Notes and News

Power Ministry's proposal to impose basic custom duty begins August, 2020 on solar modules, solar cells and solar inverters

According to the Union Power Ministry's proposal to impose Basic Custom Duty (BCD) is beginning August, 2020 on solar modules, solar cells and solar inverters. The Ministry clears trajectory of BCD would be declared so that there is no uncertainty about government policy. Further, the approved list of models and manufacturers in respect of renewable energy will be made effective from October 1, 2020 as declared earlier. This will ensure that all solar power projects which are bid out as per the standard bidding guidelines will be required to procure solar cells and solar modules and other equipment from manufacturers figuring in the approved list. In addition, financing from Power Finance Corporation (PFC), Rural Electrification Corporation (REC) and Indian Renewable Energy Development Agency (IREDA) will be structured in such a manner that lower rates of interest will be charged on the developers who will use domestically manufactured equipment.

It is reported of the constitution of an FDI Cell and a Project Development Cell in the Ministries of Power and NRE. The FDI Cell will vet proposals for investment from countries that shares borders with India. The Project Development Cell would hand-hold investible projects so that the process of investment is accelerated. It is also reported that the practice of issuing concessional custom certificates for certain import items in the RE sector will be discontinued from a date that will be specified separately.

During the interaction with the Union Minister, the developers made important suggestions to strengthen domestic manufacturing of power sector equipment in India in the entire value chain, which, inter-alia, include the need for policy certainty, suitable regime for facilitating import of capital goods required for manufacturing of power equipment and the need for availability of finance and power to the manufacturers at competitive rates. They also emphasized the need for clarity on the new and old investments, encouraging the R&D efforts and maintaining the sanctity of contracts. Some of the developers also emphasized that import of critical equipment required for maintenance and overhaul of the existing projects needs to be allowed till such a time the domestic manufacturing capacity for the same is put in place.

Nuclear Power Plants in India

The details of projects under construction and new projects accorded sanction are as shown in Table 1:

The pressurised heavy water reactors (PHWRs) are fuelled by natural uranium while light water reactors (LWRs) are fuelled by low enriched uranium. The annual requirement of fuel (UO_2) of a 700 MW PHWR (at 85% capacity factor) is about 125 tonnes and that of a 1000 MW LWR (at a capacity factor of 90%), about 25 tonnes. Prototype fast breeder reactor (PFBR) being implemented by Bharatiya Nabhikiya Vidyut Nigam Limited (BHAVINI) is fuelled by mixed oxide (MoX) fuel.

The installed power generation capacity, utilisation and production cost per unit of each of the nuclear power plants in the country, nuclear plant-wise (Table 2):

Russia ships nuclear power equipment for units 3,4 at Kudankulam

Rosatom, Russia a global nuclear power major said the ship with equipment for two 1,000 MW atomic power plants coming up in Tamil Nadu has left the Saint Petersburg port for India.

According to Rosatom, this is the 17th shipload during the project implementation and the first one – after the restrictive measures related to prevention of further spread of COVID-19.

India's atomic power company Nuclear Power Corporation of India Ltd (NPCIL) is building two more 1,000 MW reactors at Kudankulam in Tamil Nadu's Tirunelveli district with Russian equipment. The first two reactors of similar capacities are generating power.

"In the context of the restrictions imposed in Russia and India, Rosatom State Corporation Engineering Division, the Indian customer, Russian manufacturers, the port of Saint-Petersburg have kept on working, meeting all the measures prescribed, on the construction of the second phase of Kudankulam NPP," the Director for projects in India, Mr. Vladimir Angelov, said. "It is necessary to make a specific mention on the well-coordinated work of the employees responsible for the cargo handling and execution. The deadline for shipment was reduced by 37 per cent," he added.

The shipment includes air locks of the passive heat removal system for power unit No 3, condensate demineralizer filters for power units Nos.3 and 4, core catcher sacrificial materials, control and protection system drives, transfer cask, surge tanks outside the containment, blow down deaerator for power unit No.4 was shipped to the NPP construction site.

