India becomes Fastest-Growing Energy Market in the World at a Rate of 12 Percent in 2018

India has finally acquired the long-awaited tag of the fastest growing energy market in the world. The country’s investment in the energy sector grew at a rate of 12 per cent in 2018 – the highest growth rate as compared to any other country, according to the International Energy Agency (IEA).

“Among major areas, energy investment has risen most rapidly in India the past three years, up 12 per cent,” The IEA said in its latest World Energy Investment (WEI) 2019 report. “In 2018, renewable spending continued to exceed that for fossil fuel-based power, supported by tendering for solar PV, and from 2017 wind, amid uncertain financial attractiveness of new coal power, though spending in coal supply rose somewhat. While transmission spending is expanding, investment in distribution has not grown.”

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The report said that the lower-middle and low-income countries accounted for less than 15 percent of the energy investment in 2018 despite containing well over 40 percent of the world’s population. “In recent years, the fastest investment growth within this group has come from India with rising power sector spending, while spending in sub-Saharan Africa has declined, mostly due to less investment in fuel supply,” the report said.

The IEA’s WEI report – among the most credible publications in the energy space globally – also said that India is an emerging source of industrial energy efficiency investment in the Asia and Pacific region, which grew by nearly 5 percent in 2018. Modernization of industrial facilities coupled with strong mandatory government policy, through the Perform, Achieve, Trade (PAT) Scheme, are important factors driving greater levels of investment. India also led the world in the growth of air conditioner sales in 2018 – which grew by their largest annual increase with 16 percent growth to over 175 million units in 2018 – and also driving down the investment in coal-fired power along with China.

“In India, solar PV spending exceeded that for coal power for the first time, supported by government auctions. Total renewable power investment topped fossil fuel-based power for the third year in a row, supported by tendering and uncertain financial prospects for new coal power. Grid investment rose by 4 percent, with one-fifth increase in transmission, but spending in distribution remained flat,” the report said.

The IEA also said that India was the largest market for coal-fired power (based on Final Investment Decision) in 2018, which is now largely oriented towards super-critical technology but levels were 80 percent lower than in 2010. Coal supply investment in India grew by 5 percent in 2018, underpinned by policy favoring domestic production while reducing imports as much as possible, amid a substantial growth of coal consumption driven by economic growth and higher power demand.


### Smart Grid Updates: Policy, Regulations & Standards

#### INDIA

**Government Announces List of EV Parts to be Indigenized Under FAME II**

The Ministry of Heavy Industries and Public Enterprises has released a revised list of parts which are to be indigenized under the Phased Manufacturing Program (PMP) which falls under the phase II of Faster Adoption and Manufacturing of (Hybrid) and Electric Vehicles in India (FAME II) program. The list consists of 20 eligible components that are used in electric vehicles across the two, three, and four-wheeled segments like electric compressor, circuit breaker, traction battery pack, vehicle control unit, on-board charger, chassis etc. and dates for indigenization for the respective body parts has also been announced. Read More: https://bit.ly/2EnUS3Z

**Generic Tariff Set for Solar Projects in Maharashtra**

The Maharashtra Electricity Regulatory Commission (MERC) has set the generic tariff for solar photovoltaic (PV) projects at ₹3.29 (~$0.054)/kWh for FY 2019-20. This order will apply from April 1, 2019, to March 31, 2020. This tariff will be applicable for projects where the cost of land and evacuation infrastructure has been included in the capital cost and not provided free by the power purchaser. Moreover, the commission has fixed ₹3.79 (~$0.054)/kWh as the generic tariff for rooftop solar projects. This tariff will not apply to rooftop solar projects covered under the MERC regulations for net metering. Read More: https://bit.ly/2VRu1q

**No Additional Surcharge for Open Access Consumers in Gujarat**

The Gujarat Electricity Regulatory Commission (GERC) has passed an order stating that no additional surcharge will apply to consumers of four of Gujarat’s DISCOMs for utilizing power through open access between April and September 2019. The commission had also directed GUVNL to provide the details to determine additional surcharge for each six-monthly period as per the intra-state open access regulations. The Commission further directed GUVNL to submit a practicing-chartered accountant’s certificate, certifying the six months’ data for the calculation of additional surcharge. Read More: https://bit.ly/2LMzk6X

**Draft Net Metering Regulations for Goa and Other Union Territories**

The Joint Electricity Regulatory Commission (JERC) has issued draft net metering regulations which will apply to grid-connected rooftop mounted, ground-mounted and floating solar PV power projects in Goa and the union territories of Andaman and Nicobar Islands, Chandigarh, Dadra & Nagar Haveli, Daman & Diu, Lakshadweep, and Puducherry. Solar projects of capacity up to 500 kW at a single location will be eligible for grid connectivity. Solar PV projects of capacity higher than 500 kW can be considered by the DISCOM if the distribution system remains stable with the project getting connected to the grid. Under the new regulations, consumers will generate solar power for self-consumption and can feed the excess solar power into the grid, which will be adjusted under net metering. Read More: https://bit.ly/2Hma1o4

