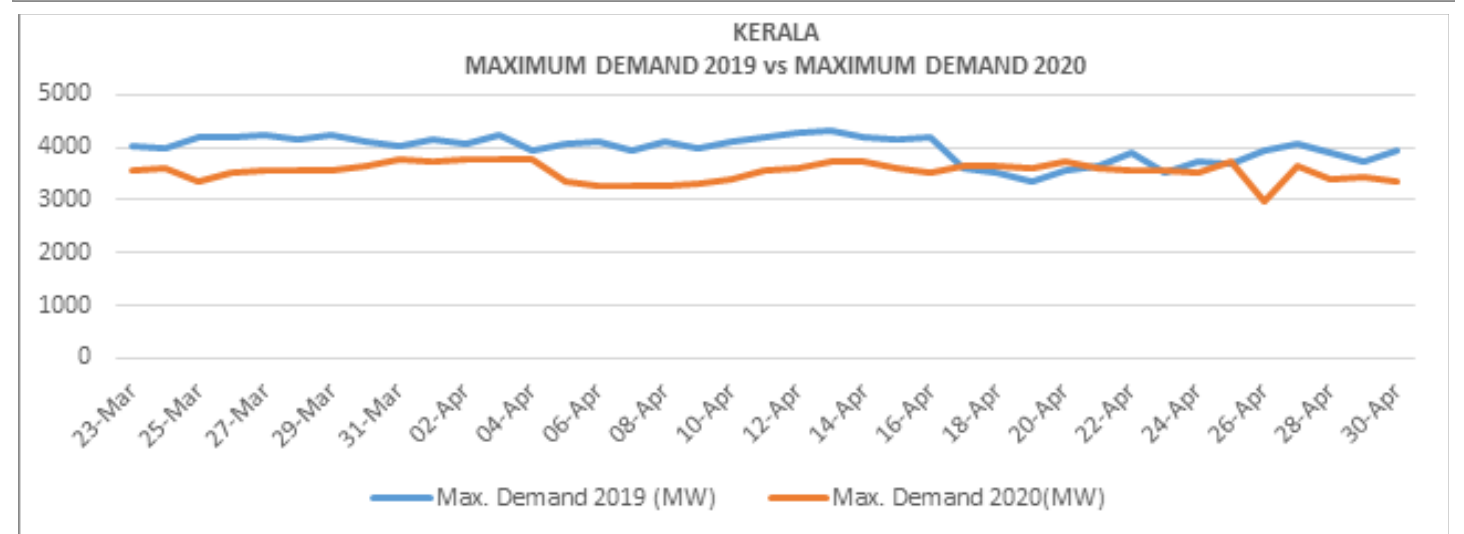
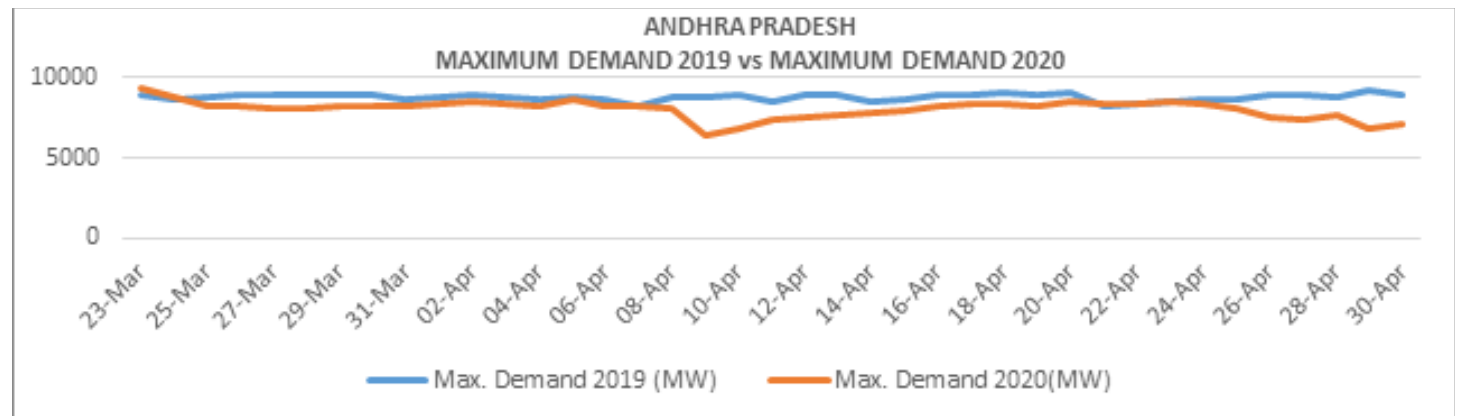
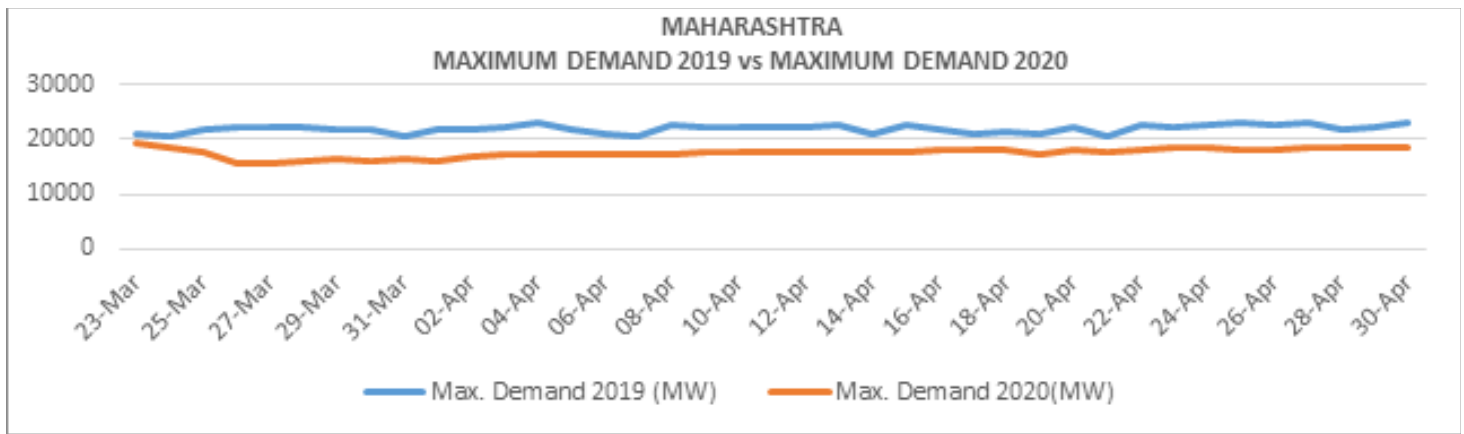
The Potential impacts on the power sector are as tabulated below

