



Global Smart Energy Federation  
Formerly known as Global Smart Grid Federation

# NEWSLETTER

January 2021

## GSEF NEWSLETTER - January 2021

### Chairman's Message

Dear Friends:

We all have survived an unusual and very difficult year and I take this opportunity to wish you all better days ahead! The way we work and live has dramatically changed in a short span of time. During the lockdown period, electric utilities, like all other organizations, quickly adopted to paper-less and contact-less operations. This alone has pushed forward the digitalization process in utilities. The level of automation and digitalization that would have taken another decade in power utilities would now happen in next 2-3 years. Most processes have become paper-less. The culture of remote working and use of third-party owned digital platforms for meetings and collaborations have instilled confidence in utilities to adopt cloud technologies and applications hosted on the cloud. So, many systems that utilities used to buy earlier will now move to the services model for a monthly or quarterly fee. Availability of digital data of all assets, processes and operations in near real-time will enable utilities with better visibility and control; and they can now deploy analytical tools to optimize their operations. This is a quantum leap from their paper-based operations in the Pre-Covid Era. Covid-19 has presented never before opportunities for innovation and transformation with profound implications that are gainful in the long term. We are building data driven smart utilities which will open up new business opportunities for organizations providing tools and services to host and manage the enormous amounts of data utilities are expected to generate in the coming days.



As you know, Global Smart Grid Federation (GSGF) has completed ten years in 2020. GSGF was launched in September 2010 in Washington DC by US DoE and GridWise Alliance. This launch coincided with the launch of the International Smart Grid Action Network (ISGAN). During the past ten years GSGF went through several ups and downs; and now we are back on track to expand our horizon and activities. I wish to update our readers about the changes and new initiatives.

In this era of energy transition and utility transformation, we should expand our focus from smart grid to the entire value chain of smart energy - from generation to consumption. So, in September 2020, we changed the name from Global Smart Grid Federation to Global Smart Energy Federation (GSEF). We also have a new web address: [www.globalsmartenergy.org](http://www.globalsmartenergy.org)

Two years ago, we amended the charter of GSEF to create new categories of membership such as Utility Members and Associate Members which has helped us expand our member

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base. We have also drastically reduced our expenses and reduced the annual membership fee. We have appointed four eminent experts in different geographies as GSEF Ambassadors which has expanded our reach and activities.

GSEF has an ongoing MOU with ISGAN and GSEF is the Jury Panel for ISGAN Award of Excellence for Smart Grid Projects since its inception. We have just finished evaluating the 7th ISGAN Award of Excellence which will be conferred at the Clean Energy Ministerial in June 2021. We have also executed an MOU with the Association of Power Utilities in Africa (APUA), an association of 56 power utilities from 46 countries in Africa which was established in 1970. Presently we are in discussions with CARRILEC, an association of 33 electric utilities in the Caribbean region for on-boarding them as a GSEF member. I am glad to announce that E.DSO, the association of European Distribution System Operators have joined back GSEF as a member; and our newest utility member is Botswana Power Corporation (BPC). With this now our membership base has total 1280 organizations including 142 Utilities from 5 continents.

GSEF looks forward to work with all the utilities under APUA and CARRILEC and other GSEF member associations in their energy transition and digitalization journey.

We also seek your suggestions and comments in re-designing this bulletin to make it more valuable to our readers.

Kind regards

**Reji Kumar Pillai**

Chairman, Global Smart Energy Federation (GSEF)  
President, India Smart Grid Forum (ISGF)

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**SPECIAL PLENARY SESSIONS**

- Innovation in Utilities During the Pandemic
- Regulatory Support in Different Countries for Revival of Utilities
- Cyber Security for Digital Utilities
- Energy Storage Systems -Business Models and Regulations
- Disaster (and Pandemic) Resilient Utilities
- Smart Meter Rollout in India
- Disruptive Technologies and Innovations for Utilities
- Grid Integrated Vehicles (GIV) and Standards for GIVs

**SPECIAL ROUNDTABLES AND WORKSHOPS**

- Interconnection of Regional Grids in Asia
- Electric Cooking
- Blockchain Applications in Energy
- Urban Air Mobility Systems (UAM)
- Smart Water Distribution
- Smart City Gas Distribution including Green Hydrogen
- District Cooling Systems
- Live Line Maintenance in Utilities
- IEC-IEEE World Smart Energy Standardization

**BILATERAL WORKSHOPS**

- 10<sup>th</sup> EU-India Smart Grid Workshop
- 7<sup>th</sup> US-India\* Smart Grid Workshop
- 5<sup>th</sup> Sweden-India Smart Grid Workshop
- 4<sup>th</sup> France-India Smart Grid Workshop
- 2<sup>nd</sup> Switzerland-India\* Smart Grid Workshop

*\*program under finalization*

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🌐 [www.isgw.in](http://www.isgw.in)

📱 @ISUW2021

# Global Stories on Smart Grid

## Wartsila and Fluence to Supply 1 GW of Grid-Scale Battery Storage to AGL in Australia

AGL Energy, an Australia-based energy company, has signed non-exclusive framework agreements with energy storage technology companies Wartsila and Fluence to supply up to 1 GW of grid-scale battery storage. The company unveiled its plans to build several battery storage systems in Australia, including a 200 MW battery storage system at Loy Yang power station in Victoria, 150 MW at Liddel power station and 50 MW at Broken Hill in New South Wales. The plans are part of the company's commitment to achieving net-zero emissions by 2050. These grid-scale battery storage systems would allow the company to leverage excess solar and wind generation to provide capacity when renewable sources are not generating. This would also help provide the critical firming capacity to the energy market and energy industry's shift over the coming decades.

