

## GSGF-ISGAN Meeting held on 1st October, 2019 at Montreux, Switzerland

A meeting was held between GSGF and the Presidium of the International Smart Grid Action Network (ISGAN) on 01st October, 2019 in Montreux, Switzerland. The meeting was part of the regular interactions between GSGF and ISGAN held during the half yearly ISGAN Executive Committee Meetings (Ex Co 18). The meeting was Co-Chaired by outgoing chair of ISGAN Ms. Karin Widegren and newly elected ISGAN Chair Mr. Luciano Martini. GSGF was represented by Mr. Reji Kumar Pillai, Chairman, GSGF, Mr. Eddie Widiono, Founder and Chairman of Smart Grid Indonesia (PJCI), Indonesia and Ms. Valerie-Anne, Managing Director, Think Smart Grids, France, Vice Chair, GSGF. Several joint initiatives were discussed at this meeting.



**Left to Right:** Karin Widegren, Ex - Chair of ISGAN, Arun Kumar Mishra, Vice Chair, ISGAN, Luciano Martini, Chair of ISGAN, Russell Conklin, Vice Chair, Susanne Windischberger, ISGAN Secretariat AIT, Chloe SeongJi Yoon, Co- Secretariat, KSIGI, Aram An, Co- Secretariat, KSIGI, Maarten Noenickx, Vice Chair, Kazumi Ueda, Nedo, Valerie-Anne Lencznar, Managing Director, Think Smart Grids, France and Vice Chair, GSGF, Eddie Widiono Founder and Chairman of Smart Grid Indonesia (PJCI), Indonesia and Reji Kumar Pillai, Chairman-GSGF and President- ISGF

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# Global Stories on Smart Grid

## Limestone Network, a Singaporean company plans to build Smart City in Phnom Penh, Cambodia

Limestone Network, a Singaporean startup, is planning to build a smart city in the heart of Phnom Penh, Cambodia. International startup media platforms reported that Limestone Network is seeking to transform the face of Southeast Asia by building smart cities powered by blockchain technology. The project will include residential homes, office buildings, shopping malls, retail outlets, schools and a gigantic convention centre, attracting 10,000 businesses and close to 200,000 people. All residents and workers will be provided a 'digital passport' that will allow them full access to all the features of the Limestone app after thorough verification. After Cambodia, Limestone Network plans to build smart cities in other parts of Southeast Asia, including Malaysia, the Philippines and Singapore.

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

## Sprint Brings Smart City Tech to Life with Curiosity IoT and True Mobile 5G

*Key Highlights: Curiosity Lab at Peachtree Corners' Grand Opening: Real-world smart city infrastructure and 5G connectivity enable companies to better test cloud AI, robots, autonomous vehicle tech and more*

Sprint is a communications services company, will headline the grand opening of Curiosity Lab at Peachtree Corners, the nation's first 5G-powered smart city technology proving ground on September 11 2019 in the City of Peachtree Corners, Georgia, United States. The living laboratory, which includes a 1.5-mile autonomous test track located within an existing 500-acre technology park, enables companies to develop and test emerging technologies with live smart city infrastructure, next-generation connectivity and the most real-world conditions possible. With Curiosity™ IoT and True Mobile 5G, Sprint is bringing together companies to develop and test future forward technology in one space, sparking innovation and creativity. From enabling the most accurate real-world navigation possible to delivering immediate intelligence from IoT connections, companies can now better test and ultimately scale new solutions for the smart city landscapes. Sprint True Mobile 5G is now live in parts of Peachtree Corners as part of the company's footprint covering areas of Atlanta with the next generation of wireless service that delivers blazing-fast download speeds.

**Read More:** <https://bit.ly/2kKl6GX>

## Narada, EDF tie up in Chinese Battery Storage Project

Chinese battery maker and energy storage solutions provider Narada Power Source Co Ltd has joined hands with a local unit of French renewables group EDF Renewables to develop battery storage projects in China. The parties have signed a cooperation agreement that builds on an earlier deal from September 2018, the Zhejiang-based company announced on 27 September 2019. The transaction included Narada's sale of a 1.5-MW/12-MWh battery storage system in China's Jiangsu province to EDF Renewables China. The new collaboration agreement envisages a functional expansion of the abovementioned project, further details about which were not provided. According to the statement, the battery system will provide up to 12,000 kWh of storage capacity per day to a nearby industrial park in Jiangsu.