**CERC Proposes National Average Power Purchase Cost for Open Access**

The Central Electricity Regulatory Commission (CERC) has proposed setting up the national average power purchase cost (APPC) at ₹3.60 (~$0.051)/kWh for open access for FY 2019-20. The proposed APPC at the national level has been determined by computing the average of APPC of all states and union territories, weighted by volume of conventional power purchased by the respective state or union territory and excludes the cost of generation or procurement from renewable energy sources and transmission charges. The APPC will be applicable during FY 2019-20 and until further orders for the purpose of deviation settlement in respect of the open access and captive wind and solar generators. Read More: https://bit.ly/2Eci6ho
Gujarat Simplifies Tariff Structure for Electricity Consumers

The Gujarat Electricity Regulatory Commission (GERC) in its order has stated there will be no increase in power tariff for the consumers of state-owned DISCOMs and Torrent Power Limited (Ahmedabad-Gandhinagar and Surat area). Moreover, the commission reduced the number of slabs in residential tariff from five to four to simplify the present structure. Now, the slabs of 100 to 200 units and 200 to 250 units have been merged into one slab of 100 to 250 units. Due to this, there will be a reduction of ₹0.10 (~$0.0014)/kWh in the energy charge for the consumption falling under the earlier slab of 200-250 units. Read More: https://bit.ly/2HS2mum

INTERNATIONAL

Feed-in-Tariff Levels for Solar Projects in China

The Price Bureau of China’s National Development and Reform Commission (NDRC) announced the level of solar Feed-in-Tariff (FIT) payments for large-scale projects which will become effective from July 1, 2019. The country has been broadly categorized into three regions namely Region 1, 2 and 3 with Region 1 having FIT as RMB 0.40/kWh, Region 2 having FIT as RMB 0.45/kWh and Region 3 having FIT as RMB 0.55/kWh and all these mentioned FITs are inclusive of all the taxes. However, the FITs for “village-level” or poverty alleviation PV power projects have remained unchanged at RMB 0.65/kWh for Region 1, RMB 0.75/kWh for Region 2 and RMB 0.85/kWh for Region 3. Read More: https://bit.ly/30qImd0

Egypt to Open its Renewable Energy Market to Private Producers

The Government of Egypt is in the process of finalizing regulations about the production and sale of electricity from new private renewable power projects directly to consumers by September 2019. Ministry of Electricity and Renewable Energy of Egypt has set up a committee including officials from the Egyptian Electricity Transmission Company, the Egyptian Electricity Holding Company, the Electricity Regulatory Authority (ERA), the New and Renewable Energy Authority, experts in the field of electricity and energy, representatives from the private sector to prepare the standards, regulations, and rules governing the production of electricity from solar and wind stations and selling them to consumers through independent power producer (IPP) with payment of electricity network usage fees. Read More: https://bit.ly/2VG5MMX

Ethiopia Re-works Solar Plans

Ethiopia’s Public Private Partnership Department re-worked the capacity of the pre-qualification application for the installation of solar plants. The country has phased down the capacity of those plants from 750 MW to 500 MW, spread over six locations which includes host communities of Weranso, Welenchiti, Humera, Mekele, Metema or Bahir Dar, and Hurso. The deadline for submission of documents has also been extended from May 29, 2019 to July 9, 2019. The setting up of these plants is part of the Scaling Solar program implemented by Ethiopia with the support of the World Bank. This is the second phase of the Scaling Solar program in Ethiopia, the first is for 250 MW of energy and the business selection for this is almost complete. Read More: https://bit.ly/2WEicOC

South Carolina Passes Solar Bill

The South Carolina, USA legislature unanimously passed The Energy Freedom Act, a comprehensive solar bill that will lift the state’s 2% cap on net metering, among many other pro-solar actions. The bill removes the cap and maintains one-to-one net metering policy for another two years, with a provision that directs the commission to come up with a new net metering structure, with utility and other stakeholder involvement under a public docket. It also removes the cap on solar leasing, which placed a limit on how many facilities could be leased under a third party ownership model, and adds provisions to ensure community solar programming. Read More: https://bit.ly/2VZwqQ4

Commission Approves Provisional Measure Ensuring Security of Local Electricity Supply in Slovakia

The European Commission has approved under EU State aid rules the compensation granted by Slovakia to electric utility company Slovenské Elektráreň a.s. for temporarily supplying a mandatory quantity of electricity from indigenous fuel sources into the Bystričany electricity system node in Slovakia. Under the public service obligation, Slovenské Elektráreň will supply from its power plant in Nováky a mandatory quantity of at least 870 gigawatt-hours and up to 1 100 gigawatts hours per year of electricity from indigenous fuel sources into the geographical area around the Bystričany node of the Slovak electricity grid. The temporary public service obligation will be in place until the completion of investments to strengthen the Slovak electricity grid and, in any event, no later than the end of 2023. Read More: https://bit.ly/2ZVwqQ4

Smart Grid Updates: Technology & Projects

Grid Modernization and Smart Metering

Smart Meter Deployment for Karnal City

The Uttar Haryana Bijli Vitrani Nigam (UHBVN) the electricity distribution company in Harayana, India has begun the process of replacing the existing traditional meters with smart meters. As of now, it has replaced around 4,000 meters in the city and fixed a target to replace 140,000 meters, by the end of April 2020. The meters are GPRS-equipped, that will facilitate UHBVN in getting real-time data on usage and will provide both pre-paid and post-paid facilities. Read More: https://bit.ly/2H6Grln