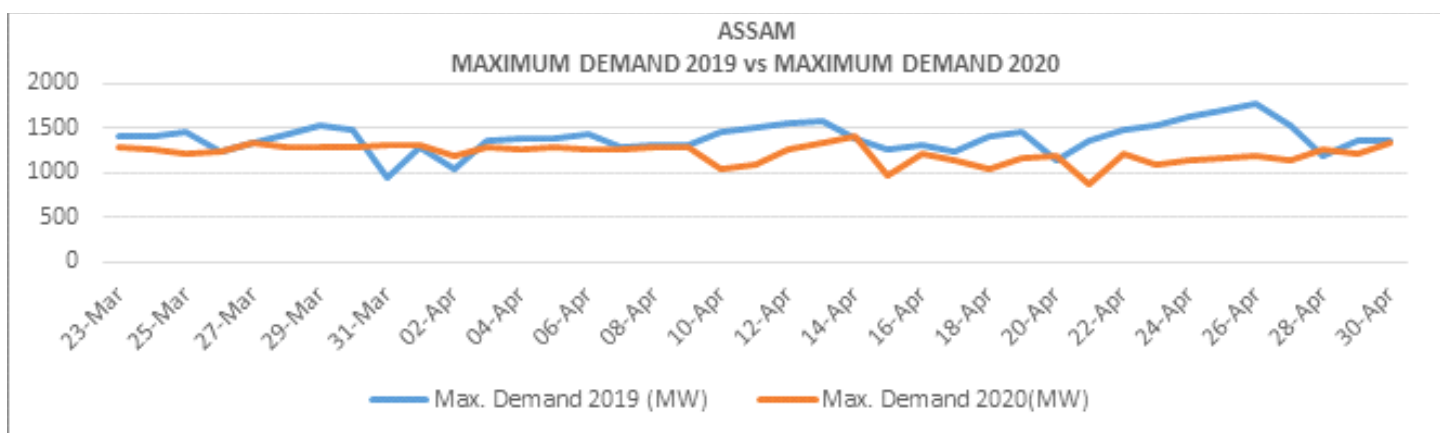
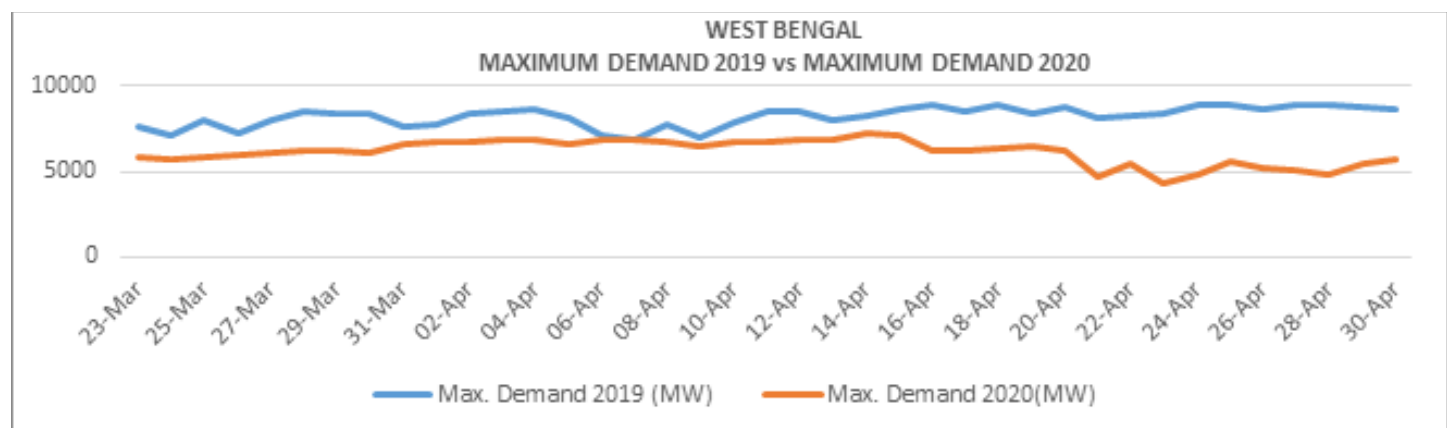
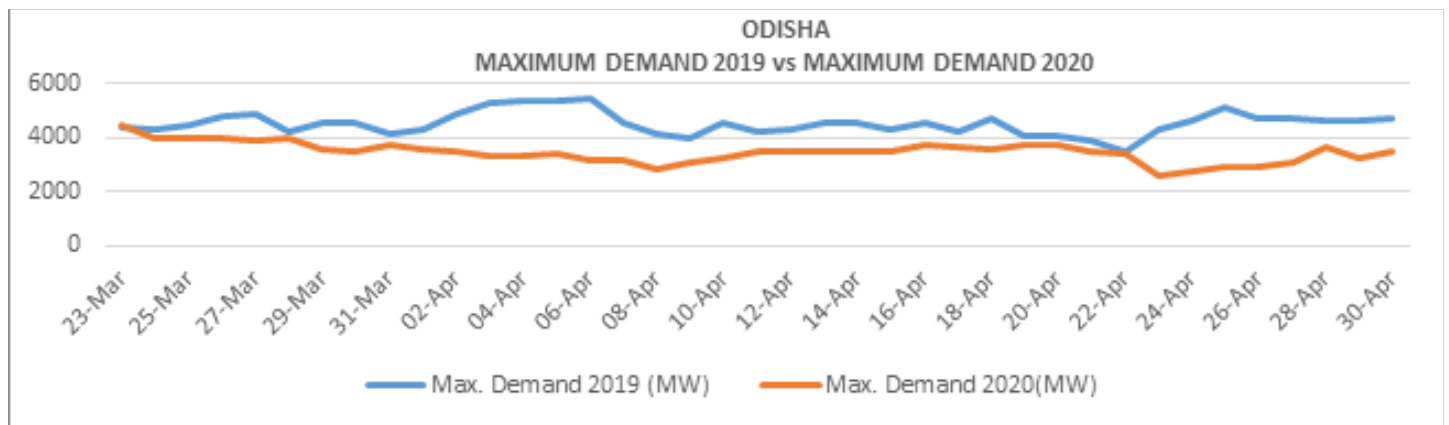
Elements	Impact
Energy Consumption/ Power Demand	<ul style="list-style-type: none"> Industrial, Commercial and Traction loads has been reduced significantly during this lockdown period, leading to the reduction in power demand.
Power Supply	<ul style="list-style-type: none"> Chances of impact on the fuel (specially coal) availability in the upcoming days due to barred commutation and excavation activities all across the nation. Chances of supply disruption by private generators due to delayed payments by DISCOM's as revenue recovery rate by DISCOMs will be very low.
Price Impact	<ul style="list-style-type: none"> Spot prices (IEX) remain suppressed due to reduced offtake by industries and surplus power availability of the generator. PV module cost likely to go up in the near term due to supply chain disruption.
Utility Finances	<ul style="list-style-type: none"> DISCOM finances will be affected by reduction in demand from more remunerative customers (Industrial or commercial). It will also impact the DISCOM's ability to cross subsidize other customers.