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

## Electricité du Cambodge inks first cross-border deals with Lao IPPs

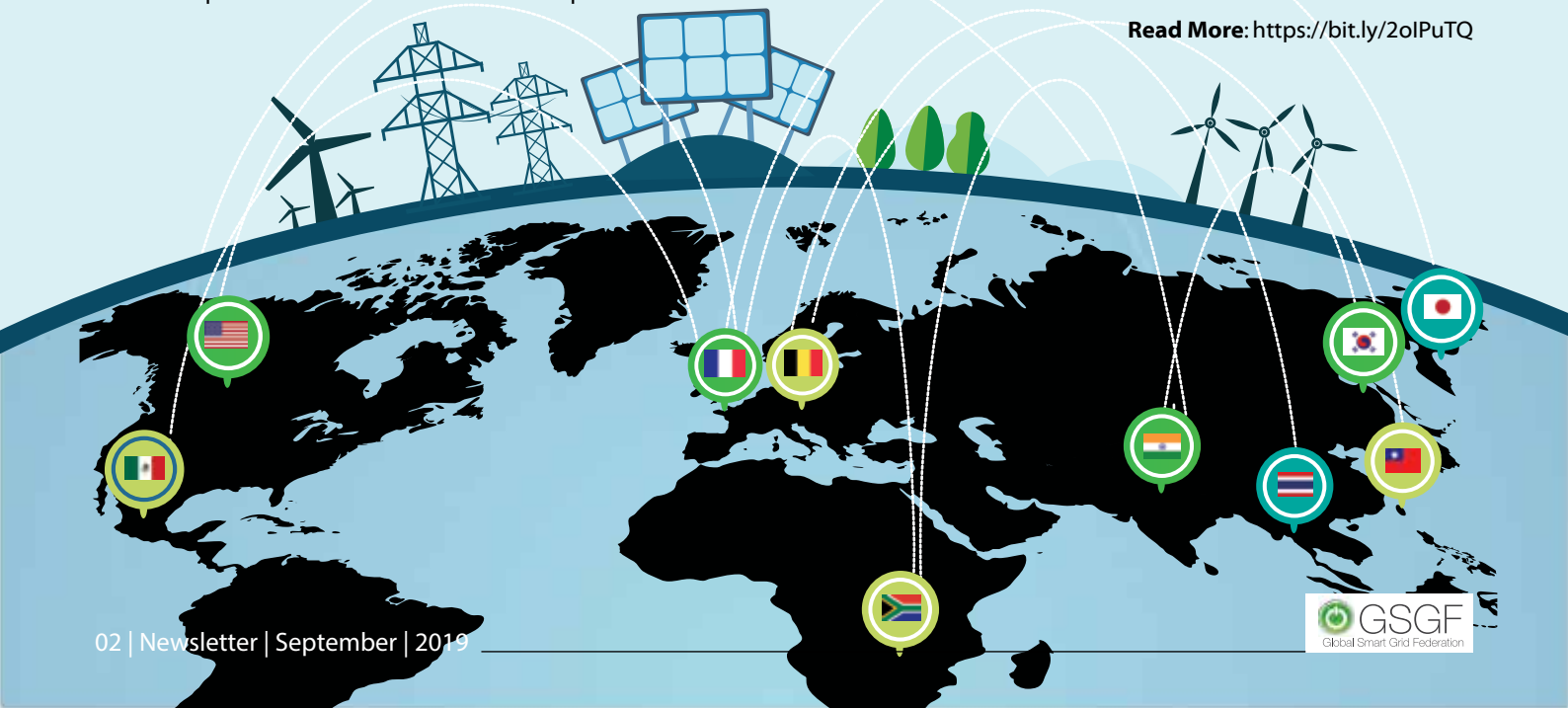
Electricité du Cambodge (EDC), Cambodia's main electricity supplier, signed its first two cross-border deals with Lao independent power producers (IPP) Xekong Thermal Power Plant Company Limited and TSBP Sekong Power and Mineral Company Limited. The two projects totalling 2,400MW, will start supplying power to EDC in 2024 and over a 30-year period. This is a landmark transaction for the Royal Government of Cambodia given the size of the projects and would play a key role in supporting the nation's electricity needs.