**Read More:** <https://bit.ly/3qNZ2rD>

## Singapore Issues Tender to Set Up 600 Electric Vehicle Charging Stations

**Key Highlights:** The last date for the submission of bids is March 12, 2021.

Singapore's Urban Redevelopment Authority (URA) and Land Transport Authority have issued a pilot tender to set up charging stations for electric vehicles (EV) at public car parks in the city-state. The last date for the submission of bids is March 12, 2021. The scope of work includes the installation and operation of over 600 EV charging stations at more than 200 public car parks located at public housing estates, community centers, industrial estate, and public parks across the country. Successful bidders have to set up EV charging stations at their allocated car parks by the third quarter of 2022.

**Read More:** <https://bit.ly/35S1Agj>

## Siemens Energy to build Green Hydrogen Plant in Masdar City

Siemens Energy has unveiled plans to build a solar-powered green hydrogen plant in Masdar City, Abu Dhabi. The first phase of the demonstration program will focus on the production of green hydrogen for passenger cars and buses in the Masdar City area. In parallel, a kerosene synthesis plant will be built to convert the majority of the green hydrogen into sustainable aviation fuel. In the second phase of the program, the production of decarbonized fuels for the maritime sector will be explored. The plant will be the first initiative under Siemens Energy's deal with state investor Mubadala and the wider Abu Dhabi Hydrogen Alliance.

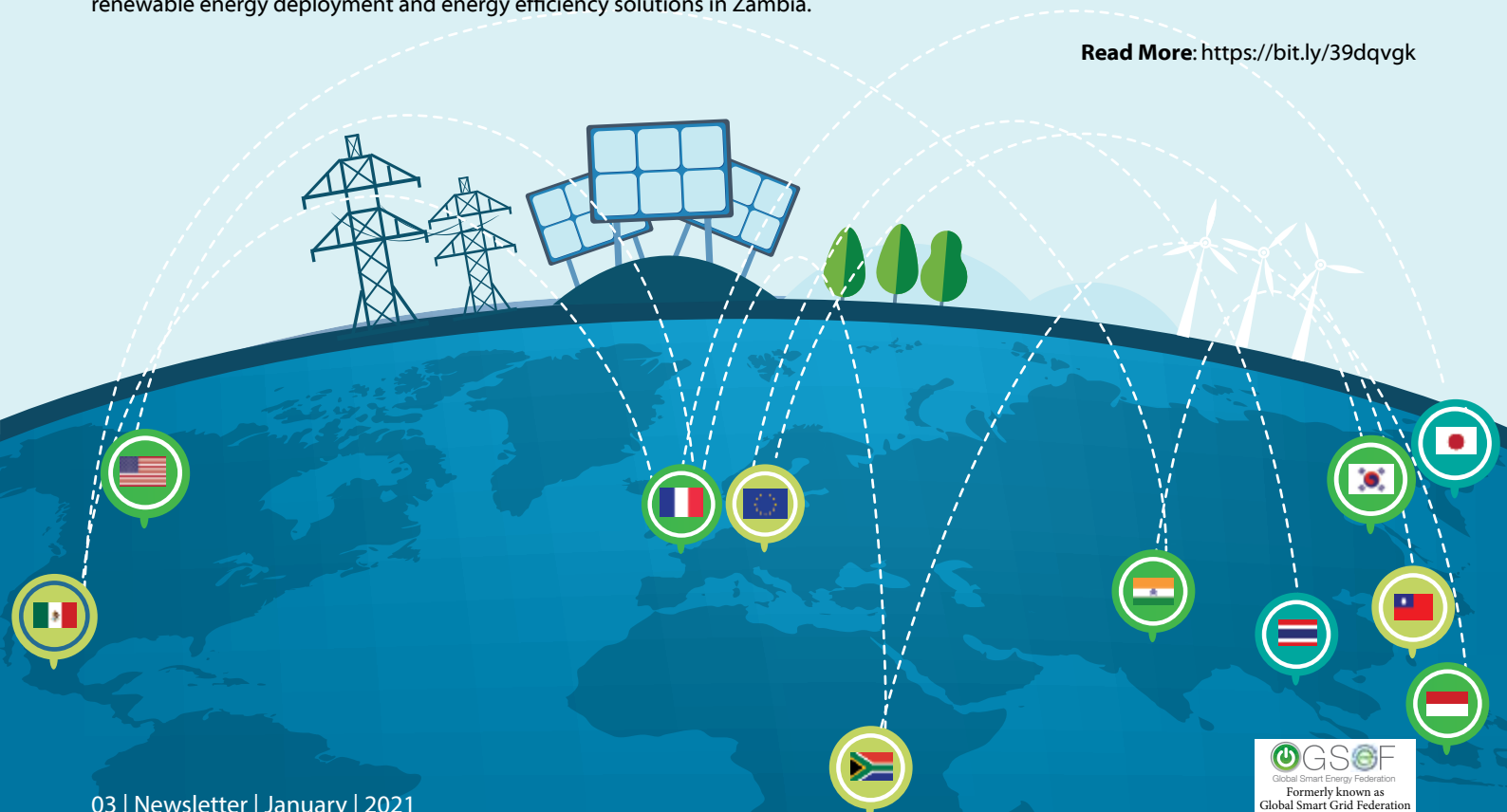
**Read More:** <https://bit.ly/3p2AuKR>

## EU to Subsidise Renewable Energy to the Tune of USD 23 Million

Increased Access to Electricity and Renewable Energy Production (IAEREP) is a three year project

The European Union (EU) has recently allocated US\$23 million to the government of Zambia to implement a programme of electricity generation from renewable sources, called IAEREP. This funding for the implementation of the third component of the IAEREP programme which will be used to finance six projects improving the electricity supply to 200,000 Zambians. In the first phase, the Zambian government provided support to public institutions to develop and/or revise the legal and regulatory framework for the deployment of renewable energy and energy efficiency. Whereas in the second phase it provided capacity building for public and private organisations involved in renewable energy deployment and energy efficiency solutions in Zambia.

