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INDUSTRY DIRECTION™

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How electricity industry have been responding to Covid-19 crisis and other challenges

Unprecedented crisis

In the electricity industry, the confinement measures during various times due to Covid-19 have caused unseen impacts in history, mainly due to the pronounced and prolonged reduction in electricity demand caused by the paralysis of commerce and industry, the large energy consumers. The resilience that power systems have had developed throughout history was aimed at preventing supply outages in the event of natural disasters; therefore, the demand reduction, changes in consumption patterns, and high debt levels that would accompany the sector over the coming decades are challenges for which not all the world's electricity generation and transmission companies are equally prepared.

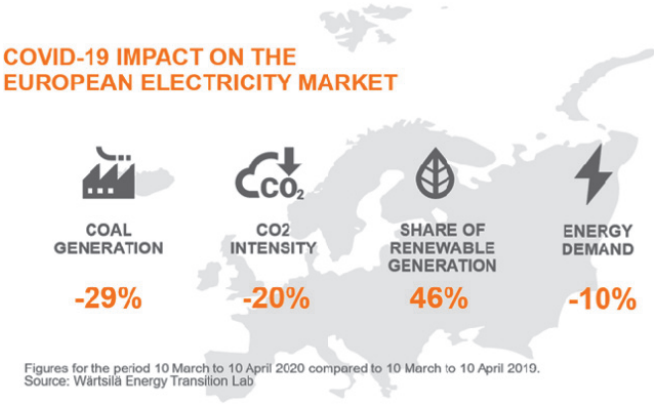
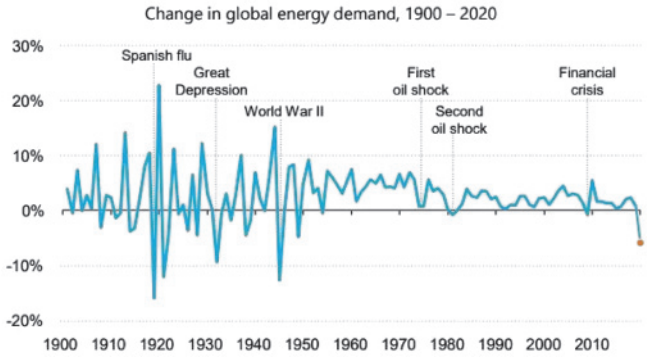


Fig.1

Electricity demand reduction

There is general consensus that one of the most significant impacts of containment measures in the energy sector are a reduction in electricity demand and a change in consumption patterns, driven by a dramatic slowdown in industrial and commercial sectors and the increased amount of time that people spend in their homes. The International Energy Agency (IEA)'s report in its Global Energy Review 2020 states that in addition to the impact on health, Covid-19 has major implications for global economies, energy use, and CO_2 emissions. Their collection of data from 30 countries, accounting for two-thirds of global energy demand, indicates that "countries in full lockdown experienced an average decline of 25% in energy demand per week and countries in partial lockdown an average decline of 18%.

Coronavirus: a once in century event for energy demand



The shock to energy demand in 2020 is set to be the largest in 70 years. In our estimate, global energy demand declines by 6%, a fall seven times greater than the 2009 financial crisis.

Fig.2

….data from 30 countries, accounting for two-thirds of global energy demand, indicates that "countries in full lockdown experienced an average decline of 25% in energy demand per week and countries in partial lockdown an average decline of 18% .In India, from March to July 2020, electricity demand declined by 15.9% relative to 2019. In Bangladesh, the electricity demand started declining sharply from April 2020, and until June 2020, it was still lower than the 2019 levels. In the U.S., overall electricity demand declined by less than 10% from late March to June 2020, compared to energy consumption before the shutdowns.

