RE Monitor
March – May 2020
considering COVID-19 Impacts

India

Policy

- Project developers may use solar equipment of their choice till September: MNRE
- Govt to offer rebate to discoms for Covid-19 lockdown period
- Economic stimulus: ₹90,000 crore liquidity injection for fund-starved discoms
- **MNRE prepares new guidelines for Off-Grid solar power projects**
- Renewable energy projects get 30 days extension for commissioning beyond lockdown period

Development

- Covid-19 restricts project finance market for renewable energy development
- India's lockdown sees clean energy sources gain at the expense of coal
- India up at 74th place on WEF's global energy transition index
- Covid-19: India woos renewable energy equipment makers
- Lockdown: India's renewables capacity addition lowest in 2 years in Jan-Mar
- India missed utility-scale solar capacity addition target for FY20 by 24 per cent
- India's Clean Energy Revolution on 'Pause' during coronavirus crisis
- NTPC, ONGC sign MoU to set up renewable energy JV

Worldwide

- G20 extraordinary Energy Minister meeting
- Germany to help India evaluate optimal power balancing to meet renewable energy plans by 2022
- Global Energy Outlook 2020 report by Resources for the Future

India

Policy

Project developers may use solar equipment of their choice till September: MNRE. The renewable energy ministry has given six-month extension till September to solar project developers to use equipment of their choice in view of the lockdown. In 2019, the ministry had set March 31, 2020 as the effective date beyond which the developers would have to source equipment as per the approved list of models and makers of solar modules and

cells.The six-month extension is for the firms developing government owned and assisted projects. Besides, it also covers projects auctioned under central government guidelines, according to a statement by the Ministry of New and Renewable Energy (MNRE).

Govt to offer rebate to Discoms for Covid-19 lockdown period. The power ministry's move is in line with the Finance Minister Ms Nirmala Sitharaman's announcement on May 13, 2020, under the Atmanirbhar Bharat special economic and comprehensive package including therein the liquidity infusion by PFC/REC of Rs 90,000 crore to Discoms against receivables and loans to be given against state guarantees for discharging liabilities of Discoms to power Generating companies (Gencos), and also giving a rebate to Discoms by central public sector Gencos for passing on to the final consumers. With an aim to provide relief to cash strapped power distribution companies (Discoms), the government has taken a slew of measures to help them, including providing a rebate for the lockdown period amidst the coronavirus pandemic.

Economic stimulus: ₹90,000 crore liquidity injection for fund-starved discoms. As part of its strategy to bring India's battered economy back on track, India will provide ₹90,000 crore liquidity injection for the fund-starved electricity distribution companies (discoms).This was announced by finance minister Ms Nirmala Sitharaman as one of the 15 measures in the first tranche to combat the economic disruption from the coronavirus lockdown, that has worsened the already precarious finances of power discoms.

MNRE prepares new guidelines for Off-Grid solar power projects. The Ministry of New and Renewable Energy (MNRE) has issued draft guidelines for the implementation of off-grid solar power projects under RESCO (renewable energy service company) mode. RESCO model is a zero-investment model in which the consumer pays only for the electricity generated, while the solar system is owned by the developer. The draft guidelines come on the heels of the MNRE's decision to extend the third phase of the off-grid and decentralized solar PV applications program until March 31, 2021.

Under the programme, off-grid solar power plants can be installed in areas where the grid power is not available and areas where grid power though available is not reliable. Design aspects for both kinds of systems are given below:

(i) For Isolated Off-grid systems	*(ii) For Grid connected system*
	Off-grid solar PV system to be designed only for essential/emergency load.
To bring down the cost by optimising the size of the required solar power plant, only energy efficient equipment e.g. LED lights, BLDC fans, etc. shall be used by the Beneficiary.	Energy efficient equipment e.g. LED lights, BLDC fans, etc. to be used for such essential/emergency load, which should be supplied through separate electric Circuits.
Daily energy requirement to be calculated based on load and running hours.	Daily energy requirement to be calculated based on load and running hours.
Battery back-up sufficient for supplying power for two days may be kept	Battery back-up sufficient to supply power for two days may be kept for essential/emergency load.
Wherever possible system should be designed for	