The 17th shipload also included filters, pipelines, valves, stationary penetrations and pumps.

India likely to double its share of zero-carbon power generation in the coming decades

According to BloombergNEF(BNEF), the transition represents a \$410-billion investment opportunity in new power generation capacity, whilst \$223-billion of investment in transmission and distribution infrastructure will be needed to accompany this

Table 1							
Project	Location and state	Туре	Capacity (MW)	Sanctioned Cost (Rs. crore)			
Projects under constructio	n						
KAPP 3&4	Kakrapar, Gujarat	PHWR	2×700	11459#			
RAPP 7&8	Rawatbhata, Rajasthan		2×700	12320^{*}			
GHAVP 1&2	Gorakhpur, Haryana		2×700	20594			
KKNPP 3&4	Kudankulam, Tamil Nadu	LWR	2×1000	39849			
PFBR	Kalpakkam, Tamil Nadu	FBR	1×500	5677			
New projects accorded ad	ministrative approval and financial sanc	tion					
KKNPP 5&6	Kudankulam, Tamil Nadu	LWR	2×1000	49621			
Chutka-1&2	Chutka, Madhya Pradesh	PHWR	2×700	105000			
Kaiga-5&6	Kaiga, Karnataka		2×700				
MahiBanswara- 1&2	MahiBanswara, Rajasthan		2×700				
GHAVP- 3&4	Gorakhpur, Haryana		2×700				
MahiBanswara- 3&4	MahiBanswara, Rajasthan		2×700				

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"#" under revision to Rs 16580 crore "*" under revision to Rs. 17079 crore

PHWR - Pressurised Heavy Water Reactor LWR - Light Water Reactor FBR - Fast Breeder Reactor

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Unit	State	Location	Capacity (MW)	Capacity Utilisation (PLF), 2019-20 (upto Jan 20)	Electricity Tariff (Paise/ kWh)		
TAPS-1	Maharashtra	Tarapur	160	81.15	206.24		
TAPS-2			160	90.91			
TAPS-3			540	76.62	307.64		
TAPS-4			540	94.86			
RAPS-1*	Rajasthan	Rawatbhata	100	-			
RAPS-2			200	77.54	349.06		
RAPS-3			220	88.98			
RAPS-4			220	98.41			
RAPS-5			220	99.88	406.28		
RAPS-6			220	95.07			
NAPS-1	Uttar Pradesh	Narora	220	98.03	320.32		
NAPS-2			220	97.51			
KAPS-1	Gujarat	Kakrapar	220	86.36	249.06		
KAPS-2			220	101.52			
KGS-1	Karnataka	Kaiga	220	94.01	364.84		
KGS-2			220	91.58			
KGS-3			220	93.85			
KGS-4			220	98.50			
MAPS-1#	Tamil Nadu	Kalpakkam	220	-	279.73		
MAPS-2			220	94.13			
KKNPP-1		Kudankulam	1000	80.15	412.06		
KKNPP-2			1000	49.58			

* RAPS-1 is under extended shutdown for techno-economic assessment for continued operation.

[#]MAPS-1 is in project mode for Endshield related works.

growth. India's competitive renewables market and clean power goals are projected to double the share of zero-carbon electricity generated in the country over the next decade. avoid 2,860 million tonnes of carbon dioxide emissions, improving air quality and reducing respiratory illnesses and early deaths across the country.

The paper titled 'India's Clean Power Revolution' added that due to the competitiveness of renewables, attaining these goals would save over \$78 billion in power system costs and The transition represents a \$410-billion investment opportunity in new power generation capacity, whilst \$223billion of investment in transmission and distribution infrastructure will be needed to accompany this growth. The paper also added that India's rapid progress in sustainable economic growth and clean energy can be a model for nations looking to recover from the COVID-19 pandemic by adopting green stimuli.

