

The 74th INDONESIA NATIONAL ELECTRICITY DAY

Prakarsa Jaringan Cerdas Indonesia (PJCI) joined Global Smart Grid Federation (GSGF) as a Charter member in year 2018. The Directorate General of Electricity – Ministry of Energy & Mineral Resources, PT PLN (Persero) the only Indonesian Utility (Member of PJCI) and the Indonesian Electrical Power Society organized **The 74th Indonesia National Electricity Day** Event Series-2019 from October 9th to 11th 2019 in Jakarta Convention Centre on the Theme: **Facing the Challenges of Industry 4.0 Era of Electrical Power Technology.**

The conference and the Exhibition was officially opened by the President of Republic of Indonesia and was attended by 6000+ participants from Indonesian and overseas energy and power sectors' stake holders. The event was attended by the GSGF Ambassador Mr Ravi Seethapathy, as a panelist who gave his inputs on Industry 4.0 in Power Sector.

In the last five years, between 2013 to 2018, PLN business had flourished significantly. Electric sales raised up sharply, from 185.5 TWh in 2013 became over 232.2 TWh in 2018. Number of customers increased from 53 million in 2013 to become over 71 million in 2018, and the electrification ratio increased from 81.7 % in 2013 to 98.7% in 2018. Yet, Indonesia continues to suffer sporadic and wide-spread electricity shortages due to various reasons, including, delay on the completion of power generation and transmission projects, Shortages of primary energy supply, particularly gas etc. In addition, Indonesia is also facing issues on power quality and energy efficiency in the supply and demand side. The aforementioned situation offers challenges for power business professionals and enthusiasts to face the challenges and convert them into business opportunities through exchange of knowledge and experience by participating in The 74th Indonesia National Electricity Day Event Series-2019. Topics like The Future of Power System in the Global Energy Transition, The Challenges and Impacts of Digital Technology in Power System and VRE Integration and The Challenges of Power System in the era of Industry 4.0 provided excellent opportunities for producers, buyers, utilities and consumers to meet and gain knowledge on various related products and technologies.

Table of Contents

Page	News topic
1	Cover story: The 74th INDONESIA NATIONAL ELECTRICITY DAY
2-4	Stories across the globe on Smart Grids: Special: Australia is the runaway global leader in building new Renewable Energy; Indonesia slashes capacity charges for industrial rooftop solar
5	Member Updates Special: Seminar on India's Smart Grid Development held by Japan Smart Community Alliance
6	GSGF Update Special: Distributed Generation - Not Just Supply-Side Economics: Article by GSGF Ambassador Ravi Seethapathy
7	GSGF at a Glance



Global Stories on Smart Grid

Huawei, Phanes Group to power the largest distributed solar project in the UAE

Huawei has partnered with Dubai-based Phanes Group to deliver the first medium voltage (MV) rooftop connection solar project in the UAE. The 25.8 MW distributed rooftop project was developed for DP World, and is currently the largest distributed development in the UAE. According to a statement from Phanes Group, the project includes 88,000 plus solar panels, Huawei's SUN2000-(8-40) KTL all series Smart Strsustaining Inverters, 25 independent projects, each with single Points of Connection (POC), across 60 plus rooftops and 6 different roof types including the region's first biggest single-site rooftop (2.6 MW). The project also had 12 different building profiles and included simultaneous work on up to 12 projects, it stated.

Read more: <https://bit.ly/2PE29mu>

UK firm announces plans for first 'liquid to gas' cryogenic battery

Highview Power claims its cryobattery will be the largest project in Europe capable of long-term energy storage. The full-scale "liquid air" battery has a capacity of 50MW or 250MWh over a five-hour release time.

British battery pioneers plan to build Europe's largest energy storage project using a cryogenic battery that can store renewable energy for weeks rather than hours. The device will be built on the site of an old fossil fuel plant in the north of England to power up to 50,000 homes for up to five hours. Unlike traditional lithium-ion batteries, which typically store electricity for a few hours, the "cryobattery" will be able to store energy for months. The UK's first full-scale cryobattery, developed by Highview Power, uses renewable electricity to chill air to -196°C, transforming it into a liquid that will be stored in large metal tanks. When renewable electricity levels are low the liquid can be turned back into gas, which is used to turn a turbine and generate electricity – but without burning the gas and releasing emissions.

