
With the launch of RTM on 1st June 2020, electricity distribution companies and generators will gain access to contracts in real time which will help them to optimize their demand supply equation and provide them the opportunity to capitalize the surplus deficit scenario. Establishing RTM is a landmark move by the Central Electricity Regulatory Commission (CERC) and according to estimates by Indian Energy Exchange (IEX) and Power Exchange of India Limited (PXIL), around 20 billion units of power would be traded annually through RTM. A staggering 1.64 million units of power were traded on the platform within a few hours of RTMs launch.

To incorporate the RTM system, CERC amended three regulations i.e Indian Electricity Grid Code Regulations, Power Market Regulations, and Open Access in Inter-State Transmission Regulations.

Relevance and Impact

Electricity markets in real time are expected to help various stakeholders with reduced volatility and uncertainty due to increased share of renewables in the grid. It is also expected to increase the efficiency of the power purchase portfolio management as:

- Certainty in the sector increases by the introduction of gate closure and faster bidding mechanism
- Enabling access to a larger pool of power generators with surplus reserves
- DISCOMs, like generators, can also sell their un-requisitioned power and gain additional revenue (50% of gains realised)
- DISCOMs can estimate demand more accurately in real time and can fill the gaps created due to demand estimation errors in day ahead scheduling
- Generators can also buy power from the RTM in case of forced outage to fulfil their contractual commitments
Many states operate costly generators to meet demand during system peak hours (within the states) and run these plants at technical minimum during the rest of the day. This results in overall high cost of system operation. Though existing intraday markets provide opportunities to the states to replace such costly generators with cheaper resources in other states, such transactions are rarely observed. It has been estimated that if each state were to replace its costly generation with cheaper resources available (in Real Time) in other states, the total daily power purchase cost of the country would reduce substantially. Liquidity in the RTM will increase because of the design change in the form of auction and gate closure. DISCOMs have developed confidence over the period in the auction method of Day Ahead Market (DAM). Further, strong deterrent against deviation (already initiated by way of amendment to CERC Deviation Settlement Mechanism (DSM) Regulations) would drive the market participants towards organized markets which eventually would increase depth of RTM. Greater awareness and capacity building will definitely ease and quicken the process. Some of the benefits to the DISCOMs are listed below:

i. DISCOMs would have access to larger pool of generation resources to meet their contingent requirement in real time as against the existing bilateral resources (under the right to recall) to meet contingencies;

ii. Prices discovered in real time market are likely to be more efficient than the cost of procurement of power from the bilateral arrangement under the right to recall;

iii. In the event the generation resources (with which the DISCOMs have contracts) sell the un-requisitioned surplus in the real time energy market, the net gains shall be shared with the DISCOMs in the ratio of 50:50;

iv. Alternatively, the DISCOMs themselves can sell the surplus power from their contracted generation sources in the real time market and earn the revenue in full.

The current framework manages real time energy imbalances as well as inadvertent system imbalances primarily through DSM / AS mechanism, and partly through re-scheduling and intra-day market in the power exchanges. This has thrown up challenges that call for changes in market design. The recommendation that has evolved is for drawing a line of demarcation between ‘energy trade’ and ‘system imbalance’ handling. There is definitely a case for co-optimization of the two segments, but this should not imply mixing up the two and managing them jointly through a mechanism which is meant for handling only system imbalances. Further, because of the provision of rescheduling, it becomes difficult to maintain firmness of day-ahead schedule. Hence, the need for a clearly identified real time / intra-day energy market with improved processes in the form of auction and gate closure.

For operationalizing real time markets, the schedules decided at the end of RTM clearing have to be both financially and physically binding. For this, the concept of Gate Closure is to be introduced. To ensure firmness of such bids and offers, the gate for schedule revision will close before the start of the auction. The gate for schedule revision for the hourly trade for 00.00 – 01.00 Hrs closes at 22.30 Hrs of the previous day. The auction is conducted for the delivery period 00.00 – 01.00 Hrs. This process is continued every hour thereafter. The gap between gate closure and delivery period will be reduced gradually as automation of the process improves.

India has set an ambitious target of 175 GW renewable energy capacity by 2022, which is driving accelerated renewable penetration pan-India. DISCOMs will be able to optimally control their portfolio of power purchases, so they will not need to tie up excess energy. This will lead to cost optimisation of power procurement and a stable supply for customers as any last-minute power demand can be easily purchased from the RTM. RTM will help address grid management problems due to the erratic and unpredictable nature of renewable energy production and therefore lead to the introduction of higher volumes of renewable energy resources into the grid. Therefore, RTM will result in shorter bidding time, faster scheduling and specified processes enabling participants to access resources across the competition-fostering all-India grid.