**Read More:** <https://bit.ly/2nUonp0>

## PG&E wants EV demand charges to Mimic Smartphone Plans

Pacific Gas & Electric (PG&E) proposed a subscription-based charging rate that it compared to smartphone data plans as a way to eliminate demand charges that have impinged development of profitable public charging stations. California regulators will consider approving new commercial electric vehicle charging rates for PG&E, but shows concern over customer subsidization and utilization rates could mean a substantially-reduced "subscription" fee the utility had proposed. According to the proposed order, the stipulation estimated removing revenue that is non-marginal from the proposed commercial EV rate reduced the charge from 21.17 USD per 10 kW block to 12.41 USD per 10 kW for those customers with peak demands of 100 kW or less.

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



# Global Stories on Smart Grid

## GETS Global Berhad and KPIT Technologies to jointly pursue e-mobility projects in Malaysia and ASEAN countries

GETS Global Berhad and KPIT Technologies have agreed to establish a Special Purpose Vehicle (SPV) - an E-Mobility Centre to pursue selective opportunities in the Malaysian and other ASEAN countries. The SPV Company is to primarily strengthen, promote and develop sustainable electro mobility projects in support of green development by developing Electric Vehicles for commercialization. GETS Global and KPIT Technologies have executed a Memorandum of Understanding (MoU) dated 2 April 2019 to govern and regulate their relationship.

**Read More:** [https://www.business-standard.com/article/news-cm/gets-global-berhad-and-kpit-technologies-to-jointly-pursue-e-mobility-projects-in-malaysia-and-asean-countries-119092601021\\_1.html](https://www.business-standard.com/article/news-cm/gets-global-berhad-and-kpit-technologies-to-jointly-pursue-e-mobility-projects-in-malaysia-and-asean-countries-119092601021_1.html)

## New Partnership for Blockchain Technology of Electric Systems

A new partnership has been formed in the U.S., designed to showcase how blockchain technology can be applied to enhance the security and operational efficiency of electric systems. This is for distributed energy resources. The project is a collaboration between blockchain cybersecurity platform startup Xage Security (located in Palo Alto, California, U.S.) and utility firm Commonwealth Edison (located in Chicago, Illinois, U.S.). The aim is to show how blockchain technology can assist with integrated distributed energy resources like solar power, energy storage, energy efficiency, and power demand management. The focus is with boosting security as well as making the process of energy demand management more efficient.

**Read more:** <http://www.digitaljournal.com/tech-and-science/technology/new-partnership-for-blockchain-technology-of-electric-systems/article/558852#ixzz611n6Kc1p>

