

IMPACT OF COVID-19 ON THE DEMAND AND SUPPLY OF ELECTRICITY AN INDIAN PERSPECTIVE

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ABSTRACT

Covid-19, apart from being a threat to human life has also proved to be detrimental for global economy. It has slowed down the pace of economic growth and has forced us to change the way we do business. Like many other goods and services, demand for electricity and supply thereof have also been severely affected by this pandemic. This has changed the power mix too, in an environment friendly way. The road ahead seemed difficult considering the damage done by this pandemic but Indian economy is making a comeback through V shaped recovery.

KEYWORDS: *Covid-19, Lockdown, V Shaped Recovery, Renewable Sources*

INTRODUCTION

Covid-19 has been the latest in the list of crises that have inflicted the humanity with illness, death, poverty and a state of helplessness. It has been observed over the years that humanity faces a new disease or crisis every decade. However, Covid-19 has been the deadliest of them all, second only to the World War- II in terms of destruction of human lives and wealth. Demand for all the consumer as well as capital goods and services have seen an unprecedented decline due to the partial and full lockdowns declared by Governments so as to prevent or slow down the spread of the disease. Electricity is no exception. As per the International Energy Agency's Global Energy Review 2020, countries witnessed 20% or more decline in demand for electricity during full lockdown. Decline in demand due to closure of schools, colleges, offices, factories, malls and other commercial activities outweighed the rise in demand from residential users for maintaining domestic temperature and entertainment. Change in demand for electricity led to a change in the electricity generation mix as well in India and in the world.

Demand and Supply of Electricity during Partial and Full Lockdown

Apart from the immediate impact on the health of people, this pandemic has long term implications for the environment, global economy, and use of energy. A cleaner environment is a welcome sign that this pandemic has engendered. Lacs of vehicles were taken inside the garages and various fume spitting factories were shut down. As a measure to slow down the spread of the virus governments all over the world implemented partial and full lockdowns in their respective countries. Citizens were advised to stay home and places of public gatherings were shut down to contain the virus.

In India, citizens witnessed a self-imposed Janta Curfew on 22nd March 2020 and lockdown was imposed from 25th March 2020 onwards. Cities and towns were classified in 'Red', 'Orange' and 'Green' zones based on the number of Corona Virus positive cases and possibility of community transmission of the disease. In such times of lockdowns, people were forced to stay home. Employers were offering work from home facility to majority of their staff. Schools and colleges provided education in online mode by means of live or recorded lectures. Indian television channels started airing old and popular shows for the entertainment of masses as malls, cinemas, parks and other places of social gatherings were closed. Shops and factories were worst hit by the lockdown measures as in most of the cases, their business could not be carried out without physical presence of their workers. This led to a situation where demand for electricity from residential users rose significantly but was surpassed by the sharp plunge in demand from commercial and industrial users.

The following table shows demand and supply of electricity for the months of January 2020 to October 2020 vis-à-vis the same period in 2019.

Table 1: Power Supply Position (Energy) Jan 2020 to October 2020

| Months | Energy (MU) | | | Availability | | |
|-----------|-------------|--------|------------------------------------|--------------|--------|---------------------------------------|
| | Requirement | | | Availability | | |
| | 2019 | 2020 | Increase (+)/ Decrease (-) in % | 2019 | 2020 | Increase (+)/ Decrease (-) in % |
| January | 101713 | 105289 | 3.52 | 101160 | 104759 | 3.56 |
| February | 93324 | 103493 | 10.90 | 92913 | 102995 | 10.85 |
| March | 108509 | 98824 | -8.93 | 108356 | 98404 | -9.18 |
| April | 110569 | 85608 | -22.58 | 110113 | 85164 | -22.66 |
| May | 120660 | 102666 | -14.91 | 120019 | 102183 | -14.86 |
| June | 118573 | 105606 | -10.94 | 117988 | 105164 | -10.87 |
| July | 117226 | 112411 | -4.11 | 116484 | 112244 | -3.64 |
| August | 112119 | 109833 | -2.04 | 111522 | 109657 | -1.67 |
| September | 108250 | 112581 | 4.00 | 107516 | 112436 | 4.58 |
| October | 98363 | 109630 | 11.45 | 97847 | 109530 | 11.94 |

* October 2020 figures are provisional.

Data Source: Central Electricity Authority, Executive Summary, Jan 2020 to October 2020

Average demand for electricity grew for the month of January 2020 by 3.52% on a Y-o-Y basis, while the same for February 2020 was 10.90%. India observed one day Janta Curfew on 22nd March 2020 and from 25th March onwards complete lockdown of all educational, commercial and industrial activities was imposed. Only a few emergency services like hospitals, fire brigade, supply of daily essentials etc. were allowed. This resulted in a fall of 8.93% in demand in March 2020. The negative Y-o-Y growth was highest in April 2020 with 22.58%. This decline in growth persisted in May 2020 but it was milder as compared to that in April 2020. Increased and continuous use of electricity in hospitals for treatment of Covid-19 patients, use of computers and laptops for work from home and online classes for students led to a mild recovery and a Y-o-Y decline of 14.91% was observed in the month of May 2020. Commencement of Shramik Special Train facility from 1st May was also a major reason for this uptake in demand for electricity. In India, almost all the passenger and goods trains run on electricity and resuming trains, although only a selected few, has definitely increased the demand for electricity.