Policy interventions by the Ministry of Power and the CERC have enabled POSOCOs successful adoption of the RTM. RTM has marked the beginning of a new age for the Indian Electricity Sector by providing participants with more flexibility and transparency to optimize portfolio management and take care of contingencies closer to delivery time with much greater certainty.
INDIA

Government Notifies Eligibility Criteria for EV Components under FAME Program

The Ministry of Heavy Industries and Public Enterprises (MHIPE) has issued a notification to all the testing agencies regarding the eligibility under the revised Phased Manufacturing Program (PMP) for xEV (hybrid electric vehicles, plug-in hybrid electric vehicles, and fuel-cell electric vehicles) parts. The Ministry has stated that all other parts and components other than HVAC, electric compressor, DC-DC converter etc. should be domestically manufactured and assembled. These xEV parts should have safety components notified by the central motor vehicle rules (CMVR) and must be tested by the testing agencies. Read More: https://bit.ly/2X0dO2t

Government to Inject INR 900 Billion to Help Electricity Distribution Companies

Government of India has allocated INR 900 billion (USD 12.3 billion) to help electricity distribution companies recover from the COVID-19 crisis. These funds are intended to help DISCOMs out of this unprecedented situation as their revenues have dropped drastically and the loans would be given against state guarantees solely for clearing liabilities to power generating companies. Central public sector power generation companies have also been ordered to give rebates to DISCOMs, which will, in turn, be passed on to the final consumers (industrial). Read More: https://bit.ly/2LUidqU

MNRE Prepares Blueprint for Streamlining Technical Specifications for Solar Inverters

The Ministry of New and Renewable Energy (MNRE) has issued draft guidelines for standards regarding the technical specifications for solar grid-tied inverters. The draft has laid out a detailed interconnection between technical specifications and requirements along with environmental test specifications. The standards also provide a test procedure to evaluate utility-interconnected PV power systems that operate in parallel with the utility and for utilizing static non-islanding inverters for the conversion of DC to AC. Read More: https://bit.ly/3cSx9rE

International Solar Alliance Aims to Develop 20 GW of Solar Parks

Ministry of Power and International Solar Alliance (ISA) has jointly announced launch various initiatives including action plan for developing up to 20 GW of solar parks, solar PV technician skill development initiative, making solar bankable, an undergraduate program for Small Island Developing States (SIDS) and Least Developed Countries (LDC), and initiating price exploratory global bid for providing energy access to 47 million households by solar home systems. Read More: https://bit.ly/2XhXVDi

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. The proposed draft states that since the beneficiaries for off-grid solar power projects are public service institutions, there could be difficulty in arranging the beneficiary share upfront. Further, the draft states that after the guarantee period is over, continuing of operation and maintenance (O&M) of the project could be an issue due to the financial or technical constraints on the side of the beneficiary. Read More: https://bit.ly/36pBTm8

Renewable Projects in Uttar Pradesh to see New Forecasting and Scheduling Regulations

The Uttar Pradesh Electricity Regulatory Commission (UPERC) has taken note of Uttar Pradesh Power Corporation Limited’s (UPPCL) request to modify the Central Electricity Regulatory Commission (CERC) Deviation Settlement Mechanism (DSM) regulations to take care of the state-specific needs. The Commission stated that the DSM would continue to be implemented for all renewable energy-based power projects, except small hydro and municipal solid waste projects. All other renewable projects will be subject to day-ahead scheduling. The forecasting and scheduling of renewable power and compensation to be paid to electricity grid infrastructure providers in case of errors are regulated through Deviation Settlement Mechanism. Read More: https://bit.ly/2zo6dd4

India to Privatise Discoms in all Union Territories, Explore PPP Across States

India will privatize electricity distribution companies (discoms) in all its eight union territories, and explore public-private partnerships for power distribution in some states. Unlike discoms in states governed by the respective state governments, those in Union Territories are directly administered by the central government. The move comes in the backdrop of the government announcing a reform-linked ~90,000 crore bailout package for fund-starved discoms, along with concessional tariffs.

India’s electricity distribution reforms scheme tentatively named Atal Distribution System Improvement Yojana (Aditya) aims to cut electricity losses below 12%. Read More: https://bit.ly/3cIXRTv
INTEGRATIONAL

Bank of Bangladesh Adds 200 Million Euro to its Green Transmission Fund

The Bank of Bangladesh has decided to introduce 200 million euro along with the existing USD 200 million for the Green Transmission Fund (GTF). Accordingly, the participating authorized dealers (ADs) will now be able to draw loans from GTF at Euro Interbank Offered Rate (EURIBOR) plus 1% of the admissible purposes. The loan is given for on-lending, re-financing, to borrowers for implementing green and environmental-friendly initiatives. The bank charges interest at the USD London Interbank Offered Rate (LIBOR) plus 1% to the dealers against their financing to eligible borrowers. The profit margin is generally kept within the range of 1-2% above the cost of borrowing. Read More: https://bit.ly/2TwAXae

China Likely to Improve its Subsidy Policy for Electric Vehicles

The Ministry of Finance of the People’s Republic of China has issued a notice on ways to promote financial subsidies for new electric vehicles. It stated that the current subsidies for fuel cell-based vehicles must also be adjusted and that the industry must strive to establish a hydrogen energy and fuel vehicle industry chain in about four years. It stated that new EVs purchased between January, 2021 and December, 2022, would be exempted from vehicle purchase tax. This also covered plug-in hybrid vehicles and fuel cell vehicles. Read More: https://bit.ly/2LRMqgH

Blockchain-Based Renewables and Storage Initiative Wins USD 9 Million State Grant in California

The California Energy Commission (CEC) issued a USD 9 million grant to energy equity non-profit The Energy Coalition and electricity tech firm Community Electricity, for a project that aims to provide locally produced renewable energy at-scale to disadvantaged communities in Los Angeles County. The 28,000-resident Bassett-Avocado Advanced Energy Community (BAEAC) in the San Gabriel Valley will serve as the “site host” of the community-scale prototype, which will distribute energy services on a “blockchain backbone. Some of the main components of the system will be an App for community members, a smart community solar and storage system, campus micro grid with clean back up power, smart pollution sensor network and virtual power plant integrating 50 single-family homes with solar and battery storage. Read More: https://bit.ly/2AMNM9Z