Florida Electric Utility to Expand Deployment of Sentient Energy Distribution Grid Sensors to Improve Grid Reliability

Jacksonville Electric Authority (JEA) the largest municipal electric utility in Florida, USA will expand the deployment of Sentient Energy’s MM3 line sensors as part of its Grid Modernization project. Sentient Energy will assist JEA in the overall design, SCADA integration and sensor installation, including sensor fleet health management checks, recommended practices and Distributed Networking Protocol (DNP) configuration changes. Sentient Energy will also provide training and assistance in the
Germany has opened its first-ever section of “eHighway,” which allows hybrid cargo trucks to charge their batteries while they are on the move. The German government introduced the technology on a 6-mile-long stretch of Autobahn near the city of Frankfurt. It uses 670-volt direct-current overhead cables that let electric trucks draw power and recharge their batteries on the go. The program, called Elisa (electrified innovative heavy traffic on the Autobahn) is an environment-ministry-sponsored project involving the electronics giant Siemens and authorities from the state of Hesse, where it is taking place. The trucks which have conductor rods called pantographs added to the top of the cabin must be going less than 56 mph to successfully make a connection. When they’re connected, they run on electricity alone. When they rejoin the normal highway, they switch back to their hybrid engines. As per Siemens technology would save a 40-ton truck 20,000 euros ($22,000) in fuel costs over 62,100 miles and if a driver swerved to the left or right while connected to the cables, it would not detach.

The 6-mile stretch of the A5 Autobahn will be tested until 2022, after which a decision will be made on whether or not to expand the project, which has so far cost the government a total of 14 million euros. Germany also spent 70 million euros ($77 million) to make a special hybrid truck with Scania and Volkswagen for the track. Read More: http://www.elder.org.tr/ebulten/issue122.html#news4

**EV and Energy Storage**

**Maharashtra Government to Grant Subsidies of upto Rs 0.1 Million for EVs**

The Maharashtra state government of India is offering subsidies as a purchase incentive for EVs. EV buyers can get subsidies of Rs 5,000, Rs 12,000 and Rs 1 lakh on new two-, three- and four-wheelers, respectively. It is also offering an incentive of up to Rs 10 lakh for installing EV charging stations. These facilities will have to be set up in public and private parking lots, fuel pumps, bus stops or railway stations. Read More: https://bit.ly/2DMdJ8J

**IIT-H Start-Up Purenergy to Introduce Long-Range, High-Performance Electric 2-Wheelers in the Market**

PuREnergy, a startup from IIT-Hyderabad (India) has developed Pure EV, a long-range, high-performance electric two-wheeler designed for Indian conditions, which is set to be launched commercially across India. The Pure EV will have four different models Egnite, Etrance, EPlute and ETron. The Pure EV batteries are designed to work under tough environmental conditions, will have lesser weight for portability and shall deliver high discharge currents for fast pick-up. The electric vehicles incubated by the start-up offers significant cost savings over traditional ICE vehicles with running costs as low as 5 paisa/km. Read More: https://bit.ly/2Lzvuhk

**European Governments to Form Alliance for Developing Next Generation EV Batteries**

European governments and companies, led by France and Germany, will form an alliance for developing next-generation batteries for electric vehicles, investing five to six billion euros ($5.6 to $6.7 billion) in the project. A maximum of 1.2 billion euros in public subsidies would be granted to the alliance, out of which at least four billion euros is expected to come from private companies. Read More: https://bit.ly/2Lz0vSVW

**Renewable Energy and Microgrids**

**Egypt Expects Giant Solar Park to be Fully Operational in 2019**

Egypt expects the 1.6-gigawatt solar park it is building in the south of the country to be operating at full capacity in 2019, the investment ministry said in a statement. The $2 billion project, set to be the world’s largest solar installation, has been partly funded by the World Bank, which invested $653 million through the International Finance Corporation. Some parts of the park are already operating on a smaller scale, while other areas are still undergoing testing. Egypt aims to meet 20 percent of its energy needs from renewable sources by 2022 and up to 40 percent by 2035. Read more: https://bit.ly/2Jkbbqg

**Groovy New Solar Technology may be Future of Renewable Energy**

An innovative 3D solar-cell design with a radically different architecture which drives down the costs of cell manufacture may define the future of renewable energy as it potentially reduces optical losses within a device. The scientists at the University of Sheffield and energy technology company Power Roll in the UK have demonstrated how a unique architecture based on a surface embossed with micro-grooves could also make solar power more efficient. The innovative 3D design removes many of the manufacturing process steps required by existing photovoltaics (PV) modules and allows new materials to be used that would not usually be appropriate in regular solar cells. Researchers said other benefits of the design include removal of expensive transparent conductive oxides, the use of simple and low cost electrical interconnections and the ability to tune electrical output to match user requirements. Read more: https://bit.ly/2GXHW6l

**Army Lights up Jammu and Kashmir’s Doda Hamlets with Solar Power**

Reaching out to the poor in hilly areas of Jammu and Kashmir’s Doda district, the Army has installed solar lights at unelectrified hamlets under its project ‘Roshni’. The solar lights have been installed at Thanaha and Ganori-Kahara villages by the Bhaderwah-based Rashtriya Rifles. The Army has so far distributed over 17,000 solar lights among residents of such villages in Doda district. The Army said the initiative was launched after it was felt that electricity was the most critical requirement in far-flung areas.