Country-specific reports also indicate significant reductions in electricity demand. In Portugal, electricity

consumption was reduced by 12% and 13.2% in April and May compared to 2019, respectively, and overall, the electricity consumption in the first half of 2020 faced a 5.1% reduction, reaching the lowest level since 2004. In Turkey, the most significant impact on energy consumption was experienced in April 2020, with a decrease of 15.5% compared to April 2019. In Kuwait, the imposition of curfews caused a fall in demand for electrical power of 17.6% compared to the expected demand. In India, from March to July 2020, electricity demand declined by 15.9% relative to 2019. In Bangladesh, the electricity demand started declining sharply from April 2020, and until June 2020, it was still lower than the 2019 levels. In the U.S., overall electricity demand declined by less than 10% from late March to June 2020, compared to energy consumption before the shutdowns. In Brazil, the decrease in electricity loads was 15% compared to data before the beginning of the isolation decrees.

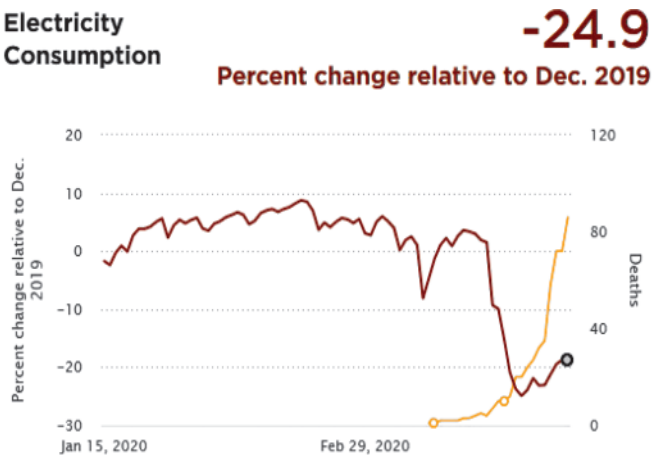


Fig.3: India's decline in electricity consumption due to lockdown more severe than US and EU - India News (courtesy: India Today)

Energy consumption patterns under Covid-19

Along with reducing electricity demand as stated earlier, changes in consumption patterns during the confinement period have been reported. In the course of a week, the demand reduction is not the same on working days as on weekends across the countries due to differences in work from home policies and differences in the severity of weekday versus weekend confinement measures. In Spain, the electricity demand was reduced on working days by 14.53%, while on weekends, electricity consumption was reduced by 10.62% in the period from March 14 to April 30 in 2020 compared to an average value for the same period in the previous five years. On the contrary, Ontario's most significant daily demand reductions were observed on weekends, with an average of 18% daily reductions. In the course of a single day, the reduction in electricity consumption has taken place at the morning peak and during the night peak. In the morning, an apparent curve flattening and a more gradual morning ramping have been observed due to the closure of economic activities. At night, demand peaks are shorter due to the paralysis of some sectors such as restaurants and leisure. However, it has been observed that the power not consumed in the morning is being shifted to midday. A report suggests a 30% increase in midday consumption in the U.K. and a 23% increase in the U.S. during the typical working hours. Demand over working days may also change, with reports of a shift in demand from Wednesday to Friday, to the first part of the week in Ontario.

In India, the months of January and February in 2020 saw an increase of 3% and 7% in power supply, respectively as compared to 2019 (year-on-year). In comparison, the power supply saw a decrease of 3% between March 1 and March 24. During the lockdown between March 24 and April 19, the total power supply saw a decrease of about 25% (year-on-year).