South Korea Unveils 14 year Plan to Shift from Thermal to Renewables

South Korea has unveiled a long-term energy plan for 2020-2034 in shifting from thermal and nuclear power generation to renewable energies. The plan aims to raise the share of renewables in the power capacities from the current 15% to 40% by 2034, whilst keeping the share of LNG-fired power plants from around 31-32% and closing all the expiring coal-fired power plants. The 2020-2034 plan also envisions the closure of some nuclear power units from 26 in 2024 to 17 in 2034, which would reduce the share of nuclear in South Korea’s power capacity from 19% to 10% by 2034. Read More: https://bit.ly/3bOxzO0
Smart Grid Updates: Technology & Projects

Grid Modernization

IREC and GridLab Release Tool for Regulators to Assess Grid Modernization Plans in USA

The Interstate Renewable Energy Council (IREC) and GridLab announced the release of “A Playbook for Modernizing the Distribution Grid; Volume I: Grid Modernization Goals, Principles and Plan Evaluation Checklist,” an evaluation toolkit to ensure that efforts to modernize the U.S. electricity grid are more efficient and impactful. The Playbook will help stakeholders and regulators determine whether or not grid modernization plans and investments are compatible with and supportive of critical public policy objectives, including the expansion of renewable energy, the decarbonization of the electricity system and the beneficial electrification of the transportation and building sectors. The Playbook is particularly relevant given that over 150 states, local governments and prominent businesses have adopted ambitious renewable and clean energy goals to address climate change and improve grid resilience, and utilities across the country are making investments in and plans for the grid that will impact the achievement of these goals. Read More: https://bit.ly/3q8li9FEM

European Grid Operators Launch Flexible Blockchain Platform

In an important step forward for the energy transition, some of Europe’s biggest Transmission System Operators (TSOs) are collaborating on a new blockchain-based platform, enabling the integration of small and distributed consumer-based units into the electricity-balancing process. Owners of consumer devices, electric vehicles for example, can earn money making “flexible” their interaction with the electric grid via an aggregator, affording them an active role in grid-balancing and with that in the entire energy transition. The new platform, Equigy, will set a new European standard and allow three of Europe’s national TSOs - the entities tasked with transporting energy and balancing supply and demand to work together to enhance and improve the integration of renewables, providing more flexibility to mitigate their aleatory effect on grid. Read More: https://bit.ly/36ehPTE

Smart Metering

COVID-19 Slows Meter Market, Accelerates Software Spend

Total smart meter shipments from 2019-2025 could fall by as much as 28% due to COVID-19 (worst-case scenario). At the same time, however, COVID-19 could drive more spend than ever before on bayndothmeter software and services over the next ten years. In the short-term, the number of infections within a country is the largest factor in halting any rollouts, but the pace of recovery is strongly connected to the original drivers behind any smart meter rollout enforced legislation or organic investment opportunity.

However, utilities with legal obligations to install smart meters (as in many European countries for electricity and gas) face penalties/ fines for delays and will therefore recover faster. On the other hand, utilities who invest in AMI based primarily on an organic business case aren’t legally obligated to invest in AMI. Read More: https://bit.ly/2yZf5Gy

Semtech and Vision Partner on LoRa-based Advanced Metering

Semtech announced that IoT utility metering solutions developer Vision Metering has incorporated its LoRa devices and the LoRaWAN protocol into its line of advanced metering infrastructure (AMI) based smart electric meters and meter interface units for water and gas meters. Vision’s LoRa-based applications enable the upgrade of legacy metering solutions, requiring traditional walk-by reading methods, to fixed, long range AMI, for hourly or daily data transfer over LoRaWAN networks for efficient utility management and billing.

In the U.S., cooperative and public-owned utilities provide services for thousands of communities accounting for nearly 30% of the total market. Unlike investor-owned utilities, these operators often do not have access to the latest advancements in metering technology and utilize legacy systems, which are difficult and expensive to read. Read More: https://bit.ly/3bKVzJn

EESL Installs 1.2 Million Smart Meters, Helps DISCOMs in Billing During COVID-19 Crisis

The Energy Efficiency Services Limited (EESL) announced that it has installed over 1.2 million smart meters in India to date under the Ministry of Power’s (MoP) Smart Meter National Program (SMNP).

According to the EESL, over 984,000 smart meters have been installed in Uttar Pradesh, over 123,000 in Haryana; around 57,000 in New Delhi Municipal Council (NDMC) area; and 28,000 in Bihar. NDMC was the first municipal council in India to implement a 100% smart metering solution in its area. EESL added that the DISCOMs in these states have been able to handle their operations smoothly during the ongoing Coronavirus crisis. It noted that it has installed 1,206,435 smart meters to date. Read More: https://bit.ly/2zOyyke

Electric Vehicles

Hitachi to Bankroll UK Chain of Solar-Powered Supercharging Stations

Hitachi Capital is scaling up its financial support for a network of electric vehicle superchargers in the U.K. in partnership with Gridserve. Gridserve’s model is to develop subsidy-free solar-plus-storage plants alongside a network of EV infrastructure. The first such solar site was connected to the grid in December 2019, a 34.7-megawatt solar system paired with a 30megawatt-hour Samsung battery that is being operated. The first of its “Electric Forecourt” filling stations is currently under construction and expected to open in the coming months. Gridserve is targeting 100 charging sites across the country by 2025 and is also developing...
its next two solar farms. Hitachi has already backed U.K.-based Gridserve to the tune of £5.6 million ($6.9 million). Gridserve’s first EV charging station in the southeast of England will have space for 24 vehicles to refill at the same time at speeds of up to 350 kilowatts. Read More: https://bit.ly/2ZfYrRzd