using only DC appliances.	
Solar PV capacity sufficient for required power supply including battery charging.	Solar PV capacity sufficient for required power supply including battery charging.
Efficiency of equipment like charge controller, invertor and distribution losses in the system should also be accounted properly for calculating solar PV and battery capacity.	Efficiency of equipment like charge controller, invertor and distribution losses in the system should also be accounted properly for calculating solar PV and battery capacity
MPPT invertor shall be used.	MPPT hybrid invertor shall be used.
MNRE/BIS specifications to be used for all system components.	MNRE/BIS specifications to be used for all system components
Solar power supplied from the system shall be metered at the point of delivery.	Solar power supplied from the system shall be metered at the point of delivery.
Remote Monitoring System shall be deployed with the system.	Remote Monitoring System shall be deployed with the system.
	Provision to be made for feeding surplus power to the grid on net-metering basis.

Source: MNRE, Government of India, 18 May 2020

In the order, it was stated that under the extended program, off-grid solar power projects would be installed only under RESCO mode for which the Ministry will be issuing separate guidelines. Under the phase III of "Off-grid and Decentralized Solar PV Applications" program of MNRE, off-grid solar power projects of individual sizes up to 25 kW can be installed in areas where grid power has not reached or is not reliable.

Renewable energy projects get 30 days extension for commissioning beyond lockdown period. The Ministry of New and Renewable Energy (MNRE) has granted an extension of 30 days for commissioning of renewable energy projects beyond the lockdown period. The renewable energy implementing agencies may grant extension of time for commissioning of such projects, impacted due to coronavirus lockdown, equivalent to the period of lockdown and additional 30 days for normalisation beyond the curb period, the ministry said in a statement on 21 April 2020. This will be a blanket extension and there will be no requirement of case to case examination, as also there will be no need to ask for any evidence for extension due to lockdown, it said. The ministry has also said that all implementing agencies of the MNRE will treat lockdown due to COVID-19, as force majeure.

Developments

Covid-19: India woos renewable energy equipment makers. India is eyeing renewable energy equipment manufacturers looking to shift base from China following the Covid-19 outbreak. "At a time when many companies are planning to shift their manufacturing base from China, it is an opportune time for India to bring policy changes to facilitate and catalyse manufacturing in India," a statement from the Ministry of New and Renewable Energy (MNRE) said. MNRE has set up the renewable energy Industry Facilitation and Promotion Board to facilitate investment in the sector, the statement said.

India's lockdown sees clean energy sources gain at the expense of coal. Clean energy is gaining a greater share of India's energy mix, a silver lining amid the country's prolonged virus lockdown that has cut power demand by about a quarter. Electricity generated from

renewable sources, nuclear and hydropower made up 27% of India's total generation as of April 15, data from grid operator National Load Despatch Centre show. That's up five percentage points from March 18, a week before Indithe world's largest lockdown to contain the coronavirus outbreak.

India up at 74th place on WEF's global energy transition index. India has moved up two positions to rank 74th on a global **'Energy Transition Index'** with improvements on all key parameters of economic growth, energy security and environmental sustainability, the WEF (World Economic Forum) said on 13 May 2020. Releasing the annual rankings, the Geneva-based international organisation for public-private cooperation said COVID-19 will compromise the transition to clean energy without an urgent stakeholder action as unprecedented disruptions due to the pandemic threaten this transition.

Top 10 countries: Energy Transition Index 2020

Country	Score	Rank
Sweden	74.2%	1
Switzerland	73.4%	2
Finland	72.4%	3
Denmark	72.2%	4
Norway	72.2%	5
Austria	70.5%	6
United Kingdom	69.9%	7
France	68.7%	8
Netherlands	68.0%	9
Iceland	67.3%	10

Source: World Economic Forum, 13 May 2020

Sweden leads the rankings table for the third consecutive year, followed by Switzerland and Finland. France and the United Kingdom are the only G20 countries in the top 10. The list of top 10 countries has been roughly the same over the past six years, highlighting the robustness of their energy transition roadmaps.

