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NEWSLETTER

December 2020

RTE, THE FRENCH TSO, OPENS THE LARGEST BATTERY ELECTRICITY STORAGE SITE IN FRANCE

Réseau de Transport d'électricité, (RTE) The French Electricity Transmission System operator, is setting up three battery-based electricity storage sites that will be remotely controlled according to, in particular, energy production and consumption throughout the country.

The Vingeanne site, in Fontenelle, Côte-d'Or (South of France), is ready to start the test phase, which will last six months, before it is commissioned in May 2021. It is the first site in France to host this large-scale battery installation.

Depending on the weather conditions, local electricity production may experience occasional peaks and be too abundant to be transported by the power grid. It is this surplus that will be stored by the Ringo batteries, explains Gaëtan Desquilbet, director of the Electric System 2025 project. With the latter, RTE is developing and testing battery control algorithms in order to solve the problems of localized production surpluses. This is a world first, according to RTE.

At the Vingeanne site in Fontenelle, which will be commissioned in May 2021 after six months of testing, the project involves Nidec ASI, the partner chosen for its power electronics converters and "Power Management System".

No less than 5,685 cells make up the batteries that have been installed in the 10 containers installed on the site. We talk about "modules". Each module weighing 47 kg, the 270 tons of batteries required the presence of about ten operators trained to install this equipment, for nearly 5 weeks.

The Nidec batteries used are of the lithium-ion NMC (nickel, manganese, cobalt) type with high energy density and were installed during the summer. The site represents a storage capacity equivalent to the production of 5 wind turbines or the consumption of 10,000 homes (24 megawatt hours).

Once in operation, the Fontenelle site will have a storage capacity of 12 MW/24 MWh, equivalent to the production of five wind turbines or the consumption of 10,000 homes.

If the experiment is convincing, RTE could expand it and thus contribute to reducing the CO_2 emissions of the energy mix. Through this energy recovery, the Ringo project could also defer or even avoid the construction of new power lines.

Source: RTE ouvre le plus grand site en France de stockage d'électricité par batteries

Article contributed by Think Smart Grids

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Global Stories on Smart Grid

Green Mountain Power (GMP) Deploys V2G Charger to Reduce Demand on Grid

GMP announced the successful deployment of first-of-its kind vehicle-to-grid (V2G) charger to reduce energy use on the grid during peak demand. The GMP is the first utility to install and successfully integrate this new charger technology with the grid and one of its electric fleet vehicles to draw energy from the car to help lower demands on the grid. V2G technology is an important part of a cleaner, more resilient energy system. The energy sharing helps reduce demand on the grid during energy peaks, when power can be most expensive and carbon-intensive for customers. This successful launch shows how V2G can work in the real world to reduce costs and carbon for Vermonters while still ensuring individuals have ample battery charge in their vehicles to meet transportation needs.

Read More: https://bit.ly/2KdGrph

Next-Generation Proterra EV Battery Manufacturing Facility Opens in Los Angeles

Proterra, a leading innovator in heavy-duty electric transportation, announced the opening of a new battery production line co-located in its EV bus manufacturing facility in Los Angeles County. The new battery production line will manufacture Proterra's industry-leading battery packs featuring new, next generation cells and will create dozens of new jobs in Los Angeles County. The facility will expand Proterra's battery production capacity to meet growing demand for the company's industry-leading battery systems in Proterra Powered™ commercial vehicles and Proterra's transit buses. Proterra's new battery-electric transit vehicle, the Proterra ZX5, can now be equipped with 675 kWh of energy, the most energy storage of any 40-foot electric bus available in the market today.

Read More: https://bit.ly/38obkz3

Canada launches Hydrogen Strategy

The Strategy is underpinned by a federal investment of USD 1.5 billion in a Low-carbon and Zero-emissions Fuels Fund to increase the production and use of low-carbon fuels, including hydrogen.