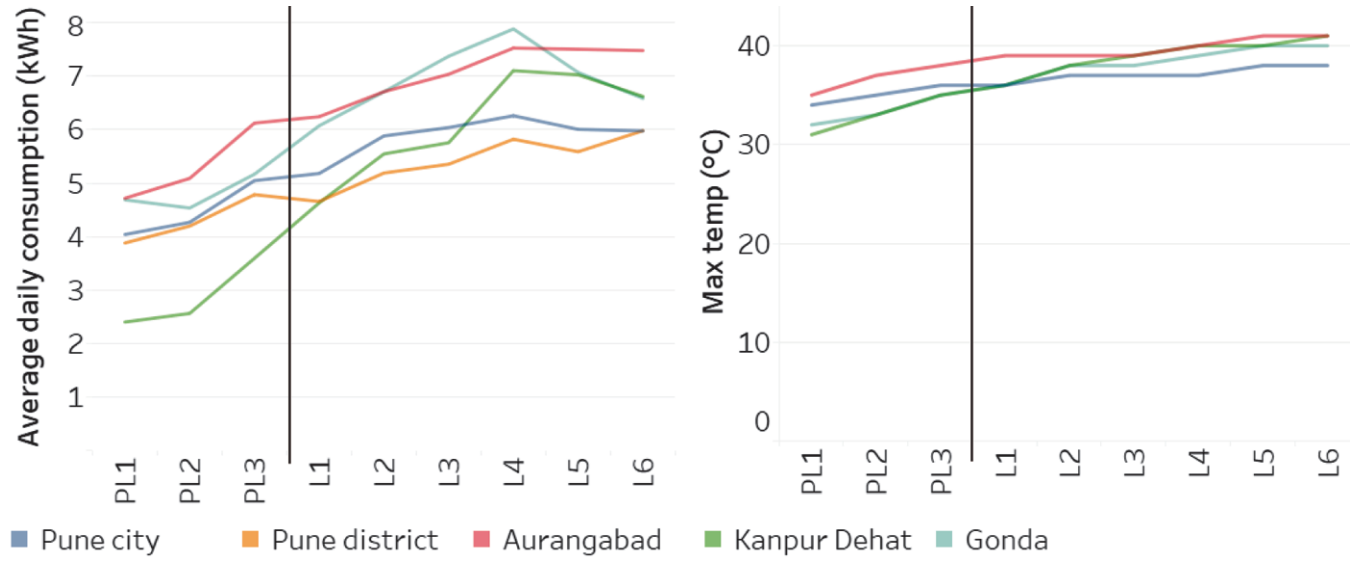


Fig.4: Household electricity consumption during the COVID-19 lockdown –Courtesy: Prayas (Energy Group),Prayas, Pune

Date	Energy Consumption (GWh)					
	Northern Region	Western Region	Southern Region	Eastern Region	North-Eastern Region	All India
18-Mar-20	827	1187	1148	383	42	3586
22-Mar-20	734 *(-11%)*	971 *(-18%)*	975 *(-15%)*	315 *(-18%)*	36 *(-13%)*	3030 *(-15%)*
23-Mar-20	724 *(-12%)*	996 *(-16%)*	1030 *(-10%)*	325 *(-15%)*	39 *(-5%)*	3113 *(-13%)*
24-Mar-20	695 *(-16%)*	944 *(-20%)*	983 *(-14%)*	314 *(-18%)*	39 *(-7%)*	2975 *(-17%)*
25-Mar-20	665 *(-20%)*	844 *(-29%)*	911 *(-21%)*	320 *(-16%)*	36 *(-13%)*	2777 *(-23%)*
26-Mar-20	628 *(-26%)*	771 *(-34%)*	891 *(-23%)*	327 *(-15%)*	35 *(-16%)*	2652 *(-26%)*

Fig.5: India power demand: Coronavirus impact: Within ten days, 26 per cent fall in India's energy consumption, Energy News, ET Energy World (Courtesy: ETEnergyworld.com)

Finances severely impacted

One of the perennial concerns in the Indian power sector has been the poor financial health of its distribution companies (discoms). The discoms have had high levels of debt and have been running losses. The debt problem was partly addressed under the UDAY scheme as state governments took over 75% of the debt of state-run discoms (around Rs.2.1 lakh crore in two years 2015-16 and 2016-17). However, discoms have continued to register losses owing to underpricing of electricity tariff for some consumer segments, and other forms of technical and commercial losses. Outstanding dues of discoms towards power generation companies have also been increasing, indicating financial stress in some discoms. At the end of February 2020, the total outstanding dues of discoms to generation companies stood at Rs 92,602 crores.