## Malaysia aiming for 20% Renewable Energy Use by 2025

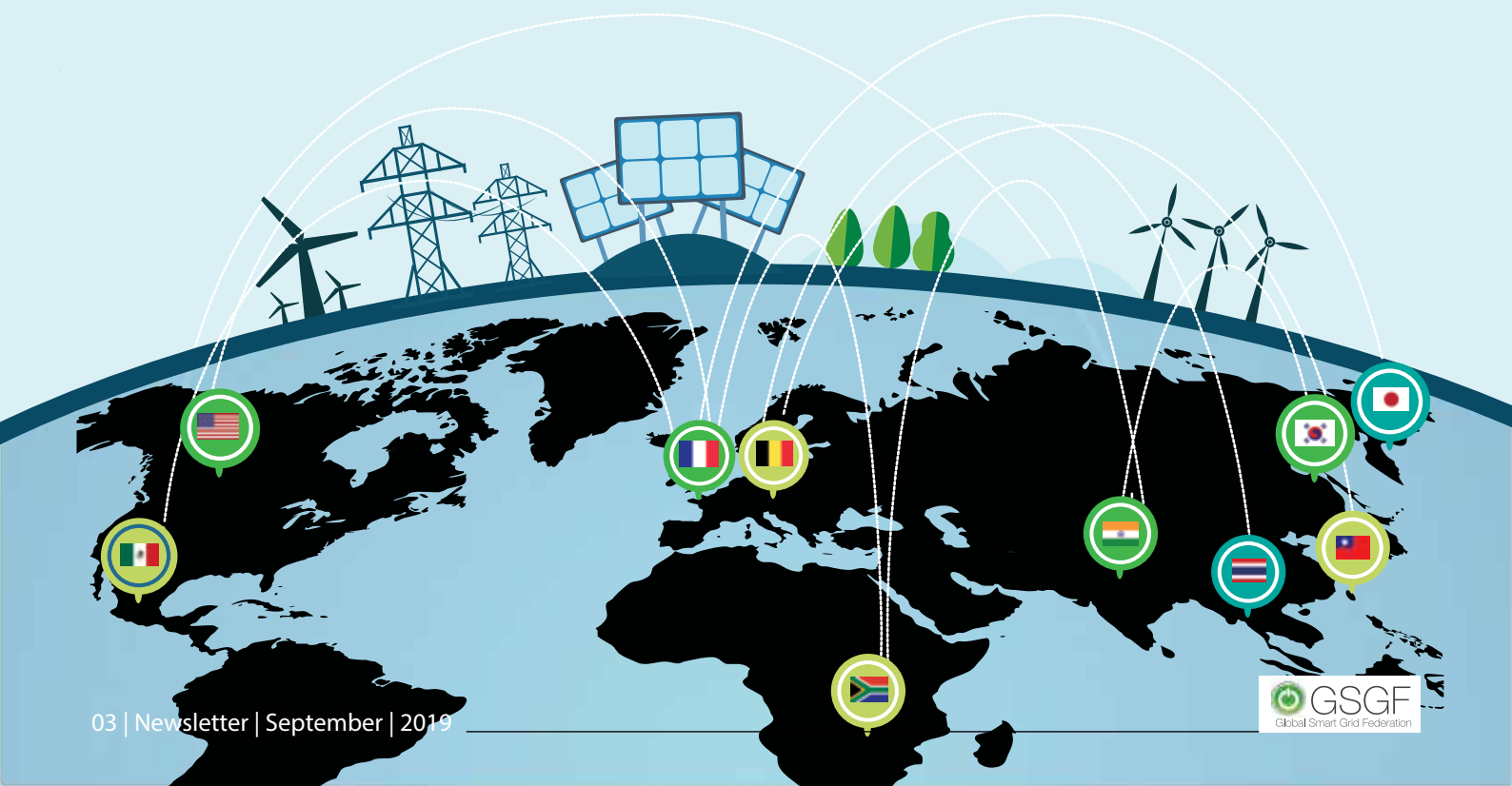
The Malaysian government is seeking to increase the country's target of renewable energy generation to 20 per cent in the next six years. This will be accomplished via the Malaysia Energy Supply Industry 2.0 (MESI 2.0) plan which will be launched sometime this month. The plan will enable green energy trading through a grid, and it is not compulsory for renewable energy companies to sell electricity to the national electric utility company Tenaga Nasional Berhad. The bidding is for 500 megawatt generation, where each bidder has a maximum of 100 megawatts. The first four projects amount to 365 megawatts out of 500 megawatts and the bidding price is lower than the cost of gas generation, standing at 23.22 cents.

**Read more:** <https://bit.ly/2jWSBFI>

## Australia's old powerlines are holding back the Renewable Energy Boom

Australian wind and solar farms are putting downward pressure on energy prices, and there are hundreds of new renewable facilities set to come online. But that green energy is stretching the country's outdated network of transmission lines. Australia's high-capacity transmission lines were designed to service centralised electricity generation from coal-fired power stations. In many cases, these are the areas where the transmission network is weakest, with ageing power lines that were never designed to transport electricity from large-scale renewable generators. Karadoc Solar Farm in Victoria's far north-west, has 300,000 solar panels that produce enough energy to power around 40,000 homes. It plugged into the grid last year. According to the experts, Australia's transmission infrastructure is beginning to hold back the boom in cheap renewable energy.

**Read more:** <https://ab.co/2krpxpY>





# Global Stories on Smart Grid

## California, USA Aims to Fix Low-Income Storage Program and Deliver New Resilience Incentives

California's energy storage incentive program has been a great success, with more than 11,000 battery storage systems installed to-date. The problem is, it's not reaching the state's most vulnerable communities. California's Self-Generation Incentive Program (SGIP) has a long history, dating back to 2001 when the program was established to encourage the development of customer-sited generation. Over the years, SGIP has evolved into primarily an energy storage incentive for residential and commercial customers. In recognition of the fact that these funds have not been flowing to the state's disadvantaged communities, in 2017 the CPUC created the SGIP Equity Budget, a 25 percent carve-out of the program's funds reserved for projects in disadvantaged and low-income communities. The CPUC had great intentions in establishing the Equity Budget – boosting economic and workforce development opportunities, reducing fossil-fuel power plant utilization, and increasing technology access among historically under-resourced and environmentally overburdened communities. Unfortunately, these good intentions were coupled with poor execution. Incentive levels were too low, outreach and education too minimal, and coordination with complimentary programs was non-existent. While Equity Budget funds have been available for well over a year, not a penny of the existing \$72 million in available funds has been allocated toward an energy storage project in these communities.