**Read More:** <https://bit.ly/39dqvgk>



# Global Stories on Smart Grid

## New York to Build Nation's Largest Offshore Wind Program to Bolster Green Economy

The state has a goal of bringing online 9,000 MW of offshore wind by 2035

New York has selected Equinor Wind US to develop a pair of offshore wind facilities capable of generating 2,490 MW of power. As part of the offshore wind agreement, Equinor will revitalize two New York ports namely the South Brooklyn Marine Terminal and the Port of Albany into large-scale offshore wind working industrial facilities. The state has also issued a Request for Proposals (RFP) for the development of USD 5 billion in transmission projects to move renewable energy from the upstate region and Canada, into New York City.

**Read More:** <https://bit.ly/3c8vv7R>

## Kenya receives GRMF 14.5 Million for Geothermal Energy in Baringo-Silali

The project will be implemented by the Geothermal Development Corporation (GDC) owned by the Central Government of Kenya

The Kenyan central government has signed for a USD 14.5 million grant from the Geothermal Risk Mitigation Fund (GRMF) for the implementation of the Baringo-Silali geothermal project. The grant agreement was signed between the African Union, which is the contracting authority, and the National Treasury of Kenya, which is the beneficiary. The grant will support a drilling and testing programme and infrastructure upgrades at the Paka geothermal site in the Rift Valley in western Kenya. In addition to Paka, the Baringo-Silali geothermal project spreads over two other sites, namely Korosi and Silali.

**Read More:** <https://bit.ly/3cgnhe1>

## At 300MW / 1,200 MWh, World's Largest Battery Storage System is Up and Running

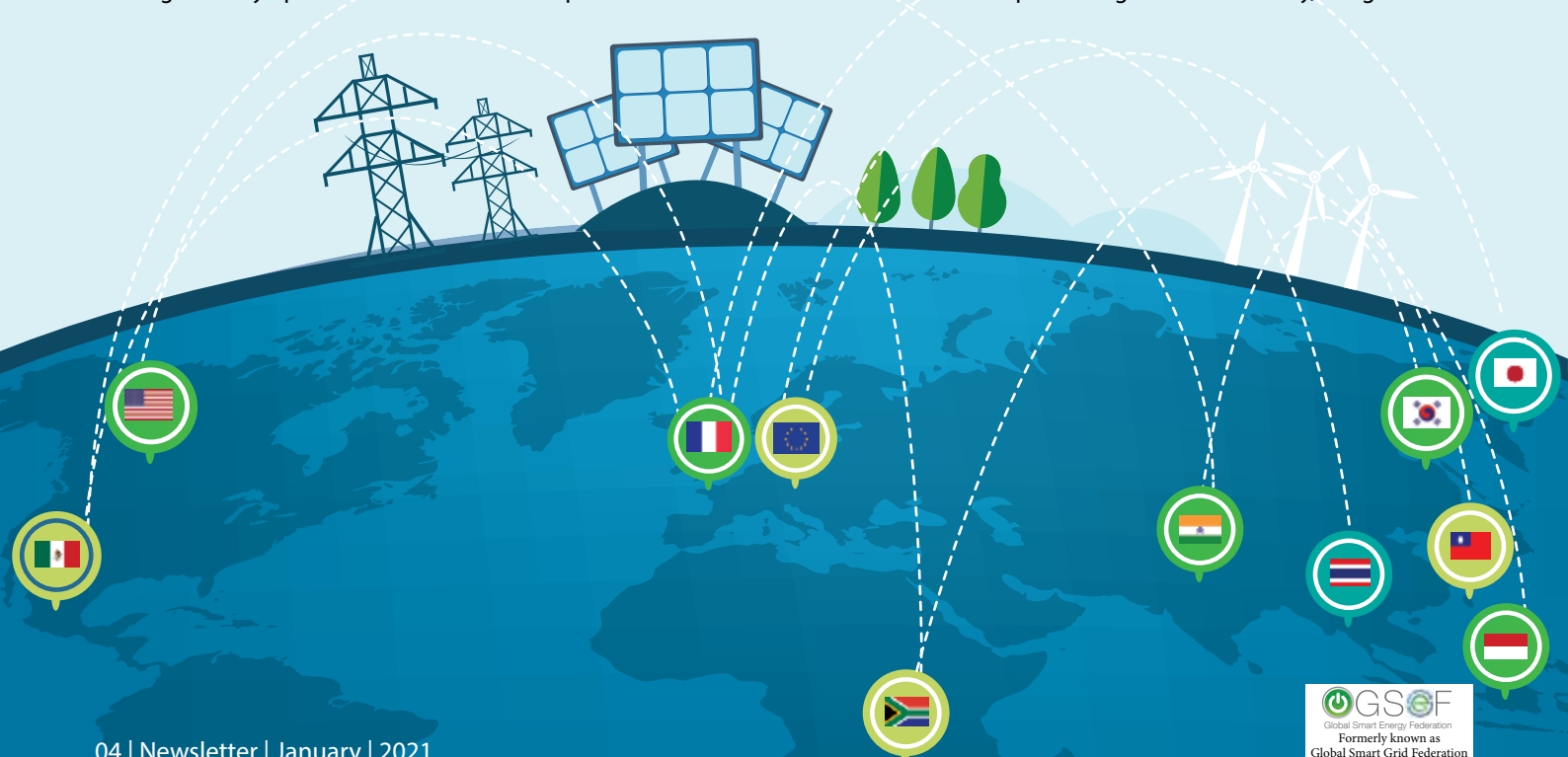
At 300MW / 1,200MWh, the world's largest battery energy storage system (BESS) is considerably larger than the 250MW / 250MWh Gateway Energy Storage project brought online earlier this year by LS Power, also in California, and has gone into operation in the first week of January 2021. Phase 1 utilises more than 4,500 stacked battery racks, each of which contains 22 individual battery modules. The BESS is housed inside the gas power plants turbine buildings, which have been refurbished to host the new technology. The system takes surplus energy from the grid and helps the network to meet peak demand periods.