**NTPC to Run Hydrogen Fuel cell Buses and cars in Delhi and Leh**

Thermal power giant National Thermal Power Corporation Limited (NTPC) has announced the launch of its new project involving hydrogen fuel cell vehicles to run in Delhi and Leh. The corporation mentions in a statement that it will procure 10 hydrogen fuel cell-based buses and an equal number of such cars. This will be the first time such a project will be undertaken in India, wherein a complete solution from green energy to fuel cell vehicle would be developed. NTPC Ltd, has invited Global Expression of Interest (EoI) to provide 10 Hydrogen Fuel Cell (FC) based electric buses and an equal number of Hydrogen Fuel Cell-based electric cars in Leh and Delhi. The initiative, which has been undertaken with the support of Ministry of New and Renewable Energy, will also harness renewable energy for the generation of hydrogen and develop its storage and dispensation facilities as part of pilot projects at Leh and Delhi. NTPC has been taking various technology initiatives to provide complete e-mobility solution for public transport, including creation of public charging infrastructure and providing electric buses to state/city transport undertakings. Read More: https://bit.ly/2WE2tFG

**Okaya Power Collaborates with CharIN EV to Promote Electric Mobility**

Okaya Power has announced to have become a core member of the Charging Interface Initiative (CharIN E.V.), an open coalition of world-class firms within the electric vehicle (EV) industry. The move is aimed at supporting the Combined Charging System (CCS) as a global standard for EV charging with aim to enhance charging experience and promote electric mobility in the country. While the coalition with CharIN E.V. continues to refine the CCS, it also shows Okaya’s commitment towards promoting mass adoption of electric vehicles by providing universal and internationally flexible charging system. Further, Okaya has joined CharIN to contribute to the global electric mobility revolution with its expertise in development of EV Chargers which uses latest technology and communication standards. These include Combined Charging solution (CCS)-CharIN and CHAdeMO, a quick charging standard for electric vehicles. Read More: https://bit.ly/3q1rAjh

**China to Introduce Wireless Charging for Electric Vehicles, Ties with MIT Startup WiTricity**

China is planning to introduce standard wireless charging for Electric Vehicles (EV). Notably, on 6th of May 2020 China Electricity Council (CEC), along with China Automotive Technology and Research Center (CATARC), has introduced a set of national standards for electric vehicle wireless charging. For wireless EV charging, CEC is deploying Massachusetts-based company WiTricity’s magnetic resonance technology. WiTricity is an MIT spin-off, focused on both consumer appliances as well as electric vehicle wireless charging. WiTricity has been actively involved in the Chinese EV wireless charging standardization process through its work with China Electric Power Research Institute (CEPRI), CATARC and the CEC. With a global IP portfolio of over 1400 issued and pending patents, WiTricity has declared twenty Chinese patents as standards essential to systems implementing the GB standard, a Chinese national standards issued by the Standardization Administration of China (SAC). Read More: https://bit.ly/36bqndS

**Govt. of India Invites Suggestion for Amending MV Rules Related To Emission Standards of e-rickshaws**

The government has invited suggestions for amending motor vehicle rules related to emission and noise standards of e-rickshaws and e-carts. The Ministry of Road Transport and Highways has invited suggestions and comments from all stakeholders, including general public, on the proposed amendment in the motor vehicle rules regarding compliance with emission and noise standards, according to an official statement. “A Notification to this effect has been issued on the 11th last, which can be seen at www.morth.gov.in. The Draft Notification…dated May 11, 2020 is regarding revision of FORM 22, road worthiness certificate for compliance to Emission and Noise Standards, issued by the manufacturer or importer or registered e-rickshaw or e-cart association in case of e-rickshaw or e-cart,” the statement by the ministry said. Read More: https://bit.ly/2X7eDoX

**Energy Storage**

**Asian Development Bank Signs US$72m Loan for Thailand Wind-plus-Battery Project**

The Asian Development Bank (ADB) has signed a loan deal for its first wind energy-plus-battery storage project in Thailand, which is also the country’s first private sector initiative to combine the two technologies at scale. The ADB will lend THB235.55 million (US$7.2 million) for the construction of the Southern Thailand Wind Power and Battery Energy Storage Project, which will

**ADB will lend THB235.55 million (US$7.2 million) for the construction of the Southern Thailand Wind Power and Battery Energy Storage Project.**
add an integrated 1.88MWh battery energy storage system (BESS) to an existing 10MW wind turbine power plant. The addition of the BESS is being considered a pilot scheme that could go on to be replicated and scaled-up elsewhere in Southeast Asia. While the majority of the turbines’ output will go straight into the local electrical grid, the BESS will store energy at times when the output exceeds the grid’s capacity to take it, increasing the amount of renewables that can go into the grid as well as helping to ensure the stability and reliability of the renewable energy source. Read More: https://bit.ly/2X6g9N5