The solar lights have been installed at Thanaha and Ganori-Kahara villages by the Bhaderwah-based Rashtriya Rifles
flung areas during interactions with people, including the floating population of nomadic Gujar and Bakherwal communities. Read more: https://bit.ly/2VObGuO

Solar Power Generation in India Increased by 34% Year-over-Year in Q1 2019

Solar power generation in India has increased substantially over the past few years. According to the data released by the Central Electricity Authority (CEA), solar power accounted for over 11.4 BUs of electricity produced in Q1 2019. This marks a growth of 34% year-over-year (YoY) from the 8.5 BUs generated in the Q1 2018. Even though renewable capacity additions are growing at a rapid pace, due to its lower capacity factor, the actual electricity generation tends to be much lower compared to nuclear, coal or a gas power plant. Even with all the new solar and wind installations, renewables still barely make up 10% of the total energy generation in the country showing how far the country has to go before renewables start making a dent in the carbon emissions.

India’s transition towards renewable energy presents an incredible opportunity but also challenges. Increasing the power system flexibility is not easy as more intermittent renewables are added to the grid. Grid integration has already become a significant issue as more solar power comes online in several regions of the country. Read more: https://bit.ly/2jrB42V

Fossil Generation Continued to Dominate the Growing US Microgrid Market in 2018

The microgrid market is larger than ever, with 545 megawatts of new capacity added in the United States last year. Microgrids with standalone fossil-fuel-based generation dominated the microgrid market in 2018. Over the next five years, fossil fuels will continue to remain the primary generation source in both basic systems, which have one distributed energy resource (DER), and advanced multi-DER microgrids, even as solar and storage capacity grows.

Due to high total system costs for 24 hours of storage paired with solar, solar-plus-storage won’t overtake fossil-based microgrids within the forecast timeline. Although there is more solar capacity in the project pipeline than has been installed in all operational microgrid systems to date, the role of solar through 2024 will primarily be as a secondary capacity source, typically supporting a fossil fuel generator. Read more: https://bit.ly/2GYK9O6

BYPL to Setup Four Solar Microgrids in East Delhi, India

One of the Power Distribution Company BSES Yamuna (BYPL), Delhi has launched a pilot project to establish solar microgrids, becoming one of the first Discoms in India to do so in an urban setting. A similar rollout is planned for South and West Delhi areas as well. These microgrids will combine rooftop solar energy storage systems with Lithium ion (Li-ion) based batteries. Four such microgrids have been setup at BYPL offices in east Delhi to demonstrate the technology. The energy generated through the rooftop caters to the internal power requirements of office loads and charges the batteries. The surplus is fed to the grid which has the potential to reduce electricity bills. According to experts, these microgrids have multiple benefits, both for the consumer and the discom, like – preventing outages by sharing the load with distribution transformers, power availability even in case of an outage from the main grid, auto demand response in case of peak power, reduction in energy bills, etc. Read more: https://bit.ly/2YeyoKd

Solar-plus-storage still has a long way to go in catching fossil-fuel-based generation in the U.S. microgrid market

DISRUPTIVE TECHNOLOGIES

US Energy Department Explore Blockchain to Prevent Power Plant Cyberattacks

The US Department of Energy is exploring blockchain technology as a line of defense against cyberattacks on power plants. The department’s National Energy Technology Laboratory (NETL) unit announced recently that Phase 2 of an electric grid security project has been launched in partnership with decentralized cybersecurity startup Taekion, formerly Grid7. The laboratory provided a grant of $1 million to Taekion last year, and now as part of the second phase of the project, the startup will research on how blockchain technology can be used to secure a power plant, by keeping all sensor, actuator and device transactions on a distributed ledger. Read more: http://www.indiasmartgrid.org/viewnews.php?id=5530

People in Switzerland Using Blockchain to Trade Solar Energy

Blockchain is being used for trading excess solar energy in the Schwemmweg district of St. Gallen. The Zug’s Swiss town is usually termed as the crypto valley, as many startups, as well as entrepreneurial companies, are based in the blockchain and crypto-development area of the Swiss town. Prosumers make more income from the sales of nearby energy than from their usage into the grid, as per the project partners. Also, the consumers will be attracted for trading since they would pay less to the neighbour than to the utility for electricity. Swiss-based companies as well as universities, including Bosch IoT Lab, run the one-year Quarterstrom project under the threshold of its project Lighthouse, which is supported by the energy ministry of the Swiss federal government. Read more: http://www.indiasmartgrid.org/viewnews.php?id=5532