Impact on Electricity Consumption (Pan- India):



Impact on Electricity Demand (State wise):





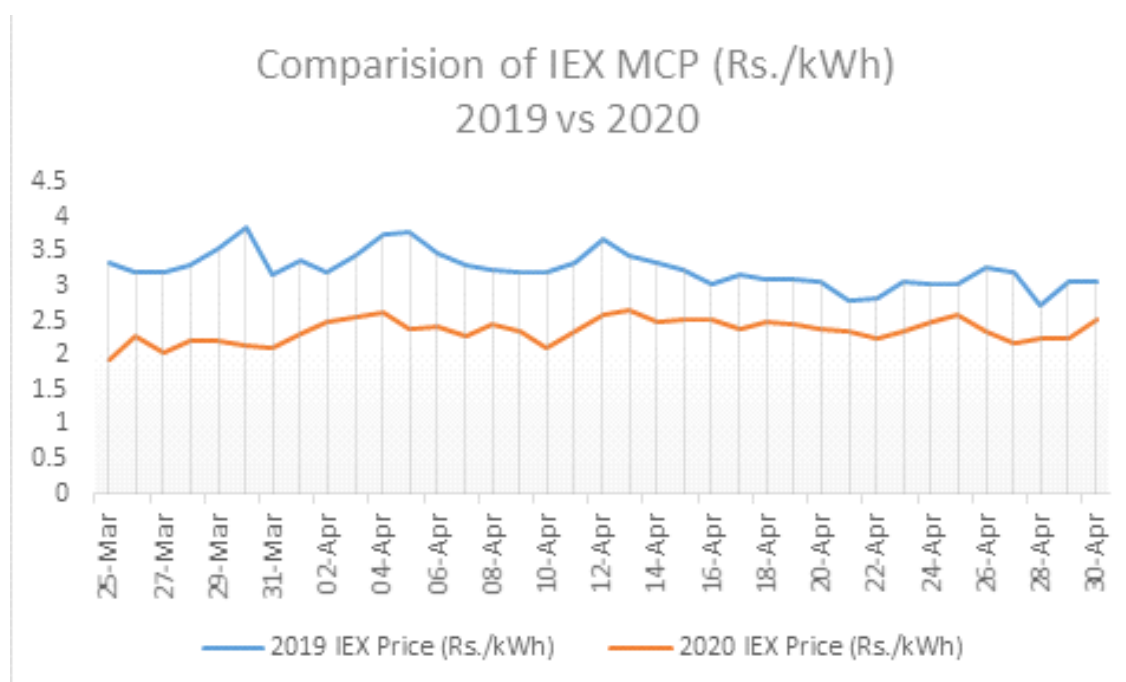
The net decrease in demand of industry rich states is significant whereas for the states having lesser number of Industrial & commercial consumers, the overall dip in demand is comparatively less. Here, out of 12 states mentioned, the conclusions can be drawn as below:

State Name	Industrial & Commercial Load	Remarks
Andhra Pradesh, Kerala, Maharashtra, West Bengal, Tamil Nadu, Gujarat, Punjab and Delhi	Very Large – With Industrial and commercial load varying from 34.57% (Andhra Pradesh) to 57% (Gujarat) of total state load	Large decrement in state demand for 2020 as compared to 2019 Having a decrease in the range from 16.35 % to 37.85 for Andhra Pradesh, Kerala, Maharashtra, West Bengal, Tamil Nadu, Gujarat, Punjab and Delhi respectively.
Odisha, Uttar Pradesh, Bihar and Assam	Low to Intermediate- With Industrial and commercial load varying from 15.5% (Odisha) to 30.66% (Assam) of total state load	Considerable decrement in state demand for 2020 as compared to 2019 Having a decrease in the range from 10.63 % to 23.04% for Bihar, Assam, Uttar Pradesh and Odisha respectively.
Special Case : Punjab	Agricultural Load : about 25% of total state Load	The high decrease in state demand for Punjab is due to high agricultural load in 2019 as compared to 2020

Supply of Raw Materials is likely to impact new generation too:

India is largely dependent on imported PV modules for development of solar projects. While the production is expected to resume in China soon as they are lifting the lockdown, the entry barriers in India and supply chain disruption in other originating countries may lead to shortage of modules and likely hikes in prices.

Around 62 GW thermal projects are currently under construction, which could be impacted due to supply chain disruptions. Spare component's supply for essential repairs and maintenance is also likely to be hit due to prolonged lockdown and shortage of inventory.

Low demand has Impacted Spot Prices (IEX) of power:

Being an essential service, electricity supply is currently unconstrained. However, any coal shortages in future (due to potential shutdown of mining activity) may cause shortage of thermal generation. Currently, the already surplus capacity has increased further due to reduced demand, which is leading to reduced Plant Load Factor (PLF) and excess stock of coal at the power plants.

The spot prices on IEX remain lowered in comparison to last year prices and have even touched three-year low of Rs. 0.6/ unit on March 25, 2020 (for a few time blocks). The sell bids volume is nearly five times the buy bids, due to suppressed open access demand.

The comparison shown above in the graph depicts a significant variation in the spot IEX price of FY 2020 when compared with FY 2019. In case the lockdown is extended further, with industries and offices being closed this trend of low spot prices will continue. Another factor which has not yet played out is the increase in the Hydro generation starting mid-May and accelerating in June, this can put further downward pressure on prices if the demand does not pick up.

Low demand has Impacted Spot Prices (IEX) of power:

- DISCOMs are Unable to Collect:**

The most severely hit profession in this pandemic are daily wage workers as their source of earning have diminished with this lockdown. Closure of non-essential industries and commercial establishments is also likely to impact the collection of dues/arrears from these consumers. Further, closure of collection centers is bound to create revenue shortfall as the majority of retail consumers across India pay using cash, cheques and demand drafts.