**Storing Wind and Solar with New Gravity-Based System**

Scottish start-up Gravitricity is planning a project to store surplus power from renewables at Port of Leith. A 250 kW, grid-connected prototype facility will have its ability to stabilize the network tested. The system involves a 16m rig over a 150-1500m shaft. Gravitricity said the mass used can range from 500 to 5,000 tons and the electricity discharged could power 30,000 nearby homes for two hours. The start-up claimed sophisticated winches and a control system can lower the mass very quickly, making it flexible enough to stabilize electricity networks at 50Hz and ensuring the set-up can respond to full power demand in less than a second. Read More: https://bit.ly/2LDsgGV

**Department of Energy. USA Solicits Comments on Energy Efficiency Test Procedures for Battery Chargers**

The U.S. Department of Energy (DOE) issued a Request for Information (RFI) last week soliciting comments no later than June 3, 2020, on possible revisions to the energy efficiency regulations for battery chargers. Understanding how both the existing regulatory regime and any proposed changes will impact a company’s battery chargers and related products is an essential but often overlooked component of company compliance programs, and compliance failures can result in substantial civil penalties. Read More: https://bit.ly/2LDsgGV

**Renewable Energy and Micro Grid**

**Tasmania Heads Towards 200% Renewable Energy Target**

Announcing its vision to implement a number of actions towards improved renewable energy generation, the Tasmanian Government is shifting its focus towards the field for the next two decades. In its outline, they noted that there has never been a more critical time to streamline the move to renewables, especially as the economy looks for ways to recover from COVID-19’s impact. The state is currently on track to become fully self-sufficient through renewables by the year 2022. This will make it the first state in the country with a generation rate that’s 100% based off of renewables alone. But beyond this, Tasmania is also well-positioned to achieve a double in renewable production by the year 2040, which would significantly contribute to Australia reducing its emissions. Even globally, this kind of ambitious goal is unheard of and would mean Tasmania increases its output by up to 10,500GWh per year (if current 2022 goals stand correct). A temporary target of 15,750 of GWh has also been placed alongside a 150% objective by 2030. Read More: https://bit.ly/2zOQ1Jm

**Tokyo Olympic Games 2020 Targets 100% Renewable Energy**

The Tokyo Organising Committee of the Olympic and Paralympic Games (Tokyo 2020) is planning to deliver sustainable Tokyo 2020 games including the promotion of the use of 100 percent renewable energy at Olympic Venues, with hydrogen for electric vehicle fleet and the Olympic and Paralympic cauldrons reducing CO2 emissions and promoting the 3Rs concept to “Reduce, Reuse, Recycle” at Tokyo 2020 venues. Read More: https://bit.ly/SclvEML

**India’s Ultra-Mega Solar Parks Offer $500-700 Billion Investment Potential**

The country’s ultra-mega solar parks have offered potential investors an opportunity to join $500-700 billion renewable energy and grid infrastructure investment boom in the coming decade. India now has a capacity of 1 GW across multiple ultra-mega solar parks, two of which are the largest commissioned in the world. The Bhadla solar park in Rajasthan is the world’s largest such installation to date, covering more than 14,000 acres with total capacity of 2245 MW.

**3.35 GW of Wind Capacity Auctioned in the Q1 2020; 1.2 GW in India**

The Global Wind Energy Council (GWEC) has published its first quarter wind auction database under its Market Intelligence’s services. The database reveals that from January to April 2020, a total of 3.35 GW of wind power capacity was auctioned, with 2.1 GW in Europe and the remaining 1.2 GW in Asia. It also stated that during the same period in 2019, nearly 5 GW of capacity was auctioned. This significant difference can predominantly be attributed to the COVID-19 crisis, with delayed and postponed auctions in key markets such as Brazil, China, and the US for offshore wind. However, many key markets for wind energy have continued their auctions as planned despite the crisis, which will be important in securing the growth of the industry. In India, the world’s fourth-largest onshore wind market, 1.2 GW of renewable hybrid capacity was auctioned for projects that include both an energy storage system and renewable energy capacity. A tender for another 2 GW of wind energy capacity was announced on March 7, 2020, with tariff caps removed from the auction to boost investment. Read More: https://bit.ly/2LBdbyA

**Solar-Wind-Battery Microgrid Completed and Powering Remote Western Australia Gold Mine**

A ground-breaking 56MW solar, wind and battery project built to power a gold mine in remote Western Australia has been...
completed, marking the largest hybrid microgrid of its kind in Australia and the first in the country to use wind-generated electricity to power a mine. Global energy producer EDL said that it had successfully completed the project for Gold Fields’ Agnew Gold Mine, with all five wind turbines “up and running and successfully integrated” into the microgrid in W.A.’s northern goldfields region. As well as the 18MW of wind power, the ARENA-backed microgrid has a 4MW solar farm, a 13MW/4MWh battery storage system and an off-grid 21MW gas/diesel engine power plant, all controlled by an advanced microgrid system. In favourable weather conditions, the project had proven capable of delivering up to 70% of Agnew’s power requirements with renewable energy. On average, however, the microgrid is expected to supply around 50 per cent of the gold mine’s electricity from renewables, through a 10-year power purchase agreement with EDL, who will act as owner-operator of the off-grid system. Read More: https://bit.ly/2X9M8qD