Read more: <https://bit.ly/32D6B8C>

Europe Has the Wind Energy to Power the World

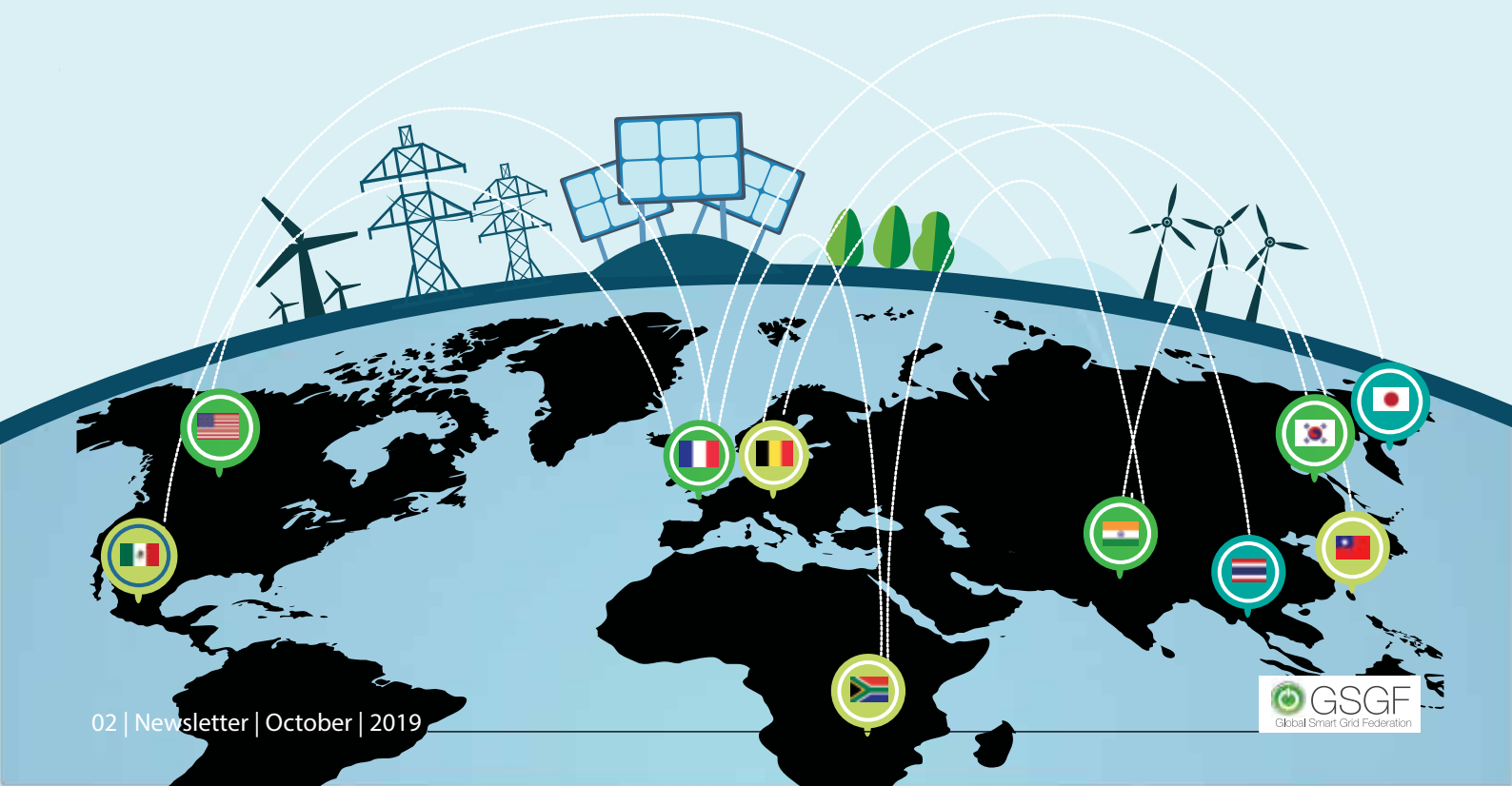
On windy days, Europe's growing number of wind farms could run entire nations on clean energy. Researchers at the University of Sussex in the U.K. and Aarhus University in Denmark have developed techniques to map the total potential of onshore wind energy across the European continent. The research suggests that Europe could produce 100 times more energy than it currently does from onshore wind farms. The research team used digital wind atlases to provide finely detailed information on wind patterns across Europe. Armed with this data, they identified that 46% of the European landmass would be suitable for the installation of wind turbines, and that's after excluding urban areas, military sites and other landscapes unsuitable for reaping the wind. The study estimates that more than 11 million additional wind turbines could, theoretically, be installed over almost 5 million square kilometres of suitable terrain. The report concludes that if this potential were fully exploited, Europe could provide the whole planet with all the energy it requires as far into the future as 2050.