Vistra's Moss Landing Energy Storage Facility Phases 1 and 2 are part of what the company has dubbed its 'Vistra Zero' portfolio, which includes a total of 4,000MW of renewable energy and energy storage resources. Vistra Zero features three other battery projects in addition to Moss Landing: one already completed in Texas (Upton 2 which is 10MW / 42MWh) and two more in California (Oakland, 36.25MW / 145MWh and DeCordova, 260MW / 260MWh), both of which are scheduled for completion in 2022. Also, in the Vistra Zero portfolio is a 2,300MW nuclear plant and five large-scale solar farms ranging from 50MW to 200MW capacity. Vistra has said it is targeting becoming net zero by 2050, which will involve the retirement of 6.8GW of coal-fired generation.

**Read More:** <https://bit.ly/2K7xJsz>

## UK City of Nottingham Uses Vehicle-To-Grid (V2G) and IoT to Optimize EV Fleet Charging

The City of Nottingham is to use a new open-source IoT platform to effectively manage the distribution of power across a fleet of electric vehicles (EVs), battery storage and solar power, harnessing innovative vehicle-to-grid (V2G) technology in the process. The intelligent energy management system (iEMS) from OpenRemote is being used for its Clean Mobil Energy project to enable the city's energy managers to maximize the use of locally produced renewable energy and cut carbon emissions and costs associated with charging EVs. Nottingham City's pilot site at the Eastcroft Depot will combine three main elements: solar panels to generate electricity, a large lithium-



# Global Stories on Smart Grid

ion battery for energy storage, and a fleet of 40 EVs. V2G technology enables the EVs to be charged and discharged for operational purposes as well as providing additional short-term energy storage and grid balancing.

**Read More:** <https://indiasmartgrid.org/viewnews.php?id=4935>

## Andhra Pradesh Forecasts Energy Demand using Artificial Intelligence

For the first time in India, APTransco in Andhra Pradesh deployed the day-ahead electricity forecasting model using artificial intelligence and machine learning to forecast the next day's electricity consumption (in units). This will also cover day-ahead electricity demand (in MW) for every 15 minutes. According to AP State Load Dispatch Centre (SLDC) officials, this will enable them to take decisions on electricity demand and supply, grid management and minimise power purchase cost. Google, with the support of the World Bank, has offered to jointly develop the forecasting model with the SLDC. The SLDC has carried out the development in-house. Various power-generating companies that have power purchase agreements (PPAs) with discoms will give their availabilities on a daily basis.

With the development and deployment of this day-ahead electricity demand forecasting model, APTransco intends to develop more day-ahead forecast models for wind energy, solar energy, market prices, central generating stations surplus and frequency. It is also developing a low cost electricity dispatch model, which will have information on how much electricity should be dispatched every 15 minutes the next day from each generating station with the objective of minimising power purchase cost.