Artificial Intelligence Improves Power Transmission

To integrate volatile renewable sources into the energy supply, capacities of the power grid have to be increased. The need for new lines can be reduced by better utilization of existing lines as a function of weather conditions. To this end, researchers of Karlsruhe Institute of Technology (KIT) work on self-learning sensor networks to model the cooling effect of weather based on real data. In favourable conditions, the line’s power transmission can be enhanced in this way. Rapid extension of the use of renewable energy sources – wind energy in the north, photovoltaics in the south – and the increasing international power trade result in increasing requirements on the power transmission grid. To transport power from producers to consumers, to prevent temporary shutdown of plants that generate power from regenerative sources, in particular at high wind intensities, and to ensure high supply security in general, considerable extension of the existing grid infrastructure is required. This is associated with time-consuming licensing processes and high costs. Read more: http://www.indiasmartgrid.org/viewnews.php?id=5536
Smart Gas

CNG Supply Begins in Patna in India
The supply of (CNG) began at two petrol pumps on Bypass Road and Rukanpura in Patna, India on April 9, two days after the inauguration of the city gas distribution (CGD) system by Prime Minister. The supply of (CNG) began at two petrol pumps on Bypass Road and Rukanpura in Patna, India. According to sources, approximately 50 CNG-fuelled autorickshaws have arrived in the state capital. While an auto can run up to 45km with 1 kg CNG, a four-wheeler can cover a distance of 30km. Installing a CNG kit in an auto with a tank having a capacity of 4-5kg costs around Rs 20,000-25,000. Similarly, installing a kit of 10kg capacity in hatchbacks costs around Rs 30,000-Rs 35,000. GAIL officials claim LNG costs around Rs 63.47 per kg in Patna. The prices of diesel and petrol, on the other hand, were Rs 69.39 and Rs 75.08 per litre, respectively. Read More: https://bit.ly/2WFkcJL

Smart Water

Dubai to Power Desalination with Solar
The cost of water production is set to be reduced, thanks to the region’s efforts to integrate renewable energy into water desalination processes. The region is dependent on desalination for its potable water, and it has a total water production capacity of 470 million gallons per day (MIGD), but the process is energy-intensive. Dubai Electricity and Water Authority (DEWA) is planning to power the region’s desalination plants with solar power, and save approximately $13 billion between now, and 2030, with a capacity target of 305 million gallons per day. Read More: https://bit.ly/2JzwJdX

New UAE Energy Plant Converts Seawater to Fresh Water
In the United Arab Emirates, the Sharjah Electricity & Water Authority (SEWA) has partnered with Mitsubishi Hitachi Power Systems to develop a natural gas fired power plant. The project is part of efforts by SEWA to reduce its carbon footprint and secure its energy supply. In addition to generating energy, the plant will use the steam created on-site to convert seawater to fresh water, which SEWA supplies within the emirate. Read More: https://bit.ly/2VwbCK4

Smart Cities

Smart City Light Rail Network Launched in Canberra, Australia
Canberra has launched a new light rail network, which the Australian capital describes as central to its smart and sustainable vision for the city. The network benefits from the latest generation of tap on and off multi-modal ticketing technology developed by Flowbird Transport Intelligence. The light rail service fully integrates with the bus ticketing system. For the light rail programme, Flowbird developed and installed 23 self-service touchscreen retail terminals and 66 platform validators across the network, while ensuring integration with the MyWay smart card architecture. The development moves the city into its next phase of growth and development through the largest transport infrastructure project ever undertaken in the Australian Capital Territory. Read More: https://bit.ly/2VYPo8L

The Australian capital describes the network as a key building block in its vision to create a smart and sustainable city, serving 500,000 people by 2030.

A Small Smart City in Finland Shows the Way on Sustainability
Kalasatama, a city on the outskirts of Helsinki, is considered a living experiment meant to apply innovation to help achieve Finland’s vision of a carbon-neutral greater Helsinki by 2035. Nearly a third of all residents are engaged in the planning and projects for the city, and its leaders avoid the shiny-object data dazzle common in other cities. Kalasatama is intentionally designed as a pilot project, with renewable energy, a smart grid relying on Internet of Things technology, electric cars and the tech-driven traffic solutions to smooth the way. Read More: https://bit.ly/2w2ODxz

Karnataka Government in India Setting Up Centre for Smart Governance
To meet the software needs of its various governmental departments, the Karnataka state government is setting up a Centre for Smart Governance (CSG). Instead of looking towards private firms or the National Informatics Centre (NIC), Karnataka state government departments will work with the CSG for any software that enables governance or delivery of essential services to the state’s citizens. The Department of Administrative Reforms had issued an order to set up an independent body and had sent a communication to all state departments asking them to approach the CSG for all future projects in e-governance. Moreover, the government was also facing a challenge in making private vendors understand the importance and complexity of government projects. While still not a common thing at state level, Karnataka is not the first state to come up with such an initiative Telangana and Maharashtra have dedicated state-run centres which manage all their software and web development needs. Read More: https://bit.ly/2Vldw5V

Standards and Cyber Security

Siemens and TÜV SÜD Create Blueprint for Energy Cyber Security
In many ways, cybersecurity is a mirror of safety; plenty of experts advocate a similar route to standard protocols and procedures to protect the castle from cyber incidents as they would from safety incidents. Looking at the potential effects of a cyber-attack on critical infrastructure in the energy sector really brings this all to light. Becoming a primary target for hackers has exposed the sector to a record number of near-miss safety events at plants around the world, creating significant potential for harm to the health and safety of people, processes, plants and products. With its roots around the work they’re doing together on the Charter of Trust, Siemens and TÜV SÜD are collaborating to address these concerns with a new approach they’re calling Digital Safety. Introduced in the first week of May at the Offshore Technology Conference (OTC) in Houston, the partnership will provide digital safety and security assessments, as well as industrial vulnerability assessments to help global energy customers identify asset risk and cybersecurity solutions. Read More: https://bit.ly/2vZVWpK