Read more: <https://bit.ly/2ISjED8>

Australia is the runaway global leader in building new Renewable Energy

In Australia, renewable energy is growing at a per capita rate ten times faster than the world average. Between 2018 and 2020, Australia will install more than 16 gigawatts of wind and solar, an average rate of 220 watts per person per year. This is nearly three times faster than the next fastest country, Germany. Australia is demonstrating to the world how rapidly an industrialised country with a fossil-fuel-dominated electricity system can transition towards low-carbon, renewable power generation. When the Clean Energy Regulator accredited Tasmania's 148.5 megawatt (MW) Cattle Hill Wind Farm in August, Australia met its Renewable Energy Target well ahead of schedule.

Read more: <https://bit.ly/2IEUMPf>



Global Stories on Smart Grid

In USA, California's electric vehicle exports already valued at \$3 billion in 2018 is expected to hit \$3.4 billion in 2019

More and more electric vehicles (EVs) are accelerating onto roads worldwide, and as they gain traction, they're becoming one of California's biggest economic exports. Last year, EVs were the state's 8th most valuable export, worth almost \$3 billion in revenue—more than phones, pistachios, and even oil. In 2019, California's EV exports are poised to grow further – expected to hit \$3.4 billion, which would have made it the state's fifth most valuable export in 2018. California's industrial and manufacturing sectors are often underestimated, but electrified transportation has become a significant economic engine, creating a booming export industry and high-quality jobs in a growing global market. Data from the National Association of Manufacturers show the industry was the 6th largest source of job growth in California's manufacturing sector in 2018.

Read more: <https://bit.ly/2mNTa5M>

China's largest utility plans a national power grid integrating Internet of Things technologies

China has unveiled an ambitious plan to establish a nationwide smart power grid employing internet technologies such as 5G and artificial intelligence, with the first phase to be completed within two years. The scheme was outlined in a recent white paper by the State Grid Corporation, China's largest utility company, which operates roughly 90 per cent of the country's electricity grids. The state-owned monopoly is also one of the biggest utility companies in the world, making US\$9.5 billion in profits last year.

Read more: <https://bit.ly/2NlurL8>

Singapore Eyes 200MW Of Energy Storage 'Beyond 2025' - Minister

Singapore has targeted 200MW of energy storage beyond 2025 and 2GW of solar by 2030, but will continue to rely on natural gas for the next 50 years, according to a government official. The goal of 200MW of energy storage beyond 2025 comes under a vision of having a network of energy storage solutions across the entire island to manage the stability and resilience of the grid, as well as offering peak shaving services. Singapore's difference between peak and trough within the daily cycle can be as much as 30%, requiring extra infrastructure capacity to meet peak demand.