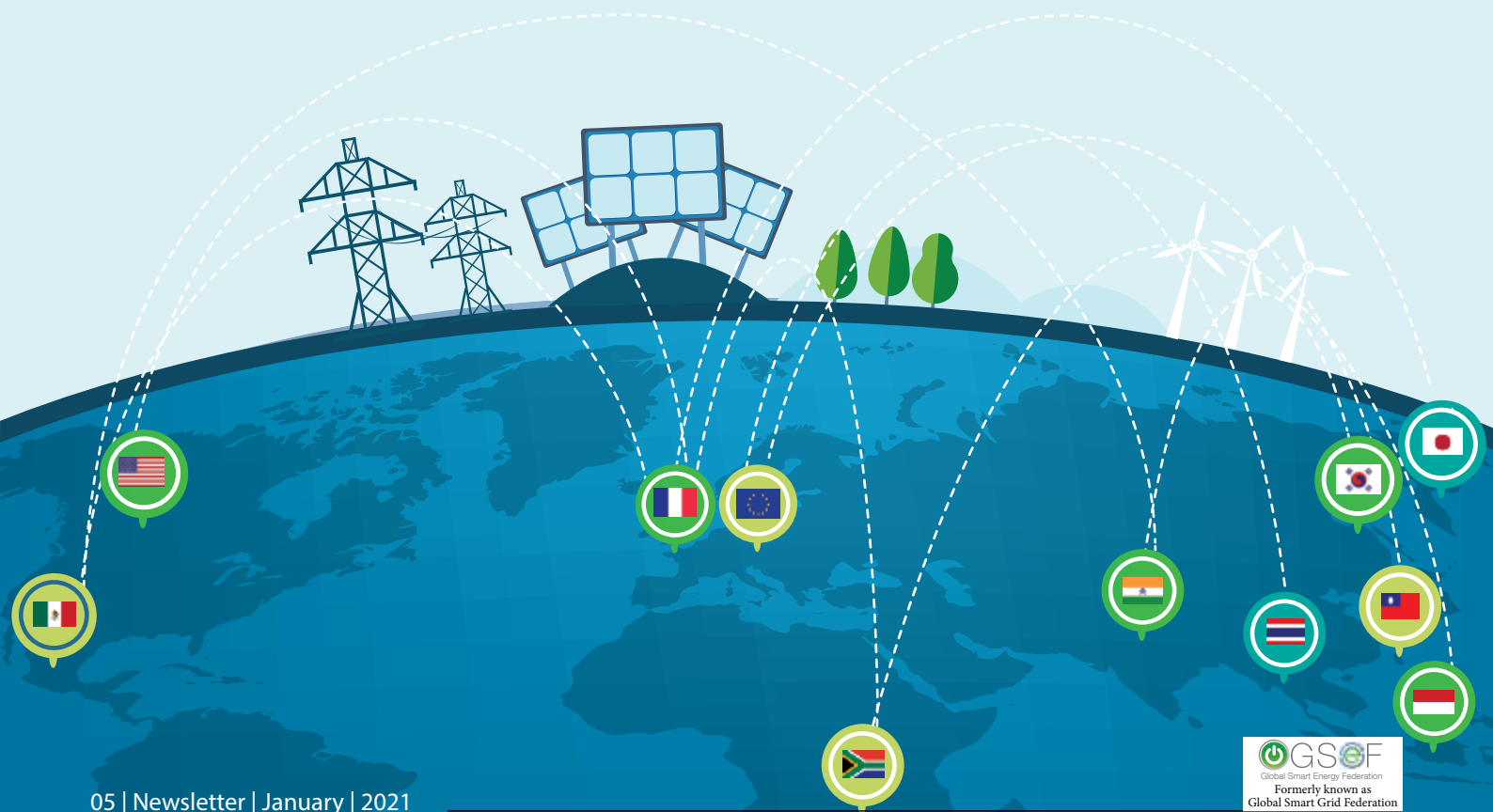
**Read More:** <https://bit.ly/2N42HTk>

## Darmstadt-based Energy Robotics nabs €2 Million for its Mobile Inspection Robots

The German company Energy Robotics, a developer of software solutions for mobile inspection robots, has received €2 million in seed funding round led by Earlybird, alongside other prominent business angels. One type of robots worked on by this startup, alongside company Boston Dynamics, were the inspiration for the robot dogs from the 'dystopian future' series Black Mirror.

Founded in 2019, Energy Robotics has launched one of the first commercially available software platforms for industrial applications that combines three essential components of intelligent control of mobile autonomous robots: a hardware-independent robot operating system, a cloud-based fleet management, and an AI-powered data analysis. The robots are used for remote inspection and monitoring, especially in industries with harsh and demanding environments such as the oil, gas and petrochemical industries, but also increasingly in the energy and security industries. The company relies on a SaaS model to do this, offering its software solution and associated IT infrastructure along with hardware from various third-party vendors.

**Read More:** <https://bit.ly/35KEzeT>



# Member Updates

## FLEXIBILITY OF THE POWER SYSTEM: A KEY ISSUE FOR A SUCCESSFUL ENERGY TRANSITION



The flexibility of the power system is difficult to define, as it has so many definitions and levers, from the producer to the end consumer. However, it is an essential tool for meeting the challenge of the energy transition, particularly for integrating a growing share of variable renewable energy into the grid, as well as for optimizing energy production and consumption.

Recently Think Smartgrids in partnership with the Société de l'électricité et de l'électronique (SEE) and the French national committee of CIREF, organized a webinar to review the various levers of flexibility of power grids.

As recalled by Alain Malot, expert at Schneider Electric and professor at Grenoble INP, the word “flexibility” is mainly used as an umbrella term to refer to all the levers allowing to vary the production and/or consumption of energy thanks to external signals (e.g. price signals), both on a very short time and on longer periods. It can concern energy producers, as well as the deployment of storage capacities and active network management tools, or consumers, whether they are private individuals or manufacturers.

As part of the energy transition, flexibility is playing an increasing role, not only in optimizing energy supply, but also in balancing and managing the power system. Charles Verhaeghe, Head of the Electricity Transmission Department at the French Energy Regulatory Commission (CRE), explains that France benefits from a very favorable regulatory framework that has allowed grid operators to conduct numerous experiments. All market segments are now open to flexibility operators and demand side management is playing an increasing role, covering more than 20% of the balancing reserves of the electricity network. Similarly, with the “capacity mechanism” applied since 2017, demand response capacities have contributed to guaranteeing the security of electricity supply and the storage capacities of the French network have increased significantly with the introduction in 2019 of a multi-year tender scheme. Finally, the “NEBEF” system (Wholesale market Demand-Side Bidding), which since 2013 has allowed energy stakeholders to sell demand response directly on the daily and intraday energy markets, has authorized the participation of individual consumers and independent aggregators, resulting in a significant increase in the volumes sold and the number of participating players.

**Read More:** <https://bit.ly/2YQWixA>

Article contributed by Think Smart Grids

# Member Updates

## GRIDWISE ALLIANCE'S POLICY UPDATE WASHINGTON IN REVIEW – JANUARY 2021

### Presidential Transition

President Joe Biden takes immediate executive actions on climate change. On First day of his Presidency, Joe Biden signed 17 executive orders, including several dealing with climate change, an issue that he has described as one of the four “historic crises” facing the US (along with COVID-19, the economy and racial injustice). As anticipated, Biden issued an executive order directing the US to rejoin the Paris Agreement.