• **GENCOs/PPs dues continue to mount:**

As per the Ministry of Power, generators in India are already facing an outstanding of around Rs. 86000 Crores from DISCOMs. Current situation wherein the DISCOMs are having low recovery rate also adds to the problem.

Merchant power generators, dependent on short term market for revenue realization and fuel, could be affected severely due to surplus power availability, reduced demand from open access consumers and supply chain disruption. This may lead to high losses and the plant might ultimately become stressed assets if the situation prolongs.

Guidelines by Power Ministry, CERC & SERC's for mitigating the impact of COVID-19 in India: -

In view of the global pandemic, Central and State Regulatory Commissions along with central and state governments have taken accountable steps in order to diminish the adverse effect of this situation on business as well as ensure safety of the workforce. Some of the guidelines released in the public interest are as follows,

Relaxation Parameter	Issuing Agency (Ministry/SERC/DISCOM)	Guideline Issued
Extension of due date for applicability of late payment surcharge (LPSC)	<ul style="list-style-type: none"> Gujarat Electricity Regulatory Commission (GERC). Ministry of Power, via order issued to Joint Electricity Regulatory commission (JERC). 	<ul style="list-style-type: none"> GERC notified for extension of due date for submission of fines, subscription fees till 30th June 2020. Ministry of Power, Govt. of India has directed JERC's DISCOMs to extend the due date for payment of electricity bills till 30th June 2020.
Reduction in the rate of late payment surcharge	<ul style="list-style-type: none"> Ministry of Power, vide order issued to Delhi Electricity Regulatory Commission (DERC) Ministry of Power, vide order issued to Joint Electricity Regulatory commission (JERC). Madhya Pradesh Electricity Regulatory Commission (MPERC). West Bengal Electricity Regulatory Commission (WBERC). 	<ul style="list-style-type: none"> Ministry of Power, Govt. of India has directed DERC to specify a reduced rate of Late Payment Surcharge (LPSC) for payments which become delayed beyond a period of 45 days till 30th June. JERC has been directed to reduce the late payment surcharge (LPSC) from 2% as mentioned in its tariff order to 1%. MPERC has directed Generating Companies/Utilities and trading licensees to reduce their rate of late payment surcharge from MP DISCOMs. WBERC reduced the late payment surcharge rate to 1%.

Reduction of Electricity Tariff	<ul style="list-style-type: none"> • Maharashtra Electricity regulatory commission (MERC) 	<ul style="list-style-type: none"> • MERC has issued announced 8% reduction of residential electricity for the next 5 years. • MERC also directed private DISCOMs AEML, TPCL to slash the energy rates by 18 % for industrial , 19-20 % for commercial and 10-11 % for residential load.
Reduction of Contract Minimum Demand (C.M.D.)	<ul style="list-style-type: none"> • Telangana State Electricity Regulatory Commission (TSERC) 	<ul style="list-style-type: none"> • TSERC allowed industrial consumers of non-essential categories to reduce their C.M.D. before minimum agreement period.
Susceptibility to Online modes of Payment	<ul style="list-style-type: none"> • Ministry of Power, Govt. of India 	<ul style="list-style-type: none"> • Ministry of Power, Govt. of India has directed SERC's /DISCOMs to adopt online mode of payment for electricity.

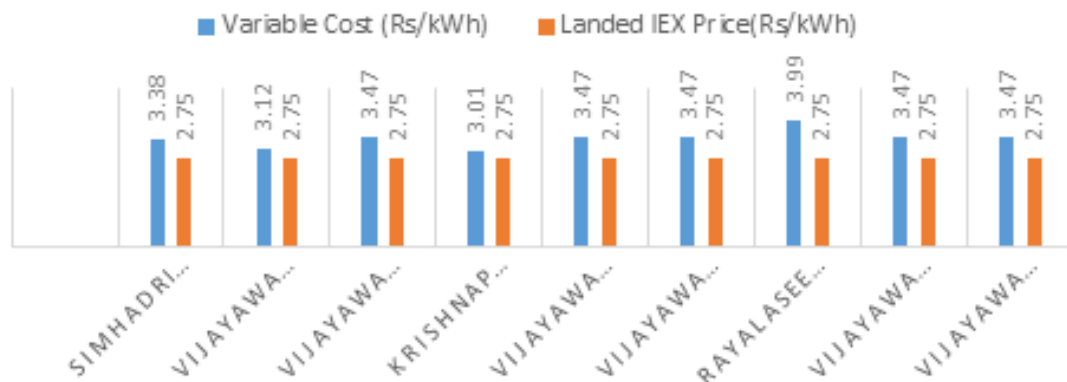
- **Steps taken by DISCOMs to reduce power procurement expenditure during the month of April '20**

It was observed that some of the DISCOMs were employing a special methodology to improve their finances wherein they were surrendering the power of some of their CGS and State Generation (especially those with a variable cost higher than the average IEX price at that time) and in exchange were buying the power from IEX due to low spot price as discussed above. Below are some of the examples of such practice:

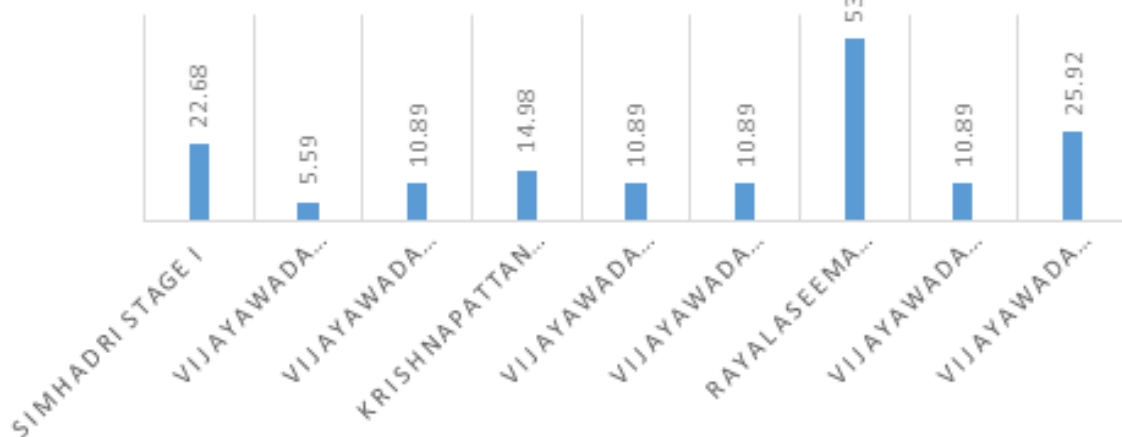
CASE-1: Andhra Pradesh (Landed average IEX Price: 2.75 Rs/kWh for the month of April '20)

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COMPARISON OF VARIABLE COST OF THE SHUTDOWN PLANTS & LANDED IEX PRICE @ANDHRA PRADESH PERIPHERY



NET PROFIT GAINED BY ANDHRA PRADESH CONSIDERING THE IMPACT OF VARIABLE COST ONLY (IN RS CR)



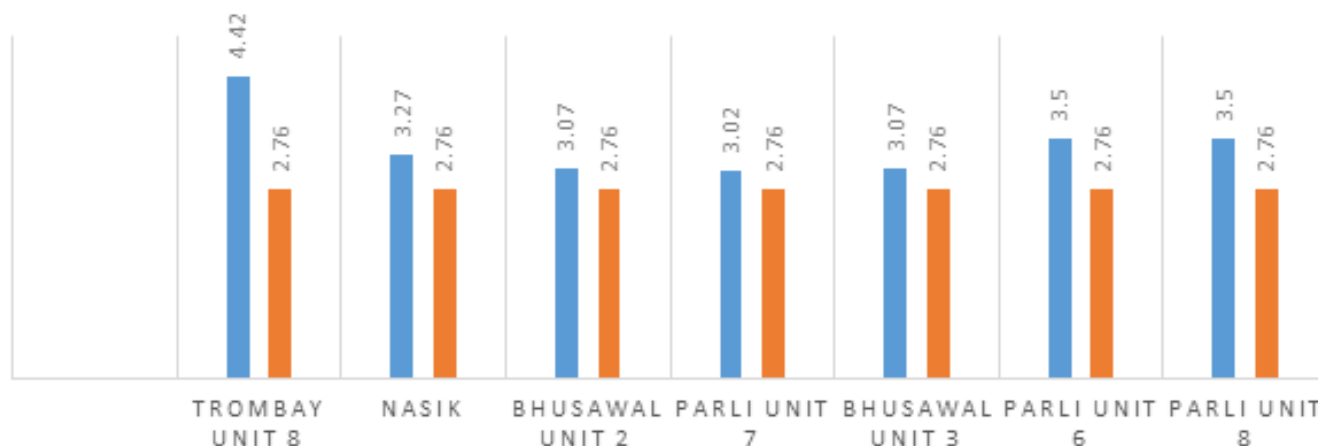
In the above mentioned case of Andhra Pradesh, the impact of this “new” methodology can be seen clearly as for the average IEX price of Rs 2.4/kWh which brings the landed IEX cost to Rs 2.75/kWh, APPCC very conveniently stopped the operation of most of its state owned plants having a Variable cost above Rs 3 /kWh or more and earned a hefty profit when compared to the case wherein they had to buy the same quantum of power from these very plants and at a total cost equal to the sum of fixed and variable cost. It can be quite clearly observed that by adhering to this mechanism Andhra Pradesh made a profit of about Rs. 166 Crores (approx.) post lockdown for last 30 days since April 01st 2020, with an average cost saving of about 15.02%.