Due to the lockdowns and its further impact in the near terms, the financial situation of discoms is likely to be aggravated. This will also impact other entities in the value chain including generation companies and their fuel suppliers. This may lead to reduced availability of working capital for these entities and an increase in the risk of non-performing assets (NPAs) in the sector. Note that, as of February 2020, the power sector has the largest share in the deployment of domestic bank credit among industries (Rs 5.4 lakh crore, 19.3% of total).

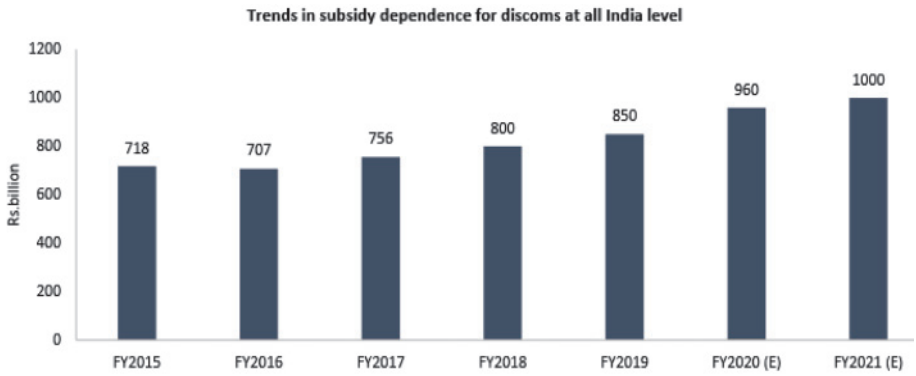


Fig.6: Power discoms: COVID-19: Power discoms will require subsidies of Rs.1 lakh crore in 2020-21, Energy News, ET EnergyWorld

Following are some of the factors which have impacted the financial situation due to Covid-19 linked disruptions:

Reduced compensation

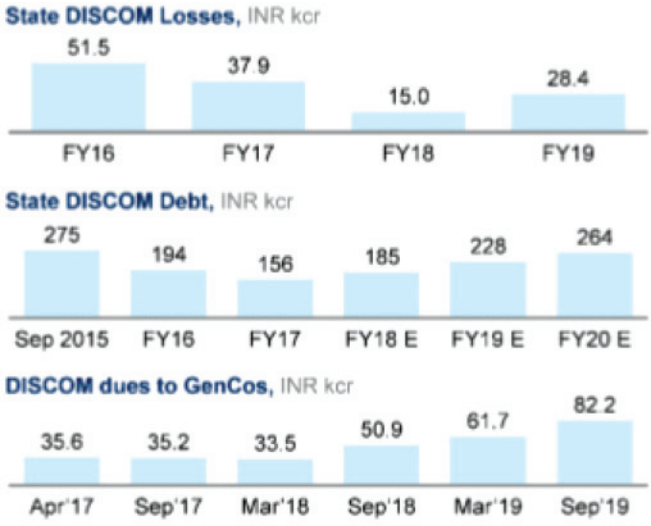
In most states, the electricity tariff for domestic and agriculture consumers is lower than the actual cost of supply. Along with the subsidy by the state governments, this gap in revenue is partly compensated by charging industrial and commercial consumers at a higher rate. Hence, industrial and commercial segments cross-subsidise the power consumption by domestic and agricultural consumers. The lockdown has led to a halt on commercial and industrial activities while people are staying indoors. This has led to a situation where the demand from the consumer segments who cross-subsidise has decreased while the demand from consumer segments who are cross-subsidised has increased. Due to this, the gap between revenue realised by discoms and cost of supply will widen, leading to further losses for discoms. States may choose to bridge this gap by providing a higher subsidy.