**Read more:** <https://bit.ly/2m1JQef>

## Smart Grid Events

**October 16<sup>th</sup> - 18<sup>th</sup>, 2019:** Korea Smart Grid Week, Seoul  
<http://www.ksgw.or.kr/ver2019/main/main.php>

**October 21<sup>st</sup> - 24<sup>th</sup>, 2019:** IEEE International Conference on Communications, Control, and Computing Technologies for Smart Grids (SmartGridComm) Beijing, China  
<https://sgc2019.ieee-smartgridcomm.org/>

**November 12<sup>th</sup> -14<sup>th</sup>, 2019:** European Utility Week, Paris  
<https://www.european-utility-week.com/>

**November 27<sup>th</sup> - 29<sup>th</sup>, 2019:** European Power Strategy & Systems Summit, Czech Republic  
<http://www.europeanpowergeneration.eu/>

**December 10<sup>th</sup> - 12<sup>th</sup>, 2019:** gridConnex 2019, Washington DC  
<https://gridconnex.com/>

**January 13<sup>th</sup> - 16<sup>th</sup>, 2020:** World Future Energy Summit, Abu Dhabi, <https://www.worldfutureenergysummit.com>

**January 28<sup>th</sup> - 30<sup>th</sup>, 2020:** DistribuTECH 2020, San Antonio, TX, USA, <http://www.distributech.com>

**March 3<sup>rd</sup> - 7<sup>th</sup>, 2020:** India Smart Utility Week, New Delhi, India  
<http://www.isgw.in/isuw-2020/>

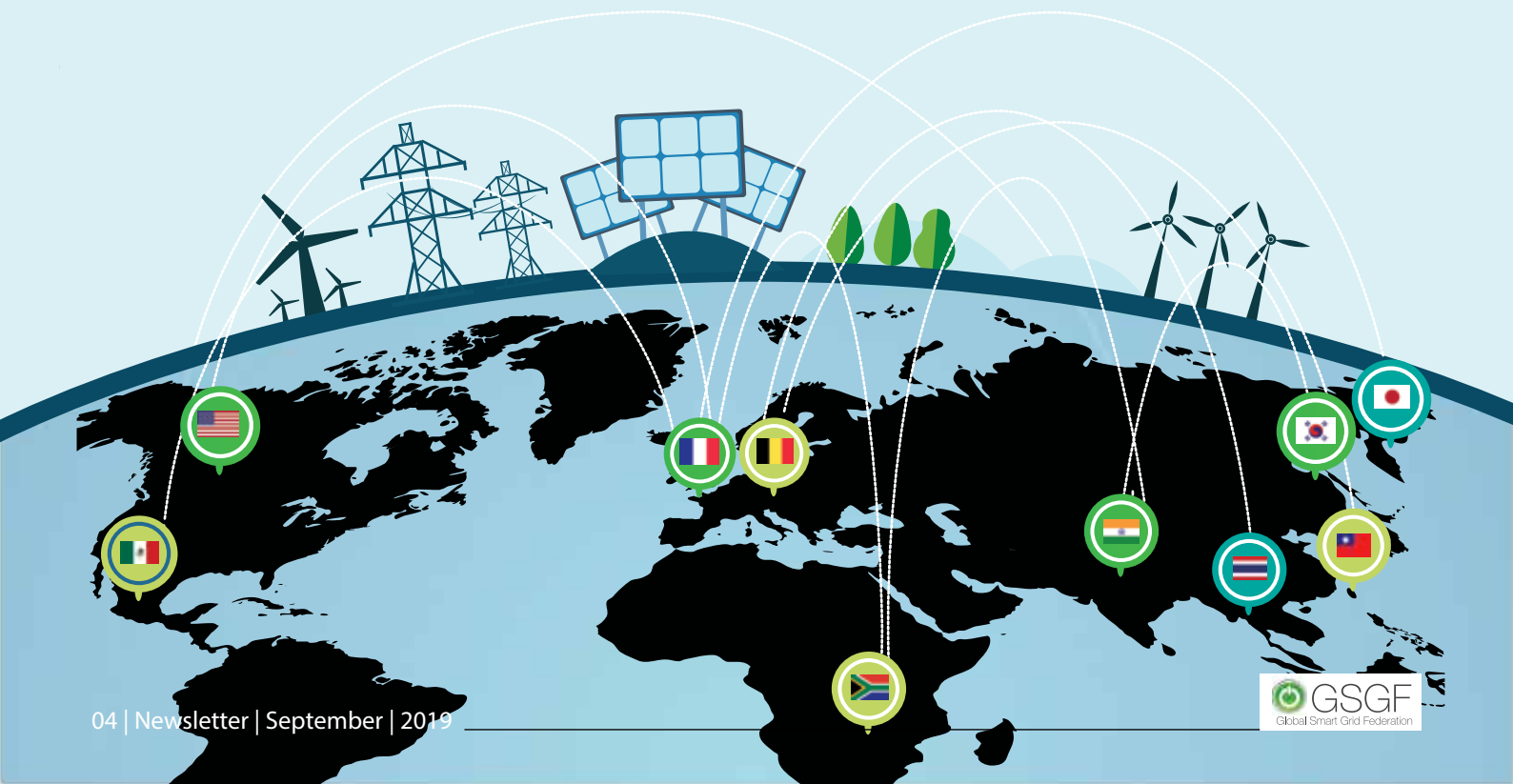
**April 08<sup>th</sup> - 09<sup>th</sup>, 2020:** 8th International Istanbul Smart Grid & Smart Cities Congress and Fair 2020, Turkey, <https://www.icsgistanbul.com/en/#>