Read more: <https://bit.ly/2CJ1kkA>

Cornish Homes Take Part in Trial to Supply Clean Power to Grid

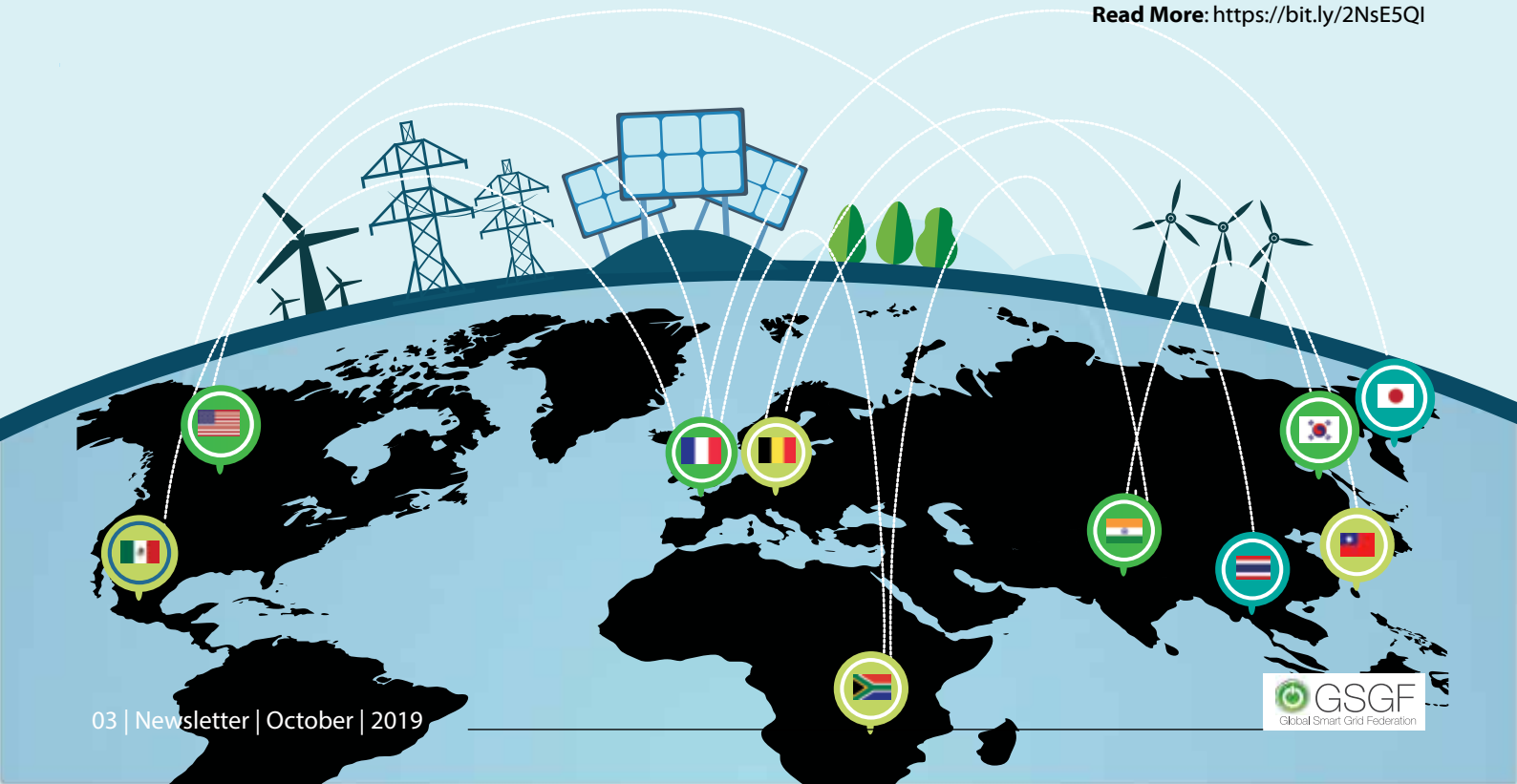
Hundreds of homes and businesses in Cornwall have started selling electricity to their local energy network and the national energy system in a pioneering move. The trial is the first time that traditional energy users – such as homes, hotels and businesses – have acted as suppliers in a microcosm of a full energy system. The trial harnessed together 100 Cornish homes, fitted with batteries and solar panels, to act as a mini virtual power plant for the local energy network, Western Power Distribution, and the UK's energy system operator, National Grid. During sunny spells when homes generate more than enough electricity from solar panels they can store the power to use later, or supply the energy system with clean extra power.