Payment Moratoriums

To mitigate the financial hardship of citizens due to COVID-19, some states such as Rajasthan, Uttar Pradesh, and Goa, among others, have provided consumers with a moratorium for payment of electricity bills. At the same time, the discoms are required to continue supplying electricity. This will mean that there will be less cash in hand for discoms. Some state governments such as Bihar also announced a reduction in tariff for domestic and agricultural consumers. The reduction in tariff will be compensated to discoms by government subsidy.

Strains in government finances

The revenue collection of states has been severely impacted as economic activities have come to a halt. Further, the state governments are directing their resources for funding relief measures such as food distribution, direct cash transfers, and healthcare. This may adversely affect or delay the subsidy transfer to discoms.The UDAY scheme also requires states to progressively fund greater share in losses of discoms from their budgetary resources (10% in 2018-19, 25% in 2019-20, and 50% in 2020-21). As losses of discoms may widen due to the above-mentioned factors, the state government's financial burden is likely to increase with payment delays.



Source: UDAY dashboard, CRISIL report

Fig.7

Other challenge: recession led by inequalities

Even before the Covid-19 set in, there was a general recession in the economy in most parts of the world. Recession is a situation when the demand slumps while there is supply in the market- largely because consumers are not interested to purchase or unable to purchase. electricity use is an indicator of economic activity. It may both deep and fast. Dip in electricity use is an indicator of recession as official statistics can't keep pace with the abrupt economic changes. All those closed stores, silenced factories and darkened office buildings are yet to be counted in the government's official economic numbers, which take months to collect, process and report. The relationship between technology and inequality is multifaceted. Technology has enhanced productivity, accelerated economic growth, enabled knowledge and information sharing and increased access to basic services. However, it has also been the cause of inequalities. The adoption of technologies can sustain competitiveness. However, technology also affects the composition and nature of jobs available as well as relative wages. Jobs are being created and destroyed all the time and the net effect of technology on aggregate employment is ambiguous.

A recession usually dampens the rate of electricity demand growth for a few quarters, but this is no ordinary recession (Fig.1). As a case history projections of the total consumption of electricity in the U.S. during 2009 were lowered due to recession. The Energy Information Administration's (EIA's) estimates showed that, for the first time in the history of the U.S., the consumption of electricity fell for two consecutive years (2008 and 2009). Some utility executives privately admitted that it was recession.

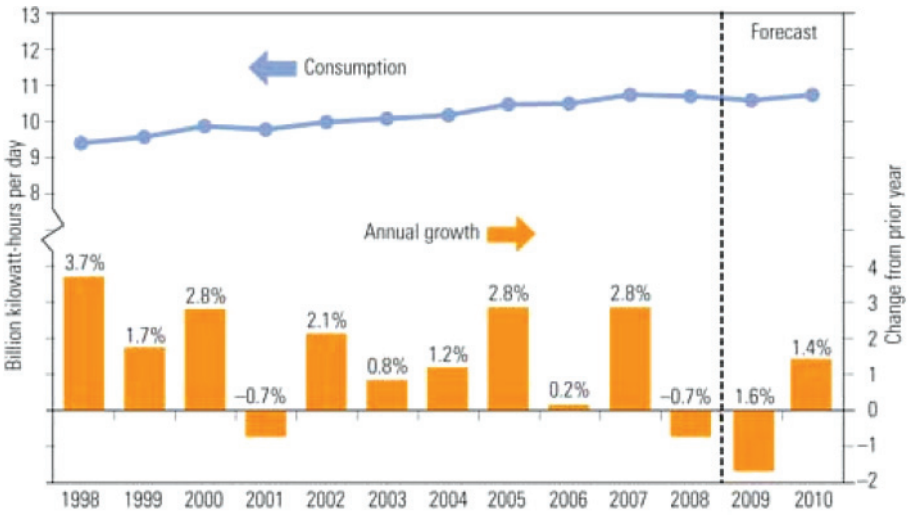


Fig.8: U.S total electricity consumption, 1998-2010

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