**May 12<sup>th</sup> -14<sup>th</sup>, 2020:** African Utility Week, Cape Town, South Africa, <https://www.african-utility-week.com/>

**June 04<sup>th</sup> - 05<sup>th</sup>, 2020:** CIRED Berlin 2020 Workshop, Berlin  
<http://www.cired2020-workshop.org/>

**August 19<sup>th</sup> -20<sup>th</sup>, 2020:** Australian Utility Week - Melbourne, Australia, <https://www.powerandutilitiesaustralia.com/>

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## Technology Adoption Strategy for improving Electricity Utility Company's Performance

Keywords: Technology Management, Utility Company, Firm Performance, Technology Adoption

### Article By:

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Many studies argued that technology adoption significantly affected the firm's performance include the electricity utility company. Technology development has led to many innovations offering competitive advantages and better efficiency than the conventional technology such as Ultra super critical (USC) boiler, Smart grid, Advanced metering infrastructure (AMI), Renewable energy, Micro turbine etc. However, the impact of technology adoption remains un-conclusion. Some recent empirical studies did not find relevant firm's performance improvements associated with technology investments.

This study has examined nine hypotheses and proposed technology adoption as a functional competence which mediates relationship between dynamic capabilities with firm's performance. The context of study is electricity utility firm in Indonesia which has an integrated supply chain industry and mostly relevant to the research issues; (1) Resource based view style (2) Technology-intensive firm where 87% of assets is technological things

(3) Technology adoption flow which cover both "Top-down" and "Bottom-up" process (4) National company within 50,000s employees spread out among all the areas of nation.

The four determinant factors has been identified are externalities, entrepreneurial leadership, resources readiness, and absorptive capability. Overall, 62 items using 6 Likert- type scale are used to measure six latent variables. The collected data is analyzed statistically using Structural equation modeling. Using 518 respondents representing 222 business unit of Indonesia Electricity Company (PLN), the empirical model shows the three basic strategies of technology adoption for improving firm's performance. However all strategy put absorptive capability as the most significant determinant to technology adoption.

Practically the study emphasize that the successful technology adoption in firm can be only achieved by excellent absorptive capability with supporting from other three determinant factors. Without such dynamic capability the core competence of firm will not occur and the adoption of technology will be less effective and not significant to enhance firm's performance. The study empirically found that technology adoption is a functional competence which mediates dynamic capabilities to firm's performance. Other finding is the eight technology adoption status in organization based on the level of three determinant factors; externalities, entrepreneurial leadership and resources readiness. This study suggests that the most effective technology strategy should be based on that technology adoption condition. The different strategy is needed to achieve the optimum objective from each adoption status. Based on the organization typology this study found that most of PLN business unit is at "innovative" technology adoption status. It is highly recommended that PLN should do technology strategy for improving primarily its resource readiness.