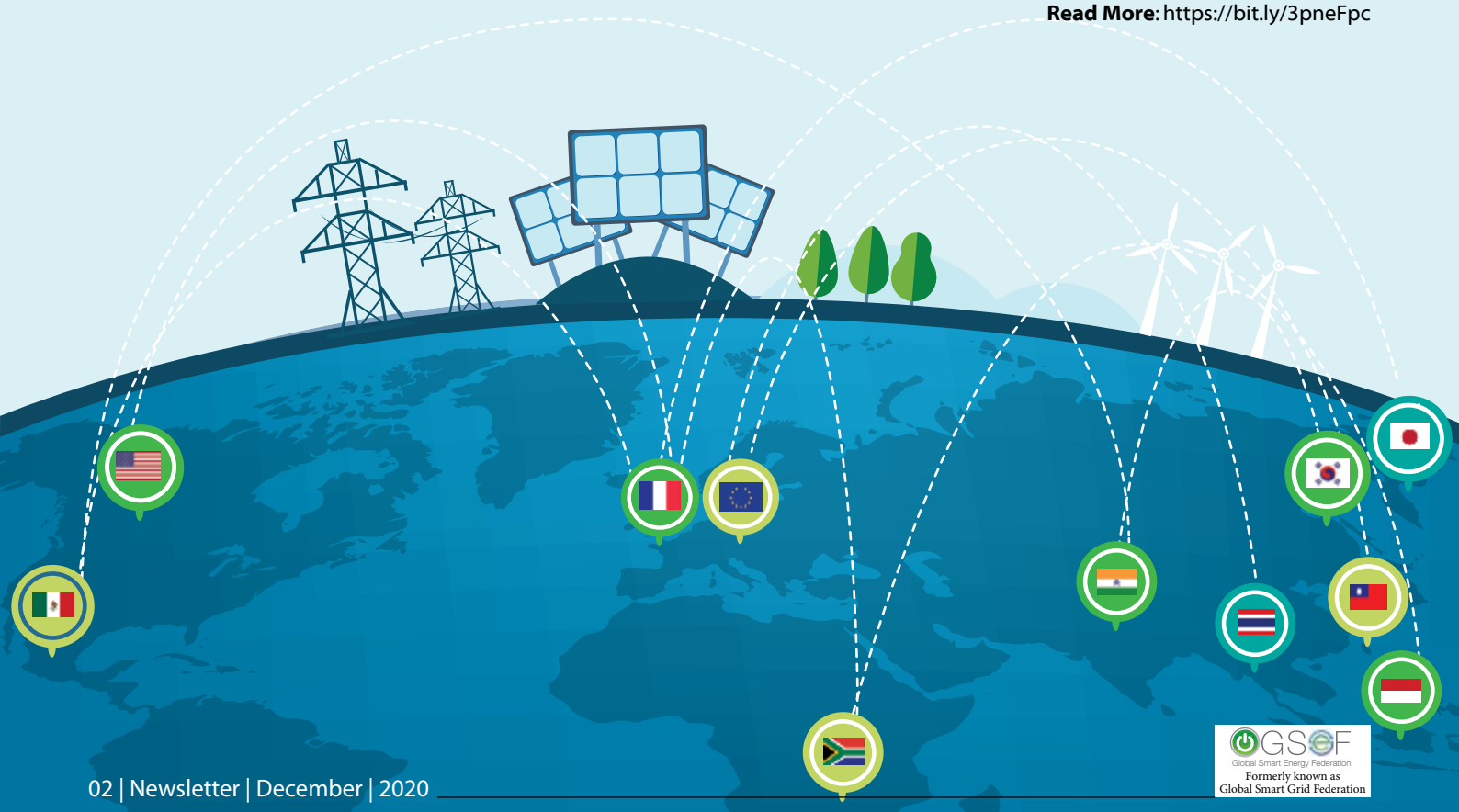
Hydrogen Strategy for Canada defines an ambitious framework that seeks to position Canada as a global hydrogen leader, cementing this low-carbon and zero-emission fuel technology as a key part of our path to net-zero carbon emissions by 2050. The Strategy is designed to spur investment and partnerships to establish Canada as a global supplier of hydrogen, and to increase domestic production, which will transform our energy sector. Canada will also benefit from the growing global demand for hydrogen — a market that is expected to reach almost USD 12 trillion by 2050. The strategy will also be complemented by the Clean Fuel Standard, which will further drive investment and growth in Canada's fuels sector by incentivizing the development and adoption of clean fuels such as hydrogen.