Eskom criticized after failing to respond to researcher about its exposure of customer data
### Smart Grid Updates: Pilot Projects in India

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<th>Name of Consultant</th>
<th>Key Functionalities</th>
<th>Key Vendors</th>
<th>Customers (Nos.)</th>
<th>Project Completion Date</th>
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| 1       | APDCL (Paltan Bazaar, Narengi, Ulubari - Assam) | Medhaj Techno Concept Pvt Ltd | AMI-R, AMI-I, PLM, OMS, PQM, PQM, DG | "M/s Fluentgrid Ltd M/s Sinhal Udyog" | 15083 | 2018 | • 14,259 smart meters and 218 DCUs installed  
          |                             |                     |                     |             |                  |                        | 13,130 meters communicating to control centre |
| 2       | PSPCL (SAS Nagar, Punjab) | POWERGRID | AMI-R, AMI-I, PLM | 2,734 | Project Cancelled |
| 3       | TSSPDCL (Jeerdimelia Industrial Area, Telangana) | CPRI | AMI-R, AMI-I, PLM, OMS, PQ | M/s. ECIL | 11,904 | 2018 | • Project declared go-live on 30.03.2019. Demonstration of pilot project done  
          |                             |                     |                     |             |                  |                        | • All single phase meters installed. Three phase meters yet to be installed |
| 4       | TSECL (Agartala - Tripura) | POWERGRID | AMI-R, AMI-I, PLM | M/s Wipro M/s JnJ Powercom | 45,290 | 2018 | • Project under commercial operation  
          |                             |                     |                     |             |                  |                        | • 42,925 meters installed |
| 5       | WBSEDCL (Siliguri, Darjeeling, West Bengal) | POWERGRID | AMI-R, AMI-I, PLM | M/s Chemtrails M/s CMS Computers Limited | 5,275 | Yet to be decided | Project completed |
| 6       | PED (Puducherry) | POWERGRID | AMI-R, AMI-I | M/s Dongfang | 33,499 | 2018 | • Project declared go-live on 28.12.2018  
          |                             |                     |                     |             |                  |                        | • 28,910 smart meters and 490 DCUs installed |
| 7       | UGVCL (Sabarmati, Gujarat) | POWERGRID | AMI-R, AMI-I, OMS, PLM, PQ | M/s Genius Power M/s Cyan Conmode M/s Fluentgrid Ltd | 39,422 | November 2018 | Project completed |

### Smart Grid Projects Completed in India

- 8 UHBVN (Panipat - Haryana)
- 9 HPSEB (Kala Amb Industrial Area - Himachal Pradesh)
- 10 CESC (Mysore - Karnataka)
- 11 IIT Kanpur - Smart City Pilot (Kanpur, Uttar Pradesh)
- 12 Smart Grid Knowledge Center, Manesar

### Smart Grid Projects under NSGM in India

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<th>Project Completion Date</th>
<th>Latest Progress</th>
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</table>
| 13      | CED (Chandigarh) Sub Div-5 | POWERGRID | AMI, DT monitoring, Substation Automation, Rooftop Solar PV, IT infrastructure, SCADA | N.A. | 29,433 | Yet to be decided | • Data centre building under construction. IT hardware equipment ready for dispatch  
          |                             |                     |                     |             |                  |                        | • FAT of RTUs, MFM, Server, Monitor, LAN Switch, Workstation completed and received at site  
          |                             |                     |                     |             |                  |                        | • PMA – RECPDL |
| 14      | OPTCL, Odisha | AMI, SCADA, DTMU | N.A. | 87,000 | Yet to be decided | Project Team constituted  
          |                             |                     |                     |             |                  | Tender documents under preparation  
          |                             |                     |                     |             |                  | First Tranche of NSGM grant released |
## Smart Grid Projects under NSGM in India

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Utility</th>
<th>Tender Details</th>
<th>Submission Dates</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>KSEB, Kerala</td>
<td>Implementation of Advance Metering Infrastructure (AMI) with smart meters under IPDS for all the consumers of electrical section, Kesavadasapuram In Thiruvananthapuram city</td>
<td>25th May 2019</td>
<td><a href="https://bit.ly/2W6HGKL">https://bit.ly/2W6HGKL</a></td>
</tr>
</tbody>
</table>

**Latest Progress**

- Sanction letter issued to KSEB on 28.09.2018
- Tripartite agreement concluded on 12.04.2019
- Bid opening date extended up to 10.05.2019