Electricity is such a commodity that cannot be produced and stored somewhere for using it later. It needs to be produced based on the demand. The next day's production estimate is calculated on the basis of current day's demand for electricity. Lockdown required people to stay home so residential demand for electricity rose. People were using

televisions, fans, coolers, air conditioners, light bulbs, refrigerators, computers and all other devices which consume electricity. Still, the demand for residential consumption was not so high that it would offset the sharp decline in demand due to halting of commercial and industrial activities. This reduction in demand led to reduction in production or generation of electricity too. Reduction in production has been in tandem with reduction in demand for the months from March 2020 to May 2020.

Signalling a quick and sustainable recovery in the demand and supply of electricity the September and October 2020 figures have come back to normalcy.

Peak demand is simply the highest demand of electricity that occurs over a stipulated period of time. The following table shows the levels of peak demands and peak demand met during the period of January 2020 to October 2020 and their comparison with previous year.

Table 2: Power Supply Position (Peak) Jan 2020 to October 2020

| Months | Power (MW) | | | Peak Met | | |
|-----------|-------------|--------|------------------------------------|----------|--------|------------------------------------|
| | Peak Demand | | | Peak Met | | |
| | 2019 | 2020 | Increase (+)/ Decrease (-) in % | 2019 | 2020 | Increase (+)/ Decrease (-) in % |
| January | 164018 | 171655 | 4.66 | 162349 | 170976 | 5.31 |
| February | 162242 | 177158 | 9.19 | 161422 | 176388 | 9.27 |
| March | 169315 | 170830 | 0.89 | 168745 | 170170 | 0.84 |
| April | 177424 | 133315 | -24.86 | 176810 | 132779 | -24.90 |
| May | 183547 | 166973 | -9.03 | 182533 | 166424 | -8.83 |
| June | 183804 | 165434 | -9.99 | 182454 | 164946 | -9.60 |
| July | 177130 | 171330 | -3.27 | 175124 | 170545 | -2.61 |
| August | 179159 | 167535 | -6.49 | 177525 | 167499 | -5.65 |
| September | 174783 | 176875 | 1.20 | 173145 | 176568 | 1.98 |
| October | 164936 | 170284 | 3.24 | 164259 | 170045 | 3.52 |

* October 2020 figures are provisional.

Data Source: Central Electricity Authority, Executive Summary, Jan 2020 to October 2020

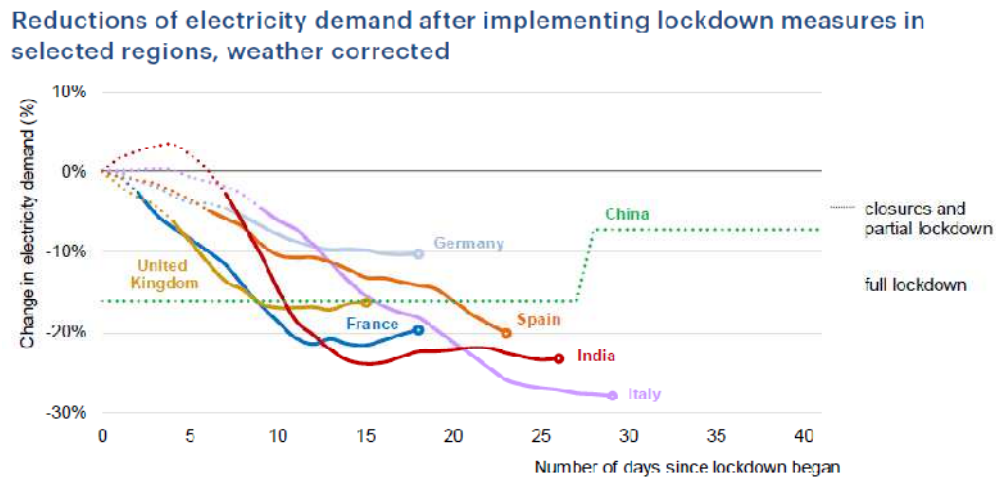
Peak demand for months from January 2020 to March 2020 was increasing with the growing pace of Indian economy, but in the month of April 2020 it shot down drastically. It is more than 24% below the peak demand for April 2019. This sharp decline in peak demand is again attributed to shut down of commercial and industrial activities. In May 2020, however, the decrease in Peak demand is not that severe resulting from partial revival of trains for bringing the migrant laborers to their native places. Other relaxation measures like reopening of factories where only local workers were employed, opening various non-essential shops on selected days of the week, opening of government and private offices with reduced manpower etc. led to a better figure of peak demand for the month of May 2020. With ups and downs, the levels of peak demand and peak met stabilised by the end of September 2020 and are showing signs of further improvement.