Pacific Energy Buys Aussie Solar, Battery Microgrid Hybrid Systems

Australian power group Pacific Energy has acquired compatriot Hybrid Systems Australia, a renewable energy solution provider specialising in solar and battery microgrids. The remote energy company, owned by funds advised by domestic alternatives investment firm QIC, expects the acquisition to help it expand its presence in the emerging integrated renewables market. More specifically, it will provide it with a strong foothold in the market for stand-alone power systems (SPS) and microgrids and also support its power solutions business for miners in remote locations. Set up in 2015, Hybrid Systems has developed a standardised off-grid hybrid power product range consisting of self-contained battery and inverter packages coupled with solar and a back-up generator. It is supplying those systems to government-owned Western Power for serving customers at remote locations. Read More: https://bit.ly/3bJNi18

Cyber Security and Standards

Asigra Partners with Priseda to Power Private Cloud DRaaS and Cybersecurity in Canada

Asigra Inc., a leader in backup and recovery software that delivers comprehensive repository cyber protection, today announced that its Infrastructure-as-a-Service (IaaS) partner, Priseda LLC, unveiled its enterprise full-service DRaaS and network management framework. The new GridObserver (GO) solution for business customers provides on-demand DR and network management services (NMS), including private cloud, private network-based data protection, and disaster recovery-as-a-service (DRaaS) solutions. With the new offering, Priseda has integrated Asigra Cloud Backup with the data security, reliability, and scalability of Priseda’s private cloud and network management system, featuring patented data analytics that goes beyond reactive monitoring. Additionally, the solution auto-correlates events enterprise-wide so that IT professionals are provided with actionable intelligence. The platform provides extensibility and usability that are all-encompassing in terms of its suite of secure off-site data protection and network management capabilities. Read More: https://bit.ly/369F1Rj

FERC, USA Defers Compliance Deadlines for New Cyber Security Protocols, Other Standards

Implementation of new cybersecurity protocols, including supply chain risk-management plans, has been pushed back three months to allow the power sector to focus on grid reliability and the ongoing response to the unprecedented health crisis posed by the coronavirus pandemic. An order Friday granted the North American Electric Reliability Corp.’s April 6 motion seeking the three-month implementation delay to October 1 for three critical infrastructure protection standards, as well as a six-month compliance deadline extension for four other mandatory reliability standards that were set to become effective or be phased in during the second half of 2020. Read More: https://bit.ly/2LEBT8m

Software Developed by SMU,TexasStops Ransomware Attacks

Engineers from SMU’s Darwin Deason Institute for Cybersecurity have developed software that detects ransomware attacks before attackers can inflict catastrophic damage. When attackers encrypt files, certain circuits inside the computer have specific types of power surges as files are scrambled. Computer sensors that measure temperature, power consumption, voltage levels, and other characteristics can detect these specific types of surges, SMU researchers found. The SMU software monitors the sensors to look for the characteristic surges. And when a suspicious surge is detected, the software immediately alerts the computer to suspend or terminate the ransomware infection from completing the encryption process. Read More: https://bit.ly/2ZeP5jU

UK Electricity Grid Hit by Cyberattack

A company operating a key element of the United Kingdom’s electricity grid infrastructure has been hit by a cyberattack, with its employees locked out of their emails and from the company’s network. Elecon is one of the UK electricity system’s administrators, monitoring the amount of electricity generated by the energy companies and matching this with what the National Grid expects to receive. The company handles about 1.7 billion pounds of transactions each year through its systems, which cover about 6 million homes in the UK.In a further update later in the day, the company said it had “identified the root cause” and was “taking steps to restore” the internal IT systems. Despite the cyberattack, the UK’s electricity grid remains running as usual, with the key systems used to oversee the market not impacted by the hack. Energy supplies in the country have not been impacted, with “robust cybersecurity measures in place”, a spokesperson for the National Grid said. Read More: https://bit.ly/3cM4m8i

DISRUPTIVE TECHNOLOGIES

Power Grid Operators in Europe Launch Blockchain for Home and Car Batteries

European electricity grid operators TenneT, Swissgrid and Terna have launched a cross-border blockchain platform to help stabilise the grid while allowing households to earn “a few hundred euros per year” from their home and car batteries. The Equigy Platform, launched on April 2020, is a software that uses blockchain technology to “register and validate” tens of
Researchers at the National Renewable Energy Laboratory (NREL) are evaluating the use of blockchain for transactive energy using smart meters installed in people’s homes. Read more: https://bit.ly/2Xc4yXL

NREL, USA Researchers Evaluating Blockchain for Transactive Energy Applications

Researchers at the National Renewable Energy Laboratory (NREL) are conducting experiments to learn what could happen when two homes were connected via a blockchain with the ability for one to sell excess solar power to another. This required two blockchain transactions: a secure transmission of data about the amount of energy generated, and a payment to the seller. Central to this research is an NREL-developed software solution called foresee. As a secure home automation system, foresee coordinates the operation of connected appliances, home batteries, and rooftop solar, satisfying homeowner values and preferences along with utility grid needs. Read more: https://bit.ly/2XhSM9

IPL, USA Selected Landis+Gyr for Smart Grid and IoT Network

Energy management solutions provider Landis+Gyr has recently announced its partnership with IPL to develop new smart grid and IoT network capabilities. IPL (Indianapolis Power & Light Co.) has been developing smart energy since 2001, aiming to provide its customers with a faster, better and more efficient mode of operation.