## New Tenders for Smart Metering in India

### Ongoing Tenders

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Utility</th>
<th>Tender Details</th>
<th>Submission Dates</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Kerala State Electricity Board (KSEB)</td>
<td>Implementation of Advance Metering Infrastructure (AMI) with smart meters under IPDS for all the consumers of electrical section, Kesavadasapuram In Thiruvananthapuram city</td>
<td>25th May 2019</td>
<td><a href="https://bit.ly/2W6HGKL">https://bit.ly/2W6HGKL</a></td>
</tr>
<tr>
<td>3</td>
<td>Ministry of Railways</td>
<td>Provision of smart meters in service buildings, staff quarters and replacement of MCCBs, panel boards and cables in Nanded division</td>
<td>20th May 2019</td>
<td><a href="https://bit.ly/2Gy4XeC">https://bit.ly/2Gy4XeC</a></td>
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</tbody>
</table>

### Expected Tenders

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Utility</th>
<th>Tender Details</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BESCOM</td>
<td>Supply of 1-phase whole current smart meter, 3-phase whole current smart meter and CT operated 3-phase smart meter as a part of Advance Metering Infrastructure along with the communication network for HSR Layout area</td>
<td>Expected</td>
</tr>
<tr>
<td>2</td>
<td>TANGEDCO</td>
<td>Advance Metering Infrastructure along with the communication network for the Theyagaraya area</td>
<td>Expected</td>
</tr>
<tr>
<td>3</td>
<td>HESCOM</td>
<td>Supply of 1-phase whole current smart meter, 3-phase whole current smart meter and CT operated 3-phase smart meter as a part of Advance Metering Infrastructure along with the communication network</td>
<td>Expected</td>
</tr>
</tbody>
</table>

## Appointments and Transfers

Mahesh Singh has been appointed as Managing Director, Uttar Gujarat Vij Company Limited (UGVCL)
Indian Delegation to CIRED 2019, 03 - 06 June 2019 in Madrid

As the emergence of India as a strong economic power is receiving widespread recognition in the world. Having completed household electrification through SAUBHAGYA, next challenge is to provide 24x7 electricity to all the households which require new technologies and smart grid systems. To achieve this goal, Government has launched several programs with multi-billion-dollar funding. Smart grid which is also necessary to integrate rapidly growing renewable generation resources and smart metering are key focus area of these programs. The Government has also moved forward with the ambitious program to build 100 Smart Cities and add 6-7 million electric vehicles which require smart grids. With all these ground-breaking initiatives, India has already emerged as the prime destination for Smart Grids and Smart Cities.

With this background, ISGF is working towards bringing the international experiences and learnings to India to ensure successful implementation of the planned projects. To this objective, ISGF has been taking delegations of key officials from utilities, governments and regulators to various international events and trade missions in the past 5 years as well as bringing experts from around the world to India at ISGF’s Annual conference and exhibition, the India Smart Utility Week.

ISGF will be leading a high-power delegation of senior government officials, senior managers of distribution utilities and regulators from India to CIRED 2019 in Madrid, Spain scheduled from 03-06 June 2019. CIRED, the leading forum where the Electricity Distribution Community meets, is held every two years in different venues in Europe with a worldwide perspective and participation. CIRED 2019 offers the opportunity to interact face-to-face with up to 2000 key decision leaders in the field of Electricity Distribution. It provides a platform to network with a wide range of experts from utilities, consultants, technology companies, academia and research, services and business sectors in the electricity distribution industry.

To join the Indian Delegation to CIRED 2019 and to know about fee, schedule and other details, please write to Ms. Yashika Maheshwari at ISGF (yashika@indiasmartgrid.org)
Introduction

Advanced metering infrastructure (AMI) or Smart Metering is an integrated system of smart meters, communications networks, and data management systems that enables two-way communication between utilities and customers.

The metering industry has taken rapid strides in the recent past few years by traversing from automated meter reading (AMR) to smart metering, using bi-directional communication, thereby enabling greater benefits to electricity distribution companies (DISCOMs), customers and society. The Ministry of Power (MoP) has issued several transformational policy initiatives for reforming the power sector in India. The Bureau of Indian Standards (BIS) published standards for smart metering (IS 16444 in August 2015 and IS 15959 Part 2 in February 2016). The Central Electricity Authority (CEA) issued functional requirements for advanced metering infrastructure (AMI) and technical specification of smart meters in August 2016. The UDAY program, announced in November 2015, aims to financially restructure and enhance the performance of electricity distribution companies. It includes directives to deploy smart meters for all customers whose electricity consumption is greater than 200 kWh per month by December 2019. Furthermore, the National Tariff Policy released in January 2016 re-iterated this deployment plan.

AMI is a new concept that involves in-depth knowledge of three distinct technologies: metrology, telecommunications and IT. The DISCOMs are well versed with the electrical technologies of the electricity grid, but when it comes to telecommunications and IT, their expertise is limited. Besides the fact that AMI is an evolving technology adds to the challenge.