Global Scenario

Corona Virus outbreak first occurred in Wuhan city of China in early December of 2019. From there it spread to other parts of the world and became a highly contagious, life-threatening disease for humankind. World Health Organization, on 30th January 2020, declared Covid-19 a global emergency, and on 11th March 2020 a global pandemic. United States of America, Italy, France, Brazil, Germany, Spain and nearly all the big and small countries of the world have been seeing this virus create a havoc in the normal lives of their citizens. Covid-19 has put the global economy to a halt. Millions of

people lost their jobs or suffered a pay-cut as their factories or businesses were closed. As per the *ILO Monitor- Covid-19 and the world of work- 5th edition*, by International Labour Organization, nearly 400 million full time jobs were lost due to this global pandemic.

Many countries initially implemented partial lockdowns and later on when the severity of this disease grew, imposition of full lockdown became inevitable. Weather being a bit milder this year, use of electricity for residential heating was low. The following table shows the reduction in demand for electricity during partial and full lockdown in various countries of the world.



Graph Source: IEA, Global Energy Review, April 2020

Figure 1

Change in demand for electricity has gone below 0% since the lockdown began. For all the major economies of the world the change in demand remained negative except for China. China was the country where the first case of Covid-19 was reported. They were the first to impose lockdown in their affected areas and were able to contain the disease in certain cities and towns. Their entire country never went on lockdown, hence the demand for electricity for commercial, industrial as well as residential usage was always there from other parts of China. This can be inferred from the above graph as well. For other countries, it was a difficult road to trudge. Most of the countries kept allowing infected passengers inside their mainland without proper precautions, only to spread the disease to other healthy citizens. This eventually led to a suspension of all activities in form of closures and lockdowns.

India's V Shaped Recovery

When the world was still reeling under the pressure of saving the lives of its citizens, India was working to provide a cure to Covid-19. Though several countries were labouring to develop a vaccine for the disease, India became the mass producer and supplier of vaccines to immunize the humanity against Covid-19. Apart from re-building the confidence of common man, it has led the economy to the path of quick and sustainable recovery, which is being called as a V Shaped recovery of Indian economy. With all sectors of economy gaining momentum, demand for electricity is picking up. Economic Survey of India forecast an 11% real GDP growth for financial year 2021-22 which is higher than expected considering the sluggishness the Covid-19 pandemic created in the economy.

Future of Electricity Sector

Post Covid-19 era, there have been some remarkable and nearly permanent changes in the electricity generation mix that India follows. As per the latest data released by the Ministry of Power, by January 2021, the growth in electricity generation from renewable sources has been 6.23% on Y-o-Y basis. Electricity generation using coal has remained a favourite for state owned power producing companies in India, but they are now diversifying into green and clean energy ventures to remain relevant. According to the International Energy Agency, India would double its green energy capacity in 2021- 22 compared to 2020 levels.

Green energy projects which were delayed due to the Covid- 19 pandemic are expected to gain investors' attention and are likely to add around 10% to India's existing green energy capacity.

Proposed reforms in electricity sector like production linked incentives, privatization of distribution companies and creation of Electricity Contract Enforcement Authority will aid government's efforts to meet the ever-increasing demand for electricity.

CONCLUSIONS

Lockdowns due to Covid- 19 caused reduction in the demand for electricity globally to such an extent that was earlier unthinkable. However, the role of electricity remains intact in running of the economy and civil life. Uninterrupted availability of electricity has enabled us to make changes to our routine lives during lockdowns and several activities are now being carried out in online mode. It has also enabled us to fight against the disease and save millions of infected people.

This pandemic also led to a change in the mix of sources of power generation. Increased share of renewable sources in the power mix is a welcome change which we should think of continuing in future also.

REFERENCES

1. *International Energy Agency, Global Energy Review 2020, The impacts of the Covid-19 crisis on global energy demand and CO₂ emissions.*
2. *Economic Survey of India 2020–21.*
3. https://www.business-standard.com/article/current-affairs/lockdown-3-0-what-are-red-orange-and-green-zones-and-containment-areas-120050200305_1.html, accessed on 09.03.2021
4. https://en.wikipedia.org/wiki/COVID-19_pandemic_lockdown_in_India, accessed on 09.03.2021
5. https://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS_749398/lang--en/index.htm accessed on 09.03.2021
6. *Ministry of new and renewable energy website- <https://mnre.gov.in/> accessed on 12.03.2021*
7. *Central Electricity Authority website- <http://cea.nic.in/index.html>- accessed on 12.03.2021*
8. *Ministry of Power website- <https://powermin.nic.in/>- accessed on 14.03.2021*
9. <https://timesofindia.indiatimes.com/blogs/voices/power-sector-outlook-2021a-defining-year-for-indias-clean-energy-future/> accessed on 14.03.2021