The founder of Bloomberg LP Mr. Michael Bloomberg said that governments around the world are working to strengthen national economies after the devastation of the coronavirus. If we act wisely, the response to this crisis can also be a turning point in the battle against the climate crisis. He further said that the investment in clean energy goes hand in hand with economic growth and India is a great example of that, with its ambitious future goals and policies helping to make it the number one emerging market for clean energy investment.

According to Jon Moore, CEO of BNEF, India is hugely important for the world's economic growth and development, and equally important for global progress in the fight against climate change. India is currently ranked as the top emerging market for clean energy investment by BNEF's Climatescope. This reflects the comprehensive set of enabling policies introduced by its government to meet a goal of 450 GW clean energy by 2030, its openness to investors, and the volume of renewables auctioned in recent years.

India is well-poised to reboot the economy through S&T

The Union Minister of Science & Technology, Earth Sciences and Health & Family Welfare, recently said that India's fight against the Covid-19 is moving fast ahead strongly and steadily. He was addressing a Digital Conference, RE-START – 'Reboot the Economy through Science, Technology and Research Translations', organised to celebrate the National Technology Day. The conference was organised by the Technology Development Board (TDB) a statutory body of the Department of Science & Technology (DST) and Confederation of Indian Industry (CII).

While applauding the Ministry of Science & Technology's response to epidemics like COVID in the country, The Minister emphasized that the S&T response reflects the collaborative spirit of the entire S&T ecosystem. "Indian Government, academia, scientists, start ups, entrepreneurs and industry have been working relentlessly to find solutions to combat this pandemic. We must appreciate the efforts of our scientists, our entrepreneurs and our institutions working to find quick and deployable solutions for Covid-19. New discoveries, industry partnerships, and enhanced researches have thus, been rapidly developed and adopted", said the minister. "Within a short period of time, the nation has been able to mobilize a number of researchers to develop new testing kits, protective equipment, respiratory devices, etc", he added.

The minister also apprised the audience about the 'COVID-19 Task Force' set up by the Government to map the COVID-19 related technology capabilities. "Our Government has vigorously supported the 'Make in India' programme. This has brought in scientific institutions and start ups to develop the Covid-19 tests, masks, sanitizers, personal protective equipment (PPEs) and ventilators," he further added. On the theme for the National Technology Day this year, the minister pointed out, "We need to mitigate the widespread economic impact and prepare for a stronger recovery using selfreliance as the new mantra. Thus, we look towards new opportunities to galvanize growth in the technological and industrial sector."

While delivering his special address, Dr. V.K. Saraswat, member NITI Aayog pointed out the importance of technologies like new-age technologies, medical and manufacturing technologies in boosting the economy as the world adjusts to the new normal.

The Principal Scientific Advisor to the Government of India, Professor K. Vijay Raghavan, pointed out how technology can change the way we live our lives and the way we do things in future, particularly so in the post-COVID era. He pointed out that this is an opportunity to gear up for the future that lies ahead, and a better-equipped R&D workforce and ecosystem will prepare India better for future challenges.

DST has stepped into its 50th year of existence. DST Secretary Professor Ashutosh Sharma thus, underlined the significance of the National Technology Day in view of the challenges faced during these times of COVID-19. He further emphasized that the COVID-19 crisis had led R&D and technology development to work in various modes. The private-public model has encouraged R&D to greater heights. Plausible translations, prototyping, start-ups, and industry have seen immense growth. According to him, rebooting the economy requires new age technologies, appropriate national missions, programmes and schemes to get into quick action. He added that wherever readymade solutions are not available, research and development needs to be more profound, relevant, speedy, impactful and strongly connected to industry. The lessons learnt now would continue to assist us in addressing the overarching challenges of the futuresustainable development, climate change, industry, antimicrobial resistance, etc.