Even more sweeping, Biden signed another executive order that directs the federal government to review Trump-era energy and environmental executive actions. In particular, the executive order specifically directs the Department of Transportation and the Environmental Protection Agency (EPA) to reconsider both new Model Year 2021-26 corporate average fuel economy standards for passenger cars and light trucks and the revocation of California’s waiver under the Clean Air Act to establish their own tailpipe emissions standards. In addition, the executive order directs EPA to review other Trump-era Clean Air Act rules related to co-benefits associated with Clean Air Act regulations, methane emissions associated with oil and gas development, and scientific studies the Agency uses in developing air regulations.

The executive order also establishes a new interagency working group on the social cost of carbon (SCC), an estimate on the monetary impacts related to releasing one ton of CO2 that can be used to track the climate impacts of federal actions. The group must issue interim guidelines on the SCC within 30 days and then final guidelines no later than January 2022. The executive order also revokes or suspends numerous Trump executive orders, including a 2019 order relating to securing the bulk-power system. Under the 2019 executive order, the Department of Energy is directed to identify equipment from foreign adversaries could be used to subvert the bulk power system and mitigate such risks. Pursuant to Biden’s new executive order, the bulk power system order is suspended for 90 days and the Energy Secretary and the Director of the Office of Management and Budget must consider whether to issue a replacement order.

Complementing this executive order, the White House also released a more comprehensive list of Trump-era regulations that they will review, including the Affordable Clean Energy (ACE) rule, which replaced the Obama-era Clean Power Plan and set non-binding guidelines for CO2 emissions from existing coal-fired power plants. Biden’s efforts to promulgate new CO2 standards under the Clean Air Act received a boost on Tuesday when the US Court of Appeals for the DC Circuit struck down the ACE rule, remanding back to EPA work in promulgating new regulations.

**Read More:** <https://bit.ly/3pWPavA>

**Article contributed by** GridWise Alliance

## GREEN GROWTH STRATEGY TOWARDS 2050 CARBON NEUTRALITY” FORMULATED

The Ministry of Economy, Trade and Industry (METI) formulated a “Green Growth Strategy towards 2050 Carbon Neutrality” in collaboration with related ministries and agencies. This strategy is an industrial policy to lead the challenging goal of achieving carbon neutrality by 2050, a vision that is upheld by the Suga administration and aims toward a positive cycle of economic growth and the environmental protection.

### Background and overview

In October 2020, Prime Minister of Japan Yoshihide Suga declared the goal of realizing a carbon-neutral, decarbonized society by 2050.

In light of this, METI executed leadership and formulated a “Green Growth Strategy towards 2050 Carbon Neutrality” in collaboration with related ministries and agencies, and on December 25, 2020, made a briefing on the strategy at a meeting of the Committee on the Growth Strategy.

This strategy is an industrial policy to lead the challenging goal of achieving carbon neutrality by 2050, a vision that is upheld by the Suga administration and aims toward a positive cycle of economic growth and environmental protection.

For more details, please refer to URL below.  
[https://www.meti.go.jp/english/press/2020/1225\\_001.html](https://www.meti.go.jp/english/press/2020/1225_001.html)

# Member Updates

## WELCOMING BOTSWANA TO GSEF



We are pleased to announce the joining of Botswana Power Corporation (BPC) as the Utility Member of GSEF

Botswana Power Corporation is a state-owned entity created by Act of Parliament in 1970. BPC is responsible for generating, transmitting and distributing electricity within the country to areas approved by the Ministry of Minerals, Green Technology and Energy Resources. Electricity generation has developed from a small oil-fired power station in Gaborone, commissioned in 1970 and dismantled in 1989, to two thermal power stations at Morupule, near Palapye. The Corporation also has two small standby diesel-fueled power stations at Orapa (90MW) and Matshelagabedi (70MW) to supplement generation.

Leveraging GSEF's expertise and experience for electric grid modernization to accelerate energy transition all around the world will be one of the main objectives of BPC and GSEF collaboration.

We believe that the joining of BPC to the GSEF family will be mutually rewarding and will contribute towards a smarter and cleaner world.

**For more information you can visit <https://www.bpc.bw/home>**

## REJI KUMAR PILLAI RE-ELECTED AS GSEF CHAIRMAN

Mr. Reji Kumar Pillai, President of India Smart Grid Forum (ISGF) has been re-elected unanimously to serve the third term as Chairman Global Smart Energy Federation (GSEF) until Nov 2022. Reji Kumar Pillai has been holding the position of Chairman of GSEF (formerly known as Global Smart Grid Federation - GSGF) since November 2016.

GSEF is a global stakeholder organization of national smart grid associations, forward-looking utilities, and think-tanks from around the globe working in the domains of energy transition and clean transportation. By linking the major public-private stakeholders and initiatives of participating countries, the federation shares practices, identifies barriers and solutions, fosters innovation, and addresses key technology standards and policy issues. The activities of GSEF help our member organizations and their member utilities in the energy transition and grid modernization initiatives that enhance access to affordable clean energy and increase the security, flexibility and resiliency of the power system while reducing the emissions. GSEF has 17 members from developing countries (Botswana, India, Indonesia, Malaysia, Mexico, Mozambique, South Africa and Thailand), developed countries (France, Japan, South Korea and USA), the European Distribution System Operators (E.DSO), an organization promoted by European Commission; and several think-thanks of global repute. CARILEC, the association of 33 electric utilities in the Caribbean region is in the process of joining GSEF as a member. GSEF has MOUs with International Smart Grid Action Network (ISGAN), an inter-governmental organization of 25 countries promoting smart grids; and also with the Association of Power Utilities of Africa (APUA), an organization comprising 56 utilities from 46 African countries. Besides, GSEF has a close working relationship with IRENA and the International Solar Alliance (ISA).