With this background ISGF is pleased to announce Training on Advanced Metering Infrastructure, a 02 Day course scheduled from 04 -05 July 2019 This course has been designed to prepare utility engineers, industry executives and fresh graduates to understand the nuances of smart metering technologies, communications, standards, business models and implementation experiences of past projects

Objectives of Training Course on Advanced Metering Infrastructure:

- To learn how to design successful AMI projects
- To understand the challenges of AMI data integration with Billing and Customer Care systems, GIS, OMS, SCADA etc.
- To learn Project Management challenges in large AMI rollouts
- Provides the participants a platform for peer to peer technology discussions with experienced industry experts.
- Develop an effective AMI Business Strategy and Business Case for utility’s unique circumstances

Key Topics to be covered

- Introduction to AMI
- Communication Technologies for AMI
- Interoperability
- Designing an AMI Project
- Policy and Regulations for AMI
- AMI Initiatives in India and International Case Studies
- AMI Data Analysis/Analytics
- Rollout Challenges in AMI
- Procurement Strategy
- Technical and Business Benefits
- Business Models

Duration

02 Days of Non-Residential course

Training Venue

NHPC Hall , CBIP Building, Malcha Marg, Chanakyapuri, New Delhi 110 021

Faculty

Senior Professionals who are experts in their respective fields.

Target Audience and Eligibility

1. Engineers from Discoms and Transco’s executing/intending to execute Smart Metering
2. Engineers from Regulatory Commissions and Smart Grid Project Management Units in state energy/power departments.
3. Engineers from Technology Companies
4. Fresh Engineering Graduates looking for a career in Smart Grids domain

Course Fee

The fee for this course is **INR 30,000 + GST**

The fee covers:

1) Course Materials
2) Tea/Coffee and Lunch
3) Access to ISGF White Papers & PPTs

Contact Details

For Registration and Inquiries, Please Contact

Ms. Ronkini Shome, ISGF

Email: ronkini.shome@indiasmartgrid.org
Introduction
India has taken various initiatives to stimulate and expedite the adoption of Electric Vehicles (EVs) in the country. In 2013, Government of India (GoI) launched the ‘National Electric Mobility Mission Plan (NEMMP) 2020’, a pioneering effort to strive towards electrify road transportation. This was followed by the introduction of the scheme named ‘Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles (FAME India)’, launched under the NEMMP, in 2015. This FAME scheme was extended in the form of the FAME-II in 2019. Apart from this, 8 state governments have released final and draft versions of electric vehicle policies for their respective states; other states are expected to follow this trend in the near future. 12 states have also introduced separate electricity tariff for EV charging. GoI has set an ambitious plan to introduce 6-7 million EVs by 2022. In order to achieve this target, it is necessary to build charging infrastructure and electricity distribution grid upgrades. GoI has already issued clarification that anyone can setup public charging stations. Sustainable business models for running charging stations need to be evolved. Above all, it is important to create talent pool of professionals to build a conducive ecosystem around the entire gamut of EV business.

With this background, ISGF is pleased to announce a Training Program on Electric Mobility & Charging Infrastructure, a 02 Day course scheduled from 18 - 19 July 2019 This course has been designed to prepare utility engineers, industry executives, officers of state road transport corporations and fleet operators, academia and engineers desirous of a career in the evolving EV industry to understand the EV and Charging System Technologies, Battery and Battery Management, Policies and Regulations, Business Models, Vehicle to Grid Integration and Safety Regulations related to EV.

Duration & Venue Details
Duration and Date
02 Days of Non-Residential course from 18 to 19 July 2019

Training Venue
NHPC Hall, CBIP Building, Malcha Marg, Chanakyapuri, New Delhi 110 021

Key Topics to be covered
- Introduction to EVs and Battery Technologies
- EV Deployment Challenges
- EV Deployment Status in India and Worldwide
- Technology Development in EV Segment
- Electric Vehicle Supply Equipment (EVSE) or Charging Infrastructure
- Policies and Regulations
- EVSE Business Models
- Vehicle to Grid Integration
- Grid Upgrades for EVSE
- Electricity Tariff for EV Charging
- Safety Regulations Related to EV
- Institutional Strengthening & Capacity Building

Faculty
Senior Professionals who are experts in their respective fields.

Target Audience
- Officials from State Transport Sector
- Battery manufacturers
- R&D and Educational Institutions
- EVSE infrastructure providers including chargers and Battery Management Software
- Officials from Distribution companies
- Automotive Component Manufacturers
- Officials from Private transport companies

Course Fee
The fee for this course is INR 30,000 + GST

The fee covers:
1) Course Materials
2) Tea/Coffee and Lunch
3) Access to ISGF White Papers & PPTs

Contact Details
For Registration and Inquiries, Please Contact
Ms. Ronkin Shome, ISGF
Email: ronkini.shome@indiasmartgrid.org
DISTRIBUTION UTILITY MEET 2019
3rd Annual Conference of Power Distribution Utilities for Collaborative Growth
07 - 08 November 2019
Eros Hotel New Delhi, Nehru Place
New Delhi, India

ANNOUNCING
India SMART UTILITY Week 2020
03 - 07 March 2020 | New Delhi, India

Conference and Exhibition Program

<table>
<thead>
<tr>
<th>Day 1 Tuesday</th>
<th>Day 2 Wednesday</th>
<th>Day 3 Thursday</th>
<th>Day 4 Friday</th>
<th>Day 5 Saturday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master Classes (optional) Cultural Tours</td>
<td>Conference &amp; Exhibition Welcome Reception</td>
<td>Conference &amp; Exhibition</td>
<td>Conference &amp; Exhibition ISGF Innovation Awards 2020 Gala Dinner</td>
<td>Technical Tours (Optional) Cultural Tours</td>
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</tbody>
</table>

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