Dr. Saumya Swaminathan, Chief Scientist, World Health Organisation, highlighted the steps taken internationally to combat the pandemic and the way forward. Dr. Swaminathan appreciated the way India has tackled the COVID-19 challenge. The DG, CII Mr. Chandrajit Banerjee; President, CII Mr. Vikram Kirloskar, Dr Neeraj Sharma, Secretary, TDB, were also among those present in the inaugural session.

The conference has hence, brought together scientists, technocrats, government officials, diplomats, WHO officials and dignitaries from national and international industry, research institutions and academic institutions on a single platform to share their insights on the role played by S&T in the global healthcare crisis and to find solutions to address the current challenge.

IEA: investment in energy efficiency, renewables and electricity grids can generate million of jobs in the coming years

According to the Executive Director of IEA, Mr. F. Birol of International Energy Agency (IEA), the global investment in energy efficiency, renewables and electricity grids can generate around 9 million jobs over the course of three years.. energy efficiency, renovation, buildings and renewable energy especially solar power creates millions of jobs. Electricity grids, building renovation and modernisation along with energy efficiency and renewables can create 9 million jobs globally in next 3 years. Mr. Biro was recently addressing the IEA's Fifth Annual Global Conference on Energy Efficiency.

He added that these sustainable measures can boost global economic growth by an average of 1.0 percentage points a year. Energy efficiency is a job machine, even the governments who do not care about clean energy or climate change, do care about economic growth and jobs, adding that the governments should go for energy efficiency measures if they take job creation seriously.

Mr. Ajay Mathur, Director General, The Energy and Resources Institute (TERI) who was also present at the conference said that all over the world we are seeing economic stimulus packages on jobs, sustainable livelihoods and economic growth and this is exactly what energy efficiency brings to the table. "Energy efficiency creates jobs which are sustainable and are there forever and at the same time it increases productivity by saving money and enhancing economic growth," Mr. Mathur said. He added one thing which is emerging across the world geographies is the need for more and more cooling and therefore it is absolutely important that air-conditioners are energy efficient.

According to Mr. Mathur, energy efficiency in industries increases productivity particularly in small and medium enterprises (SMEs) creating huge employment opportunities. To encourage the SMEs to adopt the energy efficiency measures be it in efficient motors, boilers, furnaces etc, we need to provide them a certain economic package to gain their confidence, he said.

DST constitutes joint Science Communication Forum to promote common policy and best practices

The Department of Science & Technology has constituted a joint Science Communication Forum with a view to facilitate interaction, cooperation, and coordination amongst various public sector science communication institutions and agencies.

The Forum brings together science communication efforts spread across various institutions and can help adoption of a common policy and best practices at a wider scale, ultimately aiming towards a national science communication framework. It is represented by senior officials from various central ministries and departments, including Agriculture, Health, Culture, Defense, Space, Atomic Energy, and Information & Broadcasting, in addition to Science & Technology.

Prof. Ashutosh Sharma, Secretary, Dept. of Science & Technology said that the Forum would work upon strategies for effective planning and implementation of science communication programmes at macro and micro level in the country to spread scientific awareness and inculcate scientific temper amongst the masses leading to an innovation-driven society. The Forum would be served by a Secretariat at the National Council for Science & Technology Communication (NCSTC), Department of Science & Technology, which is mandated for coordination with different organizations, programmes and activities focused on science communication in the country and orchestrating them for enhanced public understanding of science with a scientific bent of mind. It is also mandated to formulate countrywide programmes, policies, and activities in the domain of science communication and popularization in the country.

India has a very robust organizational structure on science communication. At least five national organizations are working on the growth and development of science communication. These are the National Institute of Science Communication and Information Resources (1951), Homi Bhabha Center for Science Education (1974), National Council of Science Museums (1978), National Council for Science & Technology Communication (1982), and Vigyan Prasar (1989). In addition, different scientific organizations have their own science communication wings. They include Unit for Science Dissemination (CSIR), Directorate of Knowledge Management in Agriculture (ICAR), Publication & Information Division (ICMR), Directorate of Public Interface (DRDO), Public Awareness Division (DAE), Office of Media & Public Relations (ISRO), Science Cells, AIR, etc. Almost all national laboratories and scientific institutions have some institutional mechanisms for science communication and public outreach.