GSEF has four internationally renowned experts as Ambassadors to cover different geographies across the globe. They manage the GSEF relationship with relevant stakeholders in the respective regions. GSEF also provide the Jury Panel for ISGAN Award of Excellence for smart grid projects since the inception of the awards. The 7th ISGAN Award of Excellence will be conferred during the Clean Energy Ministerial in June 2021.



## EV TELEMATICS: THIRD PARTY OR OEM



The battle for data ownership and the competitive secrecy surrounding it, reminds me of an old comedy film titled "Yours, Mine and Ours". While the context is completely different, this title applies to Smart Grid, Smart Cities and Smart Mobility industries today. The legal definition of data ownership masks the OEM's obligatory responsibilities to its customers (whom it serves). In most cases the customer has to "fight" to seek all data gathered by the OEMs. *The question is not whether the OEMs should determine the customer's "actual data needs" but rather for the customer to be able to perform their analysis on their own investments and operations using all data from their own assets.*

Telematic systems typically include (1) data collection from various vehicle sensors and their transmission in real time to an established data network; and (2) an analytical platform for real time and batch processing of such data. Various alarms, alerts and reports are triggered as required. Telematics is now widely used in many industries – Aviation, Construction, Logistics, Utilities and Mining. – to monitor project performance, asset utilization, workforce management and predictive maintenance. Most systems are owner-owned or third-party managed. In a few cases the OEM themselves have offered advanced 24/7 telematics (such as in aviation). While business case drives such investments, the maturity of this above select industry rests upon OEM asset data being shared with customers.

EV telematics now is a hot bed in the e-mobility sector. While OEMs collect vast real-time data on their vehicles/battery/cooling (all encrypted and telemetered), they are reluctant to share all such data beyond a few high-level parameters. Their rationale is not technical, but rather legal (liability and market competition). However, this readily available data-set is also needed by the customer to manage, compare and optimize fleet performance in (1) route/vehicle selection; (2) improve operational efficiency; and (3) compare vehicle performance across OEMs.

There are broadly three types of EV asset owners/operators, namely (1) fixed route operators (public transportation, school buses, municipal service trucks); (2) flexible route operators (taxis, three-wheelers, cargo, courier, deliveries) and (3) private single-family owners (cars, two-wheelers). The best business case for EV telematics is in large/scalable commercial operations (both fixed and flexible routes). There is also a potential business case in telematics for very large aggregation of private/retail/personal EVs on a subscription basis. This article largely addresses telematics for commercial EV fleet operations.

An EV fleet owner/operator has several ways to obtain vehicle data (currently encrypted by OEMs). The best way is to negotiate with the OEM to allow for full data sharing through vehicle purchase contracts. The real question however is to know what is the full list of data being captured by the OEM. The other options are (a) imposing a customer dataset as a minimum requirement during procurement; or (b) adopting a common set of data-list requirement through national standards/associations; or (c) adding customer-installed sensors at key points on the EV to gather a separate set of data points (very expensive).

The adoption of EV telematics today is urgent for several important reasons, namely; (a) very short window for industry growth in its competition with internal combustion (ICE) vehicles; (b) understanding battery performance to reduce costs; and (c) extending battery service life. Telematics, if adopted seriously, could offer a good insight into the following critical areas:

1. Ambient temperature and terrain correlation with battery performance and cooling systems
2. Real-time battery state of charge (SOC) on vehicle performance and impact of rapid charging
3. Impact of route variables on vehicle operations and maintenance
4. Fleet performance comparison across multiple OEMs

There are additional benefits as well in the broader circles with regard to (a) financial and insurance institutions understanding and rating technology risks; (b) governments targeting their subsidy policies; and (c) OEMs gaining insight into use-cases across multiple customer base and vehicle applications.

EV telematics plays a useful role in not just when vehicle is "running"; but also in its "non-travel" times when the vehicle is stationary during (a) charging; (b) traffic halts; (c) shift change/short rest periods; and (d) maintenance work. Such comprehensive analysis goes far beyond

each individual vehicle performance and into fleet/asset management. Thus, the efforts by the OEMs to collect individual vehicle datasets (battery, cooling, charging) and report them separately, is a subpar effort when a single common analytical platform can correlate across the entire fleet.

The value question is whether third-party telematic systems is more beneficial to the customer than OEM provided systems. The pros and cons of each offering is highlighted below:

1. OEM telematics are generally more “tuned” to their own brand (specifications, battery/BMS and stated performance). The data structures, analysis and reporting from each OEM could be different. Such ‘siloed” individual vehicle results are difficult to stitch end-to-end for fleet analysis across multiple OEMs. Some key data/analysis could be withheld (legal/confidentiality) requiring the customer to fill proxy data or add algorithms. Thus, for fleet operation, a customer could be faced with differing and variant platforms to be integrated across multiple OEM brands. The only time OEM telematics would be a better choice is when vehicles are “wet-leased” as a service and/or sole-sourced.
2. Third-party telematics on the other hand can be configured across multiple OEMs and integrated with other external data to suit, such as routes maps, route terrains, ambient weather conditions and specific vehicle operating conditions (passenger-load, driving behavior, etc.). They can also be customized to fleet needs, asset monitoring needs, training, etc. Data/analytics sharing across multiple divisions is also much easier for multinational companies operating in several countries and jurisdictions. It provides an opportunity for independent verification and analysis across many OEM brands and across various use-cases, to build a knowledge base.