Read More: https://bit.ly/34Jwuqn

Green Hydrogen Catapult Coalition aims for 25GW of Green Hydrogen by 2026

Seven firms ACWA Power, CWP Renewables, Envision, Iberdrola, Ørsted, Snam and Yara join forces for fiftyfold scale-up of global hydrogen production capacity launched a coalition called the Green Hydrogen Catapult with the aim of deploying 25 GW of renewables-based hydrogen production capacity by 2026. The coalition, which is linked to the United Nations Framework Convention on Climate Change's Race to Zero campaign, is also hoping to halve the cost of green hydrogen production, cutting it to less than USD 2 per kilogram.

Read More: https://bit.ly/3pneFpc



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Global Stories on Smart Grid

PM Modi Lays Foundation of India's Largest Renewable Energy Park in Gujarat

On December 15, 2020, Prime Minister Narendra Modi built India's largest hybrid renewable energy park with a capacity of 30 gigawatts (GW) in the village of Vighakot in the district of Kutch in Gujarat. The plant will employ around one lakh individuals and would reduce five crore tonnes of carbon dioxide emissions every year, equivalent to planting nine crore trees, with the power generated from it. This park, equal to Singapore and Bahrain, will be spread over 70,000 hectares of land. In the construction of this park, about Rs 1,5 lakh crore will be invested. Setting up wind turbines along the border area will also enhance and strengthen the security of India's borders. The park will have a hybrid wind and solar energy storage park zone, as well as an exclusive wind park activity zone.

Read more: https://bit.ly/3mrhi7v

Work Begins on California Solar-Plus-Storage Project with 2,165 MWh Battery Capacity

Renewable energy developer Terra-Gen has partnered with construction firm Mortenson to build what the pair claim is the world's largest standalone solar-plus-storage project to date. Called the Edwards & Sanborn energy project, it consists of 1,118MW of solar and 2,165MWh of energy storage in Kern County, which has become California's unofficial large-scale solar capital due to the number of projects being built there. Terra-Gen's project will supply energy for all hours of demand. The developer said it will break ground on the project in early 2021, and expects it to come online by the end of 2022. It will utilise more than 2.5 million solar and more than 110,000 lithium-ion battery modules.

Read more: https://bit.ly/3mqGydZ

Second Lockdown Potentially Impacted Smart Meter Installations as November Sees 7% Drop in UK

Lockdown may have impacted smart meter installations during England's second lockdown, according to data from ElectraLink. The energy solutions provider recorded 230,000 smart meter fittings throughout November, a 7% decline compared to October, when installation rates hit a record high. Roughly 247,000 smart meter installations were registered by ElectraLink in October, up 7% on September and the most seen in any month of 2020.

September 2020 saw the first year-on-year rise in installations since the UK's COVID-19 lockdown was enforced in March, in a pick-up welcomed in the energy sector which has struggled to keep up with targets since the transition to smart metering was rolled out.