These organizations are contributing to science communication using various ways and means and reaching out to the masses. However, there seems to be ample scope for interaction and integration for evolving and adopting common policies and following best practices at a much wider scale. Concerted and collective countrywide programmes are needed to be worked out and implemented jointly by integrating them, and eventually, a national science communication framework may emerge. The public communication of science and technology and inculcation of scientific temper among masses necessitates interaction, cooperation, and coordination amongst various stakeholders for better planning, policy, and implementation of large-scale science communication programmes in the country.

NTPC in pact with ONGC to set up JVC for renewable energy business

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. The MoU will enable both companies to accelerate their footprint in renewable energy.

The MoU was signed by Mr. A K Gupta, Director (Commercial) NTPC and Mr. Subhash Kumar, Director (Finance) and In-charge Business Development and Joint Venture, ONGC. The MoU signing activity has been done on Virtual conferencing mode in the august presence of Mr. Gurdeep Singh, CMD NTPC and Mr. Shashi Shanker, CMD ONGC along with the other Directors and officials of both the companies.

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.

NTPC presently has 920 MW of installed renewable power projects in its portfolio and about 2300 MW of RE projects under construction. With this tie-up, NTPC would accelerate its RE capacity addition programme and also expand its footprint in offshore wind and overseas renewable energy projects. This will help India's largest power generator achieve its ambitious target of 32 GW of renewable energy projects by 2032.

ONGC has a renewable portfolio of 176 MW comprising 153 MW wind power and 23 MW of solar. This development will enhance the presence of ONGC in the renewable power business and enable its ambition to add 10 GW of renewable power to its portfolio by 2040.

With NTPC Group's total installed 62,110 MW capacity, the company has 70 power stations comprising 24 coal, 7 combined cycle gas/liquid fuel, 1 hydro, 13 renewables along with 25 JV power stations.

Republic of Mali has awarded PMC contract to NTPC for development of 500 MW solar park

In an event held on 24th June, 2020, chaired by the Hon'ble Minister of State for Power, NRE, Skill Development and President of International Solar Alliance (ISA), Mr. R. K Singh and Honourable Ambassador of Mali, H.E. Sekou Kasse handed over the Project Management Consultancy award letter to Mr. Gurdeep Singh, CMD NTPC, for development of 500 MW solar park in the Republic of Mali.

ISA's vision is for a large-scale solar revolution, hinges on creating a facilitative international ecosystem that enables access to science and economic resources, reduces the cost of technology and capital, facilitates price reduction, and enables development of storage technology and innovation. With its scale and authoritative understanding of the energy transition opportunities of diverse economies, ISA is the world's foremost energy transition catalyst for bringing a change from energy poverty to energy empowerment.

The event was hosted by ISA in the Ministry of Renewable Energy, New Delhi, and graced by Director General ISA- H.E Upendra Tripathy, Secretary (Power), Mr. Sanjeev Nandan Sahai and Secretary (MNRE), Mr. Indu Shekhar Chaturvedi and Secretary (Economic Relations) Mr. Rahul Chhabra and other dignitaries.

The Republic of Mali has been taking various initiatives towards energy security of the country, especially to increase access to electricity for its citizens, with a focus on solar power and applications. Development of solar projects in Mali will make a considerable impact in socio-economic growth of Mali.