Third-party EV telematics are available today in various platforms, sizes and analytical capabilities. The best ones (in my opinion) are those that offer a complete package i.e., (a) a vehicle-mounted rugged data collector box; (b) in-vehicle localized fast data processing capabilities for safety alerts; (c) multiple wireless transceiver choices; (d) a high sampling rate (15 seconds or less); (e) secure/verified real-time data transmission; (f) scalable cloud platform; (g) integrated analytical capability across external/internal variables; (h) in-depth reporting (both dashboard and KPI) on per route/per vehicle basis as well as at a fleet view across all routes and OEMs; (i) battery and SOC stress points along a route; and (j) a 24/7 monitoring center with very quick alerts.

The sooner such third-party telematics platforms are deployed, the sooner the EV industry will mature. This will require the cooperation of OEMs to share all data.

Article contributed by Ravi Seethapathy, GSEF Ambassador for Americas



**India**  
**SMART UTILITY**  
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**02 - 05 March 2021**

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Organiser

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**2<sup>nd</sup> March 2021**  
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Conference &  
Exhibition

**3<sup>rd</sup> March 2021**  
**Wednesday**

Conference &  
Exhibition

**4<sup>th</sup> March 2021**  
**Thursday**

Conference &  
Exhibition

**5<sup>th</sup> March 2021**  
**Friday**

Conference &  
Exhibition

🏆 **ISGF INNOVATION AWARDS: 5<sup>th</sup> March 2021**

## ESKOM CONTAINERISED MICROGRID

Distributed generation in the form of Solar Energy and Storage is reshaping the current energy landscape across the world. Eskom has also started this journey and is positioning itself to play an active part in the energy transition to greener sustainable technologies. Eskom Research Testing & Development has been actively involved in demonstrating Microgrids as an alternative to conventional generation. This has been successfully demonstrated since 2017 at the Ficksburg Rural microgrid (Figure 1), and subsequently R&D now offers a modular containerised version, which has optimized the previous design and further reduced the cost to implement (Figure 2).

**Figure 1: Ficksburg Rural Pilot**



**Figure 2: Modular Containerised Microgrid**



Rural electrification still poses a challenge in this day of age. The cost of traditional electrification using long power lines over tough terrain to service outskirt communities takes years to achieve and is not financially viable. Microgrids can serve this function by offering clean reliable energy that can be quickly deployed, servicing the country's "universal access to electricity mandate". With electricity comes economic growth and social upliftment. These are key points to build this nation.

Eskom RT&D was the first to develop an off-grid microgrid in South Africa. The technology integration and control methodologies are still on the leading edge, and the performance to date has proven this. All that knowledge and technology has now been further optimized to be housed in a single 40ft shipping container that is now modular, mobile and pre-commissioned to allow for electrification to communities in a matter of days opposed to years. The system can be controlled remotely and uses artificial intelligence (AI) and forecasting information to predict supply and demand in real time.

The result is a 40ft shipping container has been re-engineered to internally house power inverters, chargers and controllers that harness the sun's energy from 22.4kW of solar panels, as well as storing excess energy into 458kWh of Lithium ion battery banks for use when there is no sunlight. The 'solar wings' can be folded away during transportation and the system can be commissioned and connected to a reticulation system in a few days. Remote systems measure and monitors the plants performance, making pre-emptive maintenance and remote engineering immediately possible when required.

The containerised microgrid was visited by the GCE and his comments to the team regarding the level of engineering was positively expressed, reaffirming the needs for such systems in the country.

**Concept Rendering of Container and contents**



**Solar PV Power Inverter Banks**



**48 kWh Lithium ion battery and BMS**



**Article contributed by** Nick Singh, Honorary GSEF Ambassador for Africa (Anglophone)

# Smart Grid Events

**02-05 March 2021:** India Smart Utility Week 2021, Digital, <http://www.isgw.in/>

**23 - 25 March, 2021:** Enlit Asia, ICE, Jakarta <https://www.enlit-asia.com/>

**24 - 25 March, 2021:** NextGen SCADA Global 2021, Virtual Conference, <https://www.smartgrid-forums.com/forums/nextgen-scada-global/>

**April 29-30, 2021:** ICSGSE 2021: 15. International Conference on Smart Grid and Smart Energy, On Digital Platform, [//waset.org/smart-grid-and-smart-energy-conference-in-april-2021-in-jerusalem](http://waset.org/smart-grid-and-smart-energy-conference-in-april-2021-in-jerusalem)

**4 to 5 June 2021:** ICSG Istanbul 2021, Digital Platform Link: <https://icsgistanbul.com/en/>

**9 - 11 June, 2021:** EM-Power Europe Munich, Germany, <https://www.em-power.eu/en/home>

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## Events Supported by GSEF

SMART GRID FORUMS | **NextGen SCADA Global 2021**

**24<sup>th</sup> -25<sup>th</sup> March, 2021**



**23 - 25 March 2021 | ICE, Jakarta, Indonesia  
Formerly POWERGEN Asia and Asian Utility Week**

For participation in the above events please write to [info@globalsmartenergy.org](mailto:info@globalsmartenergy.org)

# GSEF at a glance

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Think Smart Grids



India Smart Grid Forum



Korea Smart Grid Association (KSGA)



Prakarsa Jaringan Cerdas Indonesia (PJCI)



GridWise Alliance

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Smart Grid Mexico



Japan Smart Community Alliance

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European Distribution System Operators (E.DSO)



Botswana Power Corporation

## Associate Members



Green Business Certification Inc.



Florence School of Regulation (FSR)



Energy Blockchain Consortium

## Current Working Groups

- Blockchain for Utilities
- Regulatory Changes or Regulatory Reforms for the post Covid Digital Utility
- AI and Analytics for Utilities

## Working Groups in Pipeline

- Green Recovery Playbook for Utilities

## Contact us for more information.

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