CASE-2: Maharashtra (Landed average IEX Price: 2.76 Rs/kWh for the month of April '20)

Name of Plant	Fixed Cost (Rs/kWh)	Variable Cost (Rs/kWh)	Quantum (MW)	Base Cost (In Rs Cr)	IEX cost (in Cr Rs)	Amount due to Fixed Cost Only (in Rs Cr)	Cost Saving %	Net Profit w.r.t Base Cost considering Impact of Variable cost only (in Rs Cr)
				A	B	C		D=(A-(B+C))
TROMBAY Unit 8	1.56	4.42	200	86.11	39.74	22.46	27.76%	23.90
NASIK	0.95	3.27	210	63.81	41.73	14.36	12.09%	7.71
BHUSAWAL Unit 2	0.84	3.07	500	140.76	99.36	30.24	7.93%	11.16
PARLI Unit 7	1.63	3.02	250	83.70	49.68	29.34	5.59%	4.68
BHUSAWAL Unit 3	0.84	3.07	500	140.76	99.36	30.24	7.93%	11.16
PARLI Unit 6	1.33	3.5	250	86.94	49.68	23.94	15.32%	13.32
PARLI Unit 8	1.33	3.5	250	86.94	49.68	23.94	15.32%	13.32
Total Profit								85.26

COMPARISION OF VARIABLE COST OF THE SHUTDOWN PLANTS & LANDED IEX PRICE @MAHARASHTRA PERIPHERY

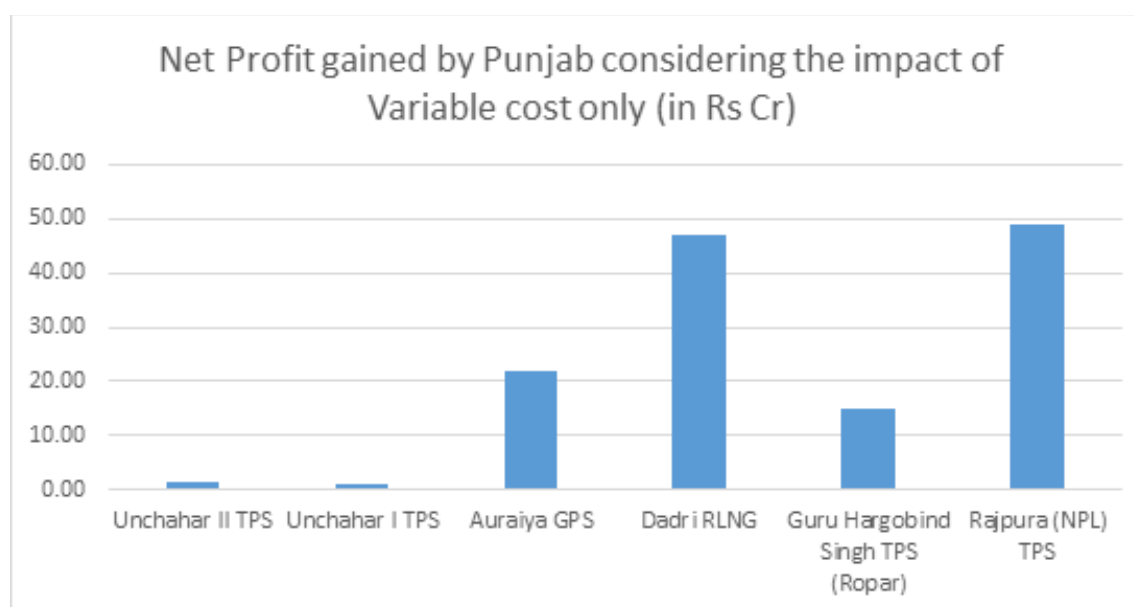
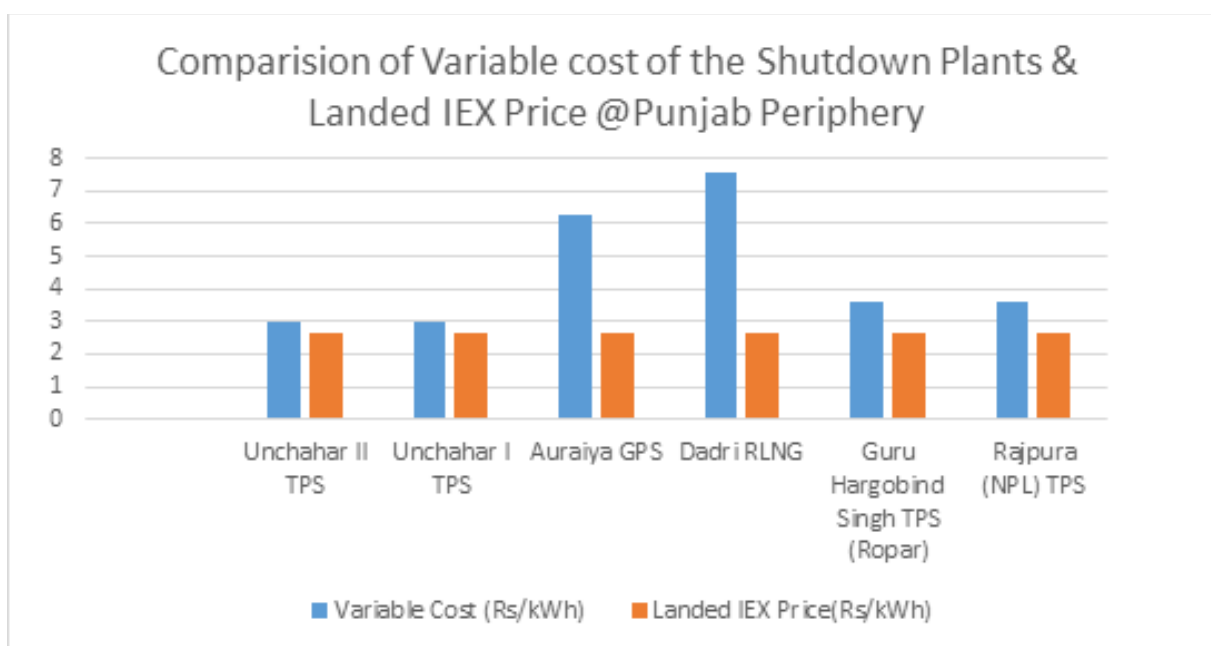
■ Variable Cost (Rs/kWh) ■ Landed IEX Price(Rs/kWh)