Part of a national movement to increase the adoption of smart tech in the energy sector, the company has received US$20mn of investment from the US Department of Energy Smart Grid Investment Fund, a project involving advanced metering equipment, digital management tools, EV support and more. Read more: https://bit.ly/3e1ZI65

Digitalising the Energy Sector with Disruptive Technologies: with PLATOON, EU Bringing a Digital Platform and Analytics Tools to the Industry

The H2020 EU-funded PLATOON project provides new approaches and analytics tools for Energy Big Data, thus supporting the zero-carbon transition and developing new services in the energy domain. In an increasingly complex and heterogeneous environment, PLATOON enables the evolution from a classical centralised energy sector to a more distributed one, with intermittent renewable energy sources and new extended digital capabilities.

While contributing to artificial intelligence, interoperability, data privacy and security, PLATOON adheres to the standards of the International Data Spaces Association (IDSA), aiming thus to realise the first IDS-compliant Data Marketplace for the Energy sector. Read more: https://bit.ly/2z6KCDy

Smart Cities

Varanasi Smart City Uses Drones to Sanitize Sensitive Areas for Controlling the Spread Of COVID-19

Varanasi Smart City has engaged Garuda Aerospace Private Limited, a Chennai based company for spraying of sanitizer in the selected areas of Varanasi City under Smart Cities Mission. In view of limited options for transportation during lockdown period, these drones were specially airlifted from Chennai through Air-India Cargo fights with special permission from Ministry of Civil Aviation. A total of seven-member team with two drones was made operational and trial runs were completed on 17thApril 2020. Spraying of sanitizer through Drones is prioritized for Hot spots and Containment areas identified by the District Administration / Chief Medical Officer. The Drone is then filled with the chemical solution consisting of 1% Sodium Hypochlorite, [NaOCl], the drones are then calibrated and set ready to fly. Read More: https://bit.ly/36mVinW

Las Vegas Expands Its Accelerate Smart City Project to More Locations

Las Vegas has announced its Accelerate Smart project will be extended to two new locations: the city’s Community Healing Garden and a portion of Las Vegas Boulevard at South Main Street and East St Louis Avenue. As part of the partnership with NTT, the city plans to further broaden the smart cities project to Bob Baskin Park, Rotary Park, Stupak Park and Ethel Pearson Park this summer before adding six additional parks by the end of 2020. The partnership with NTT is part of Las Vegas’ charter in becoming a smart city to provide safe, reliable and efficient civic technology that stimulates economic growth. The city’s Smart Park Initiative is designed to increase public safety, while providing awareness of activity to generate usage and operations benchmarks that allow leadership to make more informed decisions. Read More: https://bit.ly/2bJRZlx

Bhagalpur Smart City, Bihar uses Innovative Technological Initiatives to Fight COVID19

Bhagalpur Smart City, Bihar has been supporting the city administration in combating COVID-19 using various initiatives. The key initiatives taken up by BSCL include use of technology...
for spreading awareness. Innovative IEC measures for sharing experience during lock-down periods, establishment of shelters for vulnerable population and distribution of supplies and food and other protection measures such as sanitizer preparation and distribution, mask and gloves distribution, disinfection tunnel and so on. Use of IEC and technology for guiding and spreading awareness has been the cornerstone for BSCLs support to the city in fight against COVID-19. BSCL supported the launch of mobile app – ‘Mera Bhagalpur’ and used it to create awareness, provide important information at a single point and engage people to keep their morale high during this pandemic period. Read More: https://bit.ly/36f8LxX

BSCL supported the launch of mobile app – ‘Mera Bhagalpur’ and used it to create awareness, provide important information at a single point and engage people to keep their morale high during this pandemic period.

Smart Water

NB-IoT Smart Water Meter Market is Estimated to Grow at the Highest Growth Rate till 2020-2025

The NB IoT Smart Water Meter Market Research Report aims to provide insights that strongly demonstrate the market structure, scope, history, potential, and development perspective. By crossing through the historical and present market status, the NB IoT Smart Water Meter market report provides authentic and reliable estimates for the forecast period. The Best part of this report is, this analyses the current state where all are fighting with the COVID-19. The report also provides the market impact and new opportunities created due to the Covid19 catastrophe.

It became essential to distinguish the saturation of consumption in the NB IoT Smart Water Meter market owing to building competitiveness. Hence, the report furnishes a deep-felt market segmentation analysis based on several segments such as types, applications, regions, and end-users. It serves to precisely target the actual market size and product and service needs of customers. It also helps industry companies in promoting products that completely meet emerging customer needs.

Copy of the NB IoT Smart Water Meter market research at: https://bit.ly/2Xat6Av Read More: https://bit.ly/2zMo3hw

Smart Gas

PNGRB Plans to Extend Deadlines for City Gas Projects Hit by Lockdown

Deadlines for city gas projects will be extended to avoid penalising companies for delays caused by the nationwide lockdown. This would help more than a dozen companies implementing 136 city gas distribution projects across the country. The regulator had issued about 136 new city gas distribution licences over the past two years, picking winners primarily on the basis of the work pledged, including the number of piped gas connections, natural gas stations and length of the proposed pipeline. The companies are penalised for missing annual work programme targets they proposed during bidding. The lockdown has disrupted pipe-laying and other efforts at setting up infrastructure by city gas companies. The regulator is also considering offering city gas licenses in a new auction. Read More: https://bit.ly/3cUTnJF

ISGF Online Training Program on Advanced Metering Infrastructure (AMI)

To rollout the 250 million smart meters all across India in 4-5 years would require massive capacity building in all areas – meter design, manufacturing, meter installation, communication and IT systems planning and design, implementation and system integration, project management and change management.