Read more: <https://bit.ly/33MMi9w>

New York State Public Service Commission adopts new cybersecurity and privacy protocols

The New York State Public Service Commission recently adopted new cybersecurity and data privacy requirements for third-party energy suppliers and companies that electronically receive and exchange utility housed customer data with the utilities' information technology (IT) systems. The new requirements are intended to provide a universal foundation of cybersecurity and data privacy protections which will ensure the privacy of customer data and protect the utility IT systems while enabling and encouraging data access. The Commission's decision creates critically needed standards to ensure customer data remains protected and secured. The changes are designed to provide protections against a potential cyber incident, while maintaining the confidentiality of customer data, and instilling customer confidence in retail and energy markets which would otherwise suffer reputational harm in the wake of a major cyber event.

Read More: <https://bit.ly/2NsE5QI>



Global Stories on Smart Grid

Indonesia slashes capacity charges for industrial rooftop solar

Indonesia's Minister of Energy and Mineral Resources (MEMR) lowered the monthly capacity charge payable by PLN's industrial customers who want to have their own rooftop solar projects for their electricity supply. According to Regulation 16, the amount of capacity charge has been slashed to one-eighth of the original amount under the previous regulation. Not only has the capacity charges been reduced, the emergency energy charge, a component of the parallel operation charges, has also been removed. Regulation 16 follows on the heels of another amendment to Regulation 49, which removes the requirement to obtain a captive electricity license and an operation worthiness certificate for captive power plants with a capacity of 500 kVA or less.

Read More: <https://bit.ly/31XeN2x>

Smart Grid Events

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

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

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

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

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

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

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

13th -14th May, 2020: Innogrid 2020+ Brussels, Belgium
<https://www.innogrid2020.eu/>