Similarly, in case of Maharashtra in order to get through this cash deficit scenario, they stopped the generation from their state owned plants having variable cost of Rs.3 /kWh or above as the average landed cost for their state came out to be Rs.2.76 /kWh considering the average IEX price for the month of April 20' as Rs.2.4 /kWh. Keeping in view the reduced IEX Price due to the prevailing lockdown, Maharashtra DISCOMs made a profit of around Rs.85 Crores (approx.) post lockdown for last 30 days since April 01st 2020, with an average cost saving of about 13.13%.

CASE-3: Punjab (Landed average IEX Price: 2.62 Rs/kWh for the month of April '20)

Name of Plant	Fixed Cost (Rs/kWh)	Variable Cost (Rs/kWh)	Quantum (MW)	Base Cost (In Rs Cr)	IEX cost (in Cr Rs)	Amount due to Fixed Cost Only(in Rs Cr)	Cost Saving %	Net Profit w.r.t Base Cost considering Impact of Variable cost only (in Rs Cr)
				A	B	C		D=(A-(B+C))
Unchahar II TPS	0.98	2.98	54	15.40	10.19	3.81	9.09%	1.40
Unchahar I TPS	1.06	2.98	34	9.89	6.41	2.59	8.91%	0.88
Auraiya GPS	1.01	6.27	83	43.51	15.66	6.04	50.14%	21.81
Dadri RLNG	1.01	7.59	131	81.12	24.71	9.53	57.79%	46.88
Guru Hargobind Singh TPS (Ropar)	0	3.61	210	54.58	39.61	0.00	27.42%	14.97
Rajpura (NPL) TPS	2.26	3.59	700	294.84	132.05	113.90	16.58%	48.89
Total Profit								134.83



In Punjab, the number of plant having a variable cost more than Rs 3 /kWh is lesser when compared to AP and Maharashtra but since some of the plants whose power was surrendered by Punjab were having a pretty high variable cost , this method of swapping the allocated power with IEX resulted in pretty good cost saving of about INR 130 Cr. considering the IEX landed cost to be Rs 2.62 /kWh (least among all the states considered for this analysis) therefore by fulfilling their requirement through purchase over power exchange and reducing their allocation from the SGS and CGS plants with higher variable cost, Punjab state has gained a profit of around Rs. 130 Crores (approx.) post lockdown for 30 days since April 1st 2020, with an average cost saving of about 28.32%.

Conclusion and expected outcomes:

1. As most of the DISCOMs are unable to get sufficient inflow of cash due to poor collection, they have adopted an innovative way to reduce their power purchase cost. However, we must note that this will ultimately impact the cash flow of the generators especially the IPPs who probably will be servicing their bank interest. However, this has helped the DISCOMs manage supplies to the consumer during this tough times.
2. As we all know that the year on year power demand of India was increasing every year but due to Covid-19, in 2020 for the first time in recent years the demand of whole country has dipped specially during first two quarters of the year. This can have impact on the new generation capacity creation as pick-up in demands may take some time.
3. Financial stress on DISCOMS due to less/no recovery from industrial/domestic consumers is going to increase further and whatever the recovery made over last few years is likely to be lost. Hence, it is highly recommended that organizations like PFC should grant access of loans to DISCOMS at a lower lending rate.
4. During lockdown, on many occasions (including 9 minutes lighting off event), it was observed that the ramping up and down facilities were effectively managed by hydro generators. Hence, promotion of hydro sector by government of India is a welcome initiative for handling these situations.

Bibiliography

1. NLDC Daily Reports.
2. Websites of State electricity regulatory commission, DISCOMS and Central Electricity Regulatory commission.
3. Articles from Power technology, EQ International on Impact of Covid-19 on Indian power sector.