Presentation on PLN Smart Grid Implementation and its current status : <http://ow.ly/KB8d30pF27c>



# Member Updates



## The French Mobility Orientation Law

According to the French Energy department, 7 out of 10 French people commute to work using a car. This is a direct result of the lack of reliable public transportation on 80% of the territory. The transportation sector also accounts for 30% of the greenhouse gases emitted by France into the atmosphere. On September 17th, French MPs voted in favor of a new transport and mobility bill, with the ambition of deeply reforming modes of transport and offering alternatives to the private car in areas remote from urban centers. Final adoption of the law is expected by the end of the year.

The draft "mobility orientation law" tackles the framework of the transportation system across the country. The legislators' ambition is to expand the coverage of the public transportation, to update it to match the new uses and new realities of the population and last but not least, to facilitate its transition to a cleaner, greener and more sustainable infrastructure.

The draft law, which contains various measures to open up territories and decarbonize transportation, also involves the development of smart grids.

To increase the integration rate of new mobility solutions. The idea is to update infrastructures to match the new forms of mobility: electric vehicles, carsharing, self-service vehicles, etc. As such, a single transport card granting access to varied modes of transportation available will be put in place as a means to diversify modes of transport and make new mobility solutions more accessible.

In addition to making electric mobility more accessible, the plan is that by 2021, a national platform compiling all useful data (availability of self-service vehicles, real-time public transport schedules, etc.) will be rendered accessible to the population.

In order to achieve a successful energy transition in regards to mobility, the bill sets 2050 as a deadline to reach carbon neutrality for all terrestrial means of transportation in accordance with the Paris Agreement. France is the first European country to include this ambition in a law.

The bill projects a fivefold increase by 2022 in the number of available charging stations for electric vehicles, due to the obligation it imposes on real estate operators to pre-install charging stations in the parkings of new or renovated buildings. Along with this policy, the bill plans for the creation of a new subsidy for the acquisition of clean vehicles (hydrogen or electricity powered).

In addition, the law anticipates the massive deployment of EV charging stations, car-sharing EVs, electric bus and car fleets. To facilitate the development of terminals, its Article 23 defines the activity of EV charging operators as a service provision and no longer a mere provision of electricity. It also reduces the connection costs to recharging infrastructure by increasing from 40 to 75% of the amount supported by the DSO.

Similarly, another flagship measure of this law, the implementation of "low emission zones" in cities will promote clean mobility.

This electrification of individual and collective transport will give a new role to the grids that will have to integrate in the coming years millions of charging stations. Smart grids, by enabling a control of the charging load, will be essential to ensuring a lower cost of connections while maintaining the stability of the electrical system.

Article By : Think Smartgrids

## Events Supported by GSGF



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





## Prosumer Proliferation - Utility Jurisdiction – Deeper Behind the Meter?

By

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*The more things change, the more they remain the same.* This (in my view), is currently happening within the electricity distribution system at the retail level. The old adage of “Behind the Meter” (the proverbial “line in the sand” between customers and regulated utilities) and its regulatory/jurisdictional imposed dictum, serves as a hard boundary beyond which utilities cannot enter to offer services as a regulated entity under rate-recovery. They can, however, offer services under an open market unregulated services model, competing with other electrical services contractors. The rationale for this was that at the retail level (particularly low-voltage levels) the competitive service industry would be disadvantaged to earn a livelihood being railroaded by “big brother utility”.

One would argue, then why does the regulated entity not start an unregulated affiliate service company and compete for this “Behind the Meter” business. In my long career at the utility, this was often the conundrum, but we were not successful. Every unregulated affiliate services business (field services, hot-water tank rentals, maintenance, refurbishment/upgrades, etc.) started by many utilities (including ours) was eventually wound down and sold. *We were just not competitive with our higher cost structure and higher wages.* The only way this was possible was to hold controlling equity in several smaller “arms-length” contracting companies (different brands) or have a service-agreement with such outside contractors. Both these approaches met with regulatory or labour union resentment. Today, only the telecom companies have managed this arrangement (even for regulated work), but it took them over two-decades to get here (with several labour agitations). This new model has now allowed the telecom companies to be nimble, adopt and offer new technologies such as fiber, wireless, IPTV, etc. using various marketing and installation service approaches (rent set-top boxes, modems, wireless-gear, etc.).