Energy transition in numbers, 2020

55.1%	Global average ETI score in 2020, an improvement of 2 percentage points since 2015
94	Countries have improved their ETI score since 2015, representing 70% of the global population
11	Countries have made steady progress each year since 2015
<1%	Increase in the average ETI score of countries in the top quartile since 2015
20%	Of global population uses as much energy as the remaining 80%
3%	Expected decline in coal power generation globally in 2019, according to Carbon Brief analysis
70%	Of young people consider the speed of energy transition to be either stagnant or too slow, according to a World Economic Forum survey of the Global Shapers' Community

Source: World Economic Forum, 13 May 2020

The report added maintaining steady progress on the energy transition is a challenge for all countries. Of the 115, India was among few other countries that have made consistent and measurable progress on their energy transition over the past six years. The report also showed India's strong and steady improvement in energy transition trajectories.

India missed utility-scale solar capacity addition target for FY20 by 24 per cent. India added about 5.7 gigawatt (GW) of new utility-scale solar capacity in the financial year 2019-20 (FY20), which is 24 per cent less than the 7.5 GW target set for this year, according to a recent report by a research firm. "As per Ministry of New and Renewable Energy (MNRE), in FY20 about 5.7 GW of new utility-scale solar capacity was added in India. Compared to previous year installations, FY20 installations are also marginally lesser about one per cent," said

JMK Research and Analytics in its report on 22 April 2020.

India's Clean Energy Revolution on 'Pause' During Coronavirus Crisis. India has big ambitions for renewable energy. The rapidly evolving country of nearly 1.4 billion people is in the midst of an energy transition that is key to achieving global decarbonization. But that transition now faces setbacks stemming from the coronavirus pandemic. While India's power grid is still dominated by coal, the country has been deploying wind and solar at a rapid pace to meet Prime Minister Narendra Modi's targets of 175 gigawatts of renewable energy capacity by 2022, and 450 gigawatts of non-fossil sources by 2030. As of December 2019, India's total on-grid renewable energy capacity stood at nearly 85 gigawatts, with another 64 gigawatts of wind and solar under construction or tendered out.

Covid-19 restricts project finance market for renewable energy development. The ongoing Covid-19 crisis is disrupting everyday life and causing major economic uncertainty. Globally, countries are implementing measures to restrict the transmission of Covid-19. The effect of such measures is having significant implications on various sectors, including renewables.Until the Covid-19 outbreak, the renewables sector enjoyed rapid growth supported by technology advancements, market competition between developers and suppliers, robust supply chain, growing investor interests and innovative business models along with the global agenda to embrace low-carbon power generation. Currently, the sector is likely to face a lean period with stakeholders along the value chain facing disruptions that threaten the sector's growth trajectory.

Lockdown: India's renewables capacity addition lowest in 2 years in Jan-Mar. India added 715 MW and 328 MW of utility scale solar and wind capacity respectively in the quarter ended March 2020, marking the weakest sequential growth in two years. For fiscal 2019-20, utility scale capacity addition was 7,408 MW, 34% below the high of two years ago and well below the government target, according to renewables market research firm and consultancy Bridge to India. There are 37 GW of solar and wind projects in the pipeline, of which 34 GW is due for completion in the next two years. According to the firm's forecast, only 24 GW will be added in this period in view of the various operational and financing challenges, such as a bleak power demand outlook, offtake concerns, challenges in tying up land and transmission connectivity, debt financing and rupee depreciation affecting prices of imported solar modules and cells.

NTPC, ONGC sign MoU to set up renewable energy JV. State-owned power generators NTPC Ltd and Oil and Natural Gas Corporation Limited (ONGC) have signed a Memorandum of Understanding (MoU) to set up a joint venture company for renewable energy business. This MoU will enable both companies to accelerate their footprint in the Renewable Energy. As

per the MoU, NTPC and ONGC will explore the setting up of offshore wind and other renewable energy projects in India and overseas. They shall also explore opportunities in the fields of sustainability, storage, e-mobility and ESG (Environmental, Social and Governance) compliant projects.