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

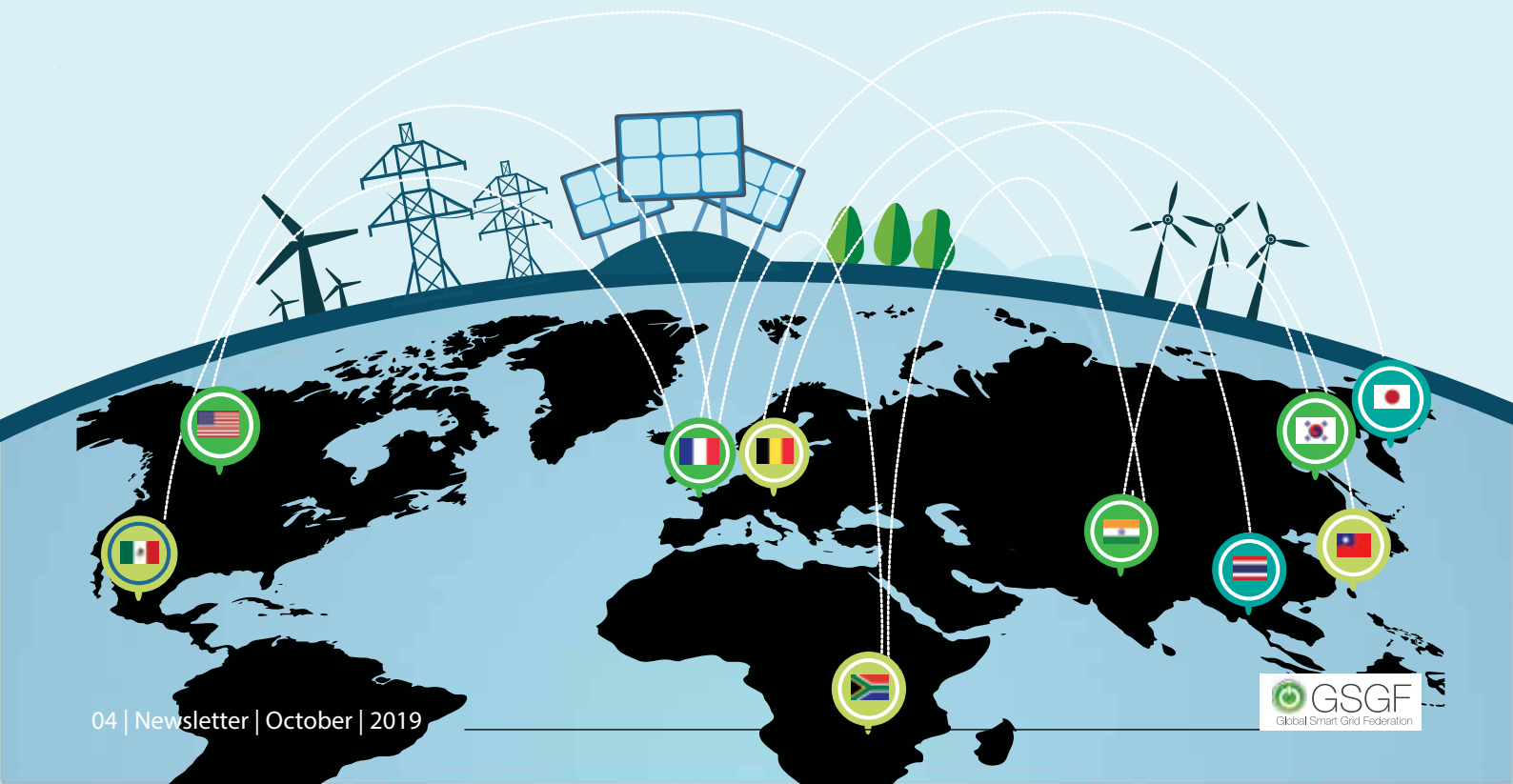
August 19th -20th, 2020: Australian Utility Week - Melbourne, Australia, <https://www.powerandutilitiesaustralia.com/>

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Events Supported by GSGF



For participation in the above events please write to info@globalsmartgridfederation.org



Member Updates



Seminar on India's Smart Grid Development held by Japan Smart Community Alliance

The Japan Smart Community Alliance (JSCA) held a seminar for its JSCA members on India's Smartgrid development at the New Energy and Industrial Technology Development Organization (NEDO), Tokyo on October 11, 2019.

Mr Reji Kumar Pillai, Chairman, Global Smart Grid Federation and President India Smart Grid Forum represented GSGF at Innovation for Cool Earth Forum (ICEF) in Tokyo and also gave a talk on "Smartgrids and Smart Utilities in India".

The seminar also covered the current energy situation in India with real-life examples through lectures by Mr. Shatrujeet Singh Kapoor, Chairman and Managing Director at Haryana State Electricity Distribution Company (UHBVN), Mr. Depinder Singh Dhesi, Chairman of the Haryana Electricity Regulatory Commission (HERC), and by the Chief Representative of NEDO New Delhi office, Mr. Takamasa Murakami.



KSGA Successfully Organized the 10th Korea Smart Grid Week

Korea Smart Grid Week (KSGW) Korea's only conference and exhibition specializing in the Smartgrid, was organized by the Korea Smart Grid Association (KSGA) and was hosted by the Ministry of Trade, Industry and Energy (MOTIE). The conference was held at COEX, Seoul, Korea, from October 16 to 18, 2019. The 10th International Smart Grid Conference was largely divided into the themes like Management of demanded resources and next-generation smart metering technology, the role of Smartgrid in Korea's future energy market, as well as Southeast Asian countries plan to invest in smart grid and the measures for their cooperation with Korean companies and smart grid standards.