This hardline “customer-meter” boundary stood the “jurisdictional” test for well over 80+ years in the electric utility industry, for two reasons (a) behind the meter, at the retail level, was primarily resistive load (no non-linear loads and self-generation); and (b) voltage management up to the customer was (and still is) the sole responsibility of the utility.

*But the electrical retail landscape has rapidly changed now.* The last 15 years has seen the rise of prosumers at the MV and LV/secondary voltage levels. Today, the self-generation option (to displace or generate net power) is becoming commercially viable thanks to new distributed energy resources (rooftop solar, small battery systems, smart inverters and now potentially EVs). All these prosumer investments are addressing various customer issues such as, unreliability, demand charges and/or time-of-use rate arbitrage.

It should be acknowledged that all this is being made possible by progress in power conversion devices and grid-edge power management platforms. *Today, smart residential 5/10/15 KW inverter-breaker combo boxes (in one standard box) is capable of integrating PV, main/emergency loads, standby-generators and battery systems, with enough programming capability to set desired prosumer priority options, based on FIT, Net-metering, flat-rate, demand-based or TOU energy rates. Other more advanced units have VAR injecting capability based on desired power-factor settings and/or manage the PCC voltage through load and VAR management.* In effect, the current standard residential breaker panel (for loads only) can now be replaced by such new “prosumer” breaker panels. Such a new standard interface now allows the residential customer to make all prosumer-based choices at their own pace in the future, based on their needs, with no need for interface upgrades or replacement. It also allows for them to be ready for tariff changes as and when required.

*The question that needs to be addressed is whether these devices behind the meter can be enabled to support the distribution utility's sub-feeder power quality management efforts (voltages, VARs, pf, line losses, etc.).* For the distribution utility to take advantage of these embedded systems (for the common grid good), it will need jurisdictional reform to:

1. Take control of smart invertors (for a fee), and/or
2. Install such appropriate systems behind the meter under rate-recovery, and/or
3. Allow such inverter systems to perform voltage management at the grid-edge autonomously (or under its direct supervision)

Failure to allow this, behind-the-meter “intrusion, will mean that the distribution utilities will now need to invest their own gear to essentially manage the grid-edge prosumers/load customers almost just outside their customer's doors. In many ways, a duplicity of costs (ultimately borne by the rate payer). It should be understood that these grid-edge prosumer power quality management will require the same distributed smart, fast-acting power conversion devices for effective neutralization (tap-changers and switched capacitors at distribution transformers and substations will not work)

*The question is that whether the regulators and utilities are ready for such major reform and responsibility shifts.* Such changes to allow the regulated utility “to reach over” behind the meter and own/control thousands (even millions) of such customer located grid-edge management smart assets, is a major reform not seen in 80+ years.

Such reform will need to reflect on prosumer impact such as (a) revenue potential for helping the grid (inject kwh); (b) revenue loss when they have to generate VARs (instead of kwh) to support the grid; (c) encourage energy storage as insurance premiums for such eventualities; (d) be their own self Demand Response (DRs) candidates; and (e) allow for autonomous operation of such smart devices to manage grid-edge PQ issues. In my view, this is inevitable.

# GSGF at a glance

## Charter Members



Think Smart Grids



India Smart Grid Forum



Japan Smart Community Alliance



Korea Smart Grid Association



Smart Grid Mexico



Prakarsa Jaringan Cerdas Indonesia (PJCI)



GridWise Alliance

## Utility Members



Electricity Generating Authority of Thailand (EGAT)



Electricity Supply Commission of South Africa (ESKOM)



EDM Mozambique



Tenaga Nasional Berhad Malaysia

## Associate Members



Green Business Certification Inc.



Florence School of Regulation (FSR)



Energy Block Chain Consortium

## Current Working Groups

- **Smart Grid Roadmaps:**  
Chair-Smart Grid Mexico
- **Smart Grids for EVs:**  
Chair - Think Smartgrids, France

## Working Groups in Pipeline

- Blockchain for Utilities
- AI and Advanced Analytics for Utilities
- Robotic Process Automation for Utilities

# Contact us for more information.

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