NTPC, a leading global power company with 62,110 MW installed capacity has vast experience in setting up of solar projects and handling various solar programmes like the National Solar Mission in India. In 2019, ISA endorsed NTPC

as a Project Management Consultant through a competitive process for the member countries to avail the services of NTPC. Earlier the Republic of Togo engaged NTPC for similar PMC support for development of 285 MW solar park in Togo. NTPC plans to anchor 10,000 MW of solar parks in ISA member countries in next two years.

Solar parks are being showcased as a best practice from India which had started these as a novel concept and has commissioned a number of projects, thus bringing down cost of solar energy substantially, bringing in investment, creating employment and benefitting the environment in the process.

Unit 150 MW of 600 MW Kameng HEP in Arunachal Pradesh commissioned

One Unit (150 MW) out of 600 MW Kameng hydroelectric project of 4×150 MW has been commissioned for commercial operation by North Eastern Electric Power Corporation Limited.

With the commissioning of this unit, Arunachal Pradesh will receive 13.83 per cent i.e., 20.75 MW out of 150 MW Kameng HEP in which 12 per cent is the free power to the home state and remaining 1.83 per cent is the share allocation.

The Deputy Chief Minister, Chowna Mein who is also the Minister in charge of Power and Renewable Energy Resources said that the second unit is expected to be commissioned in a week time and the other two turbines shall be commissioned after repair work of penstock is completed but targeted to be made commercially operational within this fiscal year.

After the successful commissioning of all the four units of Kameng HEP (4×150 MW), Arunachal Pradesh will receive a share of 83 MW power. Apart from revenue generation, this hydroelectric power project is expected to provide employment opportunities to the educated youths of the state and promote industrialization in the region.

Concession agreement signed between Bhutan and India

The Concession agreement for the 600 MW Kholongchhu (Joint Venture) hydroelectric project was signed between Bhutan government and Kholongchhu Hydro Energy Limited. This will lead to the commencement of construction of the first joint venture hydroelectric project between India and Bhutan.

The Concession Agreement for the 600 MW Kholongchhu (Joint Venture) hydroelectric project was signed between Bhutan government and Kholongchhu Hydro Energy Limited. The project is expected to be completed in the second half of 2025.

Kholongchhu Hydro Energy Limited is a Joint Venture company formed between Druk Green Power Corporation (DGPC) of Bhutan and Satluj Jal Vidyut Nigam Limited (SJVNL) of India.

The 600 MW run-of-the-river project is located on the lower course of the Kholongchhu river in Trashiyangtse district in Eastern Bhutan. The project envisages an underground powerhouse of four 150 MW turbines with water impounded by a concrete gravity dam of 95 meters height.

The Concession Agreement for the 600 MW Kholongchhu (Joint Venture) hydroelectric project between the Royal Government of Bhutan and Kholongchhu Hydro Energy Limited was signed on 29 June 2020 in Thimphu, in the presence of Mr. S. Jaishankar, External Affairs Minister, Government of India and Mr. Lyonpo Tandi Dorji, Foreign Minister, Royal Government of Bhutan.

"Lyonpo Loknath Sharma, Minister of Economic Affairs, Royal Government of Bhutan and senior government officials including Foreign Secretaries of India and Bhutan, Secretary (Power), Government of India, Ambassador of India to Bhutan and Ambassador of Bhutan to India were also present at the signing ceremony, which was held through video conferencing."

Mr. Jaishankar and Mr. Dhorji emphasized the importance of hydropower development as an important pillar of mutually beneficial bilateral economic cooperation.

They also recalled the trust, co-operation and mutual respect that have long characterized the unique and special friendship, anchored in mutual understanding and reinforced by a shared cultural heritage and strong people to people links between India and Bhutan.

Hydropower sector is the flagship area of India-Bhutan bilateral cooperation. The 720 MW Mangdechhu hydroelectric project was jointly inaugurated earlier in August 2019 by the Prime Ministers of India and Bhutan.

With this, four (4) hydroelectric projects of bilateral cooperation (336 MW Chukha HEP, 60 MW Kurichhu HEP, 1020 MW Tala HEP and 720 MW Mangdechhu HEP), totaling to over 2100 MW, are already operational in Bhutan.