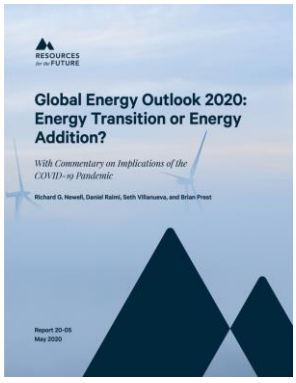
Hindu Business Line, 18 April 2020| The Economic Times, 21 April 2020| The Print, 22 April 2020| Surya Energy, 6 May 2020| The Financial Express, 13 May 2020| Mint, 13 May 2020| Mercom, 20 May 2020|Mint, 20 May 2020| The Economic Times, 21 April 2020| The Economic Times, 21 April 2020| The Economic Times, 23 April 2020| Greentech Media, 29 April 2020| Power Technology, 12 May 2020| PV Magazine, 25 May 2020

Worldwide

Developments

G20 extraordinary Energy Ministers Meeting. Shri Dharmendra Pradhan, Minister of Petroleum and Natural Gas and Steel, participated in the G20 Extraordinary Energy Ministers' virtual Meeting on 10th April 2020. The meeting was called by Saudi Arabia, in its capacity as the G20 Presidency, and chaired by Saudi Arabia Energy Minister Prince Abdulaziz. The meeting was attended by Energy Ministers of G20 countries, guest countries and heads of international organizations including OPEC, IEA and IEF. The G20 Energy Ministers' focused on ways and means to ensure stable energy markets, which are affected due to demand reduction as result of the COVID-19 pandemic and the ongoing surplus production -related matters.

Germany to help India evaluate optimal power balancing to meet renewable energy plans by 2022. Deutsche Gesellschaftfür Internationale Zusammenarbeit (GIZ) has contracted DNV GL, world's largest resource of independent energy experts and certification body to conduct a major control reserve study for southern region of India. It is the first control reserve study to be conducted in this part of the world and aims to quantify the control reserve requirements that are needed to balance the energy supply from wind and solar and energy demand, according to the renewable energy plans of India's southern states by 2022. DNV GL also noted that the study is a part of the Indo-German Energy Program, a joint initiative of the German Ministry of Economic Cooperation and Development (BMZ) and the Indian Ministry of New and Renewable Energy (MNRE) implemented by GIZ India.



Global Energy Outlook 2020 The non-profit research institution RFF (Resources for the Future) attempts to address these questions in its flagship **Global Energy Outlook (GEO) Report** published on 20 May 2020. The GEO analysis does what others haven't amalgamating forecasts from companies, government bodies, and expert organizations such as the Energy Information Agency, BP, Exxon, the International Energy Agency, and others in a useful 'apples to apples' comparison of energy projections through 2040. This "study of studies" approach is typical in the social sciences and other academic disciplines.

India's demand for energy is projected to surge over the next 20–25 years. IEA has steadily revised upward its projections for coal, oil, and natural gas demand. Projected demand for renewables declined in 2019 relative to 2006, primarily because of a decrease in expected

demand for biomass and waste fuels, while projections for more modern renewables, such as wind and solar, have increased dramatically.

Renewable energy in India is currently dominated by biomass and waste sources, though future growth is largely projected to come from modern renewables, led by solar and, to a lesser extent, wind. Similar to renewables projections across much of the world, today's expectations for the rise of wind and solar have become much more bullish over the past several years. For example, projections for non-hydro non-biomass renewables consumption in India in 2030 have increased from 0.3 to 0.5 to 1.9 qBtu, respectively, in projections from 2006, 2011, and 2019.

By 2040, modern renewables grow to 3.9 qBtu under the 2019 IEA CPS and reach even higher under the IEA STEPS and SDS. Despite the rise of renewables, growth in fossil fuel consumption leads India's CO2 emissions to rise steadily under the 2019 IEA CPS, growing from 2.3 BMT in 2018 to 5.5 BMT by 2040. Under the IEA STEPS and SDS, CO2 emissions reach 4.5 and 2.1 BMT, respectively, by 2040. For context, CO2 emissions for the United States and European Union under the IEA STEPS are 4.0 and 1.6 BMT, respectively, in 2040.

Key findings of the report

- Energy outlooks assume a narrow range of long-term economic growth
- Empirical research suggests that the likely range of future growth is far wider
- Most scenarios show energy additions rather than a clear transition at the global level
- Global CO2 emissions stabilize with Evolving Policies, and fall under Ambitious Climate scenarios
- Liquids demand shrinks in the West and surges in the East under most scenarios
- Global coal demand slows, with deep policy driven uncertainty in the East
- Solar surges in the decades ahead

U.S Department of Energy, 10 April 2020| The Times of India, 25 May 2020| Resources For Future, 20 May 2020

Compiled by TERI, Knowledge Resource Centre