The conference particularly dealt with the role of the Smartgrid in the Third Energy Master Plan of Korea, the role of Asian Infrastructure Investment Bank (AIIB) in the power and communications fields, as well as the current state of investment in Asia. In addition, the investment plans in the smart grid of Vietnam, Mongolia, Sri Lanka, and Papua New Guinea, as well as measures for their cooperation with Korean companies were discussed in connection with Asia Development Bank (ADB). Business meetings matching (10) Korean companies and (4) countries one-on-one were also held. A Microgrid site tour at Seoul National University's campus was organized to publicize the technological competence and actual case of microgrid of Korea to foreign speakers of Vietnam, Mongolia, and Sri Lanka, among others.

Minister Sung Yun-mo of MOTIE in his Inaugural speech said that Korea will provide policy support so that the energy industry would truly make 'plus' and leap forward." The event let the participants think about the future growth of Korea's energy industry, including Smart Grids.

The exhibition especially showcased the electric vehicle (EV) Charging Infra Pavilion consisting of Korean companies that are manufacturing and servicing EV charging infrastructure. The pavilion also publicized the latest EV charging infrastructure technologies and services, such as the current state of the charging infrastructure installed in Korea, paid services currently in operation, fast and slow chargers, and portable EV chargers. KSGW is expected to be held next year from October 21 to 23 at COEX, Seoul.



Distributed Generation - Not Just Supply-Side Economics

By

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Over the years, I have been privy to many distributed generation (renewable energy) roadmaps prepared by many governments, electric utilities and NGO stakeholders. **The focus has always been on MW addition with little consideration to the network’s “hosting capacity”. Further, such additions, are often stated as a (small) percentage of the overall power system generation.**

This populist approach is often a trap, inflicting immense pain in wires-related costs to the distribution utilities, to cope with such additions. In trying to analyze why this supply-side fixation, has led me to surmise as follows:

1. The discretization of energy supply (in its distributed architecture), allows for more diverse non-technical stakeholder participation. In such communications, simplicity trumps complex technical details.
2. Modern-day bite-sized communications focuses more on impact/results. It often fails to mention the preparation needed.
3. Our socio-economic metrics is geared towards consumption. In developing countries, increased per capita consumption is a measure of societal progress. So “more is better”.
4. Utilities are often bystanders once such policies and regulations are enabled. Any technical objections (or interjections), are often seen (sometimes rightfully) as a tech-talk and purposeful hindrance in prosumer rights and choices.

To the network engineer, increased penetration of distributed generation (fossil or renewable) lies in the “health and configuration” of the wires to which it is connected. This “network health” (or readiness to accept) varies by its configuration and equipment standards. This hosting capacity varies widely and is dependent on generation location; unit size/type vis-à-vis wires topography and load consumption points. Often, MV/LV connections are more challenging with LV single-phase unbalanced connections being the most difficult. *So, while one network can host distributed generation up to (say) 60% of load capacity, another may barely do 5%. This hosting capacity limitations often manifest as power quality issues. The cost of upgrading this hosting capacity can be expensive.*

The best located distributed generation is where its output can be consumed in its close proximity. This is rarely the case except in rooftop and community-based applications. Most loads are urban (with little on-site generation potential). The distributed generation supply is often located far away in low-load and rural areas (albeit ideal for solar/wind/biomass generation) and “piped” into urban areas resulting in a “reverse flow” in these MV wires.

These reverse flows cause power quality problems. As a result, distributed generator outputs are often curtailed or their (smart) inverters frequently trip out due to over/under voltages. In other cases, utilities simply limit such connections. *The net effect of all this is that it limits/decreases hosting capacity and robs future distributed generation additions.* Typically, this decrease arises due to randomly selected locations and unit sizes (as opposed to an integrated network hosting study). For example, the first “ill-placed” 1MW generation can rob almost 7MW of hosting capacity on that MV feeder. *Many Feed-in-Tariff and Net-metering programs disregard this important aspect.*

Developing countries are often impacted severely as their MV/LV networks are often “weaker” systems (by design and/or operations). This if left unchecked, would hinder renewable and other clean energy policies in the long run, when other technologies mature and are commercialized.

Government Agencies should highlight (and include) this network hosting capacity aspect in their policies and roadmap documents and provide guidance to the prosumer and developer communities.

The best power produced is one that is consumed in its proximity.

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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