India needs to focus on export of renewable energy

According to the Chairman, National Solar Energy Federation of Indis (NSEFI) P.R. Mehta, to utilise the untapped potential of exports in the field of renewable energy, the country needs to shift focus on the export of sustainable energy to rest of the world as we have already formed NSEFI members a Renewable Energy Export Promotion Council of India on the line of Gems and Jewellery Export Promotion Council (GJEPC) to encourage export of renewable energy from India. Mr.Mehta said during a virtual round table discussion on "Solar Energy Storage and Inter-Continental Grids".

He said that we need to promote the idea of million mini grids which is the need especially in growing countries like Africa and also in many parts of India to make people selfsufficient to meet their energy needs. Right vision, policy and technology is already there in the country but implementation is the key, he further said.

Mr. Anil Shrivastava, NITI Aayog's Principal Consultant for mobility who was also present at the discussion said that on one hand we are talking about intercontinental grids, huge and mega storage and generation parks but what we require is to handle things at the local and granular level." The success stories will be emerging through rooftop solar generation, local storage and utilisation and local generation from solar and renewable energy sources in rural areas and villages of the country," Mr. Shrivastava said.

Monsoon brings hopes of power generation from Telaiya dam

The good spell of monsoon rains so far increased the water level in Telaiya dam in Koderma by seven feet, bringing hopes of power generation from both the units of the hydro power plant soon. Senior divisional engineer of DVC in Koderma, Ajit Sharma said, "The water level in the dam has touched 1,198.97 ft, which is seven feet higher than last year during this period. The generation of electricity will begin from both the units of the hydropower plant soon after the level touches 1,200 feet and this is expected to happen soon."

The hydropower plant has a capacity of generating 96 MW electricity per day. Telaiya dam is the first of the four multipurpose dams made in the first phase by Damodar Valley Corporation across Barakar river. He added that last year due to less rains, three feet less water was discharged from the dam. This year, we do not see any shortage to produce power.

Telaiya dam not only generates electricity, but also caters to the water needs of the district. The dam has a catchment area of 984 sq km. Mr. Vinod Kumar, executive engineer, drinking water department (PHED), said, "From the dam, around 6,500 kilo litre water is supplied to Telaiya area and in Koderma, it is 1,100 kilo litre of water per day. In rural areas like Urwan and Chandwara, we supply 225 kilo litre and 100 kilo litre water per day."

He added that last year, the dam had shifted its bed away from the intake well on its catchment area and they had to manage it with the help of earthmovers to bring water into the intake well. "This year hopefully we will be able to supply water hassle free," he said.

JERA to form floating wind farm JV with France's ADEME, Ideol

According to Japanese power generator JERA has agreed with France's state-owned investment firm ADEME Investissement and French floating wind technology supplier Ideol on key terms for forming a joint venture to develop floating offshore wind farms. They aim to make a final agreement by the end of this year to jointly establish an investment vehicle to finance the development phase of at least 2 GW of floating offshore wind projects using Ideol's technology, a JERA spokesman said.

Their goal is to have the joint venture be involved in the development of several floating wind farms across the globe in the next 5 years, with plans to make tenders for upcoming projects in Scotland and France in early 2020s, the spokesman said. "We believe that floating offshore wind is on its way to confirm its potential and become a substantial contributor to achieving future climate goals," Arnaud Leroy, president of ADEME Investissement, said in the statement.

"This partnership aims at financing first commercial scale projects and at supporting Ideol's technology as both will contribute to accelerate the competitiveness of floating offshore wind," he said.

ADEME Investissement was created in 2018 under the French Agency for Environment & Energy Management (ADEME) to finance innovative infrastructure projects in ecological and energy transition areas. JERA is the joint venture between Tokyo Electric Power Company Holdings and Chubu Electric Power Co.