ISGF with support by Ministry of Power, GoI and NSGM, GoI Organised an Online Training Program on Advance Metering Infrastructure (AMI) from 20 May - 09 June 2020 to impart knowledge about the nuances of smart metering, architectures, standards, business models and implementation experiences of past project. The Online Training Program received an overwhelming response and 225 participants from Distribution Utilities, Academic Institutions and Industries participated in the Online Training in Two different modes of Training i.e Live Online Class Mode and Recorded Offline Mode. The course was tutored by experts from India and Overseas such as Anant Venkateshwaran, Director of ISGF Masterclass Series, USA; Amarjeet Kumar, Vice Chair of IEEE802.15.4u Working Group, India; Amit Bansal, Deputy General Manager, Commercial - Connection & Meter Management, Tata Power – DDL, India; Andrew Ginter, VP Industrial Waterfall Security Solutions, USA; Atul Bali, Senior General Manager, National Smart Grid Mission, Ministry of Power, Government of India; Daniel Nordell, AMI Leader, Xcel energy, USA; Glen A Pritchard, Manager Advanced Grid Operations, PECO Energy, USA; Jonathan Pettit, Manager, Oncor Electric Delivery, USA; N Murugesan, Former DG, CPRI, India; Reji Kumar Pillai, President, ISGF & Chairman

Global and Regional NB IoT Smart Water Meter Industry Share (%) by Players

www.amplemarketreports.com

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<th>Player</th>
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Copy of the NB IoT Smart Water Meter research at:

http://www.amplemarketreports.com
GSGF, India; Reena Suri, Executive Director, ISGF, India; Rajeev Kharyal, General Manager Tata Power – DDL, India, Sanjeev Rana, AGM, Tata Power – DDL, India; Vikas Kashyap, Advisor, ISGF, India. Some of the key modules of the program are - AMI Key Components; AMI System Design Principles; Standards for AMI and Communication; Common Interfaces and Integration; AMI Project Management and Planning; AMI Projects: International Case Studies; AMI Data Analytics; Rollout Challenges in AMI and 250 Million Smart Meters in India Implementation Strategy and Business Models.

The Recorded Training Program is still available for the interested Participants on https://indiasmartgrid.org/onlinetrainingprogram/. Certificate of Participation will be awarded to all the Trainees after successfully clearing the examination with minimum 40% marks. For Queries, please write to us at ronkini.shome@indiasmartgrid.org

Next Edition of Online (Live) Training Program on Advanced Metering Structure is scheduled in the Month of September 2020.

**ISGF Online Training Program on Cyber Security for Power Systems**

ISGF, in association with the National Critical Information Infrastructure Protection Centre (NCIIPC) and Veermata Jijabai Technological Institute (VJTI), Mumbai had conducted six editions of the training programs on Cyber Security for Power Systems in the past 5 years.

ISGF in association with NCIIPC and VJTI Organized first Online Training Program on Cyber Security for Power Systems from 21 May - 05 June 2020. The online Training Program received an overwhelming response and was attended by overall 113 participants from Distribution Utilities, Academic Institutions and Industries are undergoing training in the Online Training in Two different modes of Training i.e Live Online Class Mode and Recorded Offline Mode. The course was tutored by various experts from India and Overseas including Ajoy Rajani, Chair of ISGF Working Group on IOT, Smart Metering ,AI and Analytics ,ISGF, India; Andrew Ginter, VP Industrial Waterfall Security Solutions, USA; Anurag Kuthiala, Executive Solution Leader, IBM, India; Dharmendra Kumar, HOD & Chief Information Security Officer, Tata Power DDL, India; Faruk Kazi, Dean of Research & Development, VJTI, Mumbai, India; Ganesh Kumar Sahu, JDD, NCIIPC, India; N Murugesan, Former Director General, CPRI, India; RK Singh, Director, NCIIPC, India; Reji Kumar Pillai, President, ISGF & Chairman GSGF, India; Reena Suri, Executive Director, ISGF, India; Vijayan SR, ABB, India. The key sessions of this training program are Introduction to Cyber Security for Power Systems; Basic Concepts of Cyber Security and Digital Grid & Cyber Security and Information Security; Cyber Attacks - Understanding Breadth and Depth; Smart Grid Communications and Network Security; Cyber Security Solutions – Latest Trends and Practices; Indian Manual on Cyber Security for Power Systems; Business Continuity and Resiliency Planning; Building Cyber Attack Resilience for Smart Grids & Cyber Security Standards, Audit and Assessment for Smart Grids.

The Recorded Training Program is still available for the interested Participants on https://indiasmartgrid.org/onlinetrainingprogram/. Certificate of Participation will be awarded to all the Trainees after successfully clearing the examination with minimum 40% marks. For Queries, please write to us at ronkini.shome@indiasmartgrid.org


**Appointments and Transfers**

Aniruddha Kumar has been appointed as Additional Secretary, Ministry of New and Renewable Energy

M Muniraju has been appointed as Managing Director for Hubli Electricity Supply Co. Ltd
ANNOUNCING India Smart Utility Week (ISUW 2021)

India
SMART UTILITY
Week 2021

02 March - 06 March 2021
New Delhi, India
www.isuw.in

ISUW 2021 Conference and Exhibition Program

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(For suggestions and feedback on the ISGF SMART GRID Bulletin, please write to contactus@indiasmartgrid.org)

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