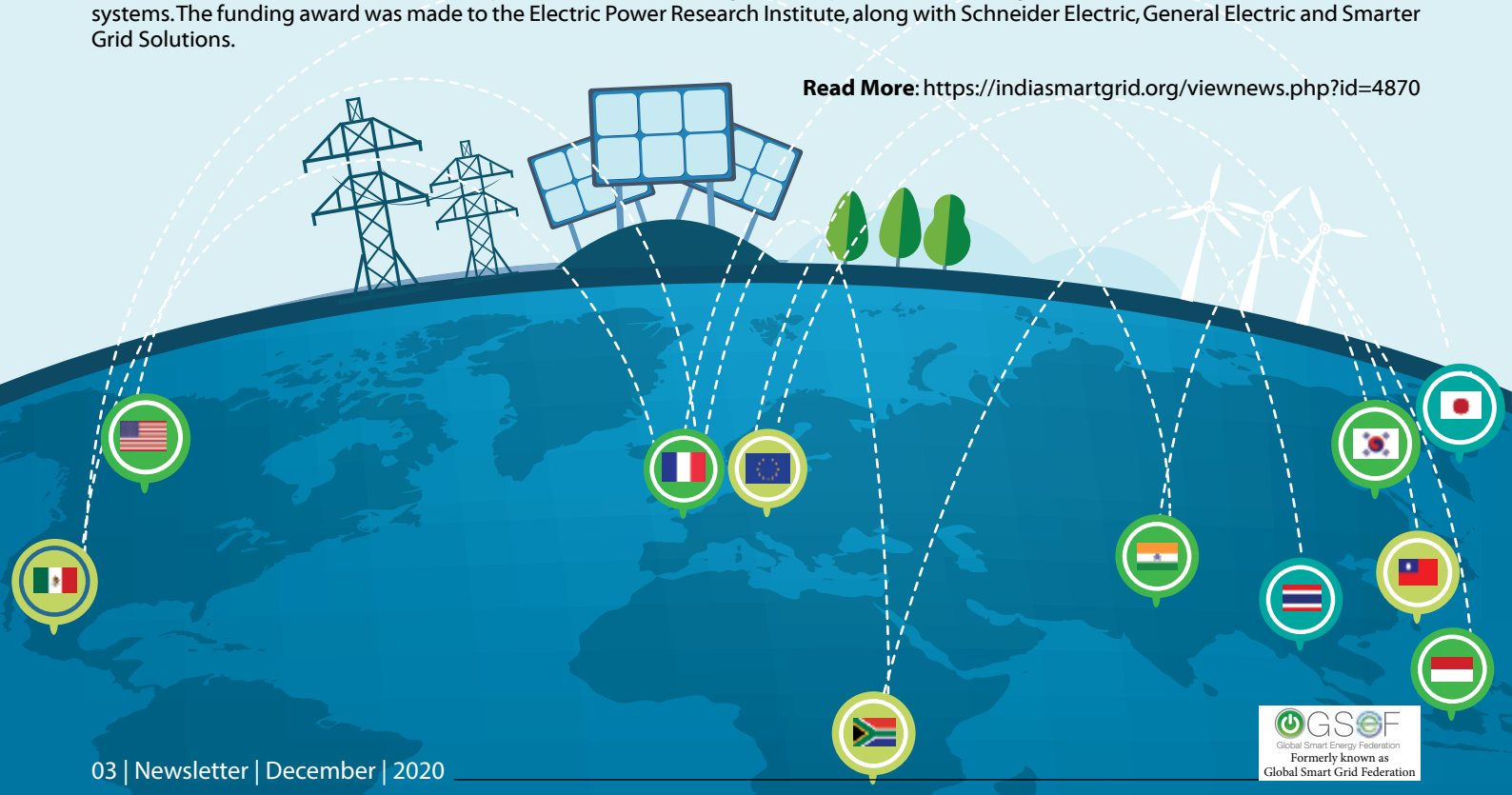
Around 1.82 million smart meters have been installed so far this year, according to ElectraLink, which warned that installations are likely to fall further in December due to the holiday period. Approximately 14.53 million installations have taken place since the rollout began in 2016.

Read more: https://bit.ly/2K3oWI9

New Project Aims to Smooth DER Integration on New York's Grid

The New York State Energy Research and Development Authority (NYSERDA) awarded $2.2 million for the development of a distributed energy resource management system (DERMS) to mitigate potential issues caused by integrating distributed energy resources (DER) with the electric grid. The funding comes through NYSERDA's Smart Grid Innovation program, and is part of New York State's strategy of a zero emission electricity sector by 2040. The project scope includes a pilot program deployed with Central Hudson Gas & Electric to develop and demonstrate a scalable system that enables a large quantity of DER to be integrated into transmission and distribution systems. The funding award was made to the Electric Power Research Institute, along with Schneider Electric, General Electric and Smarter Grid Solutions.

Read More: https://indiasmartgrid.org/viewnews.php?id=4870



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Key Takeaways on China's All-Round Effort to Reform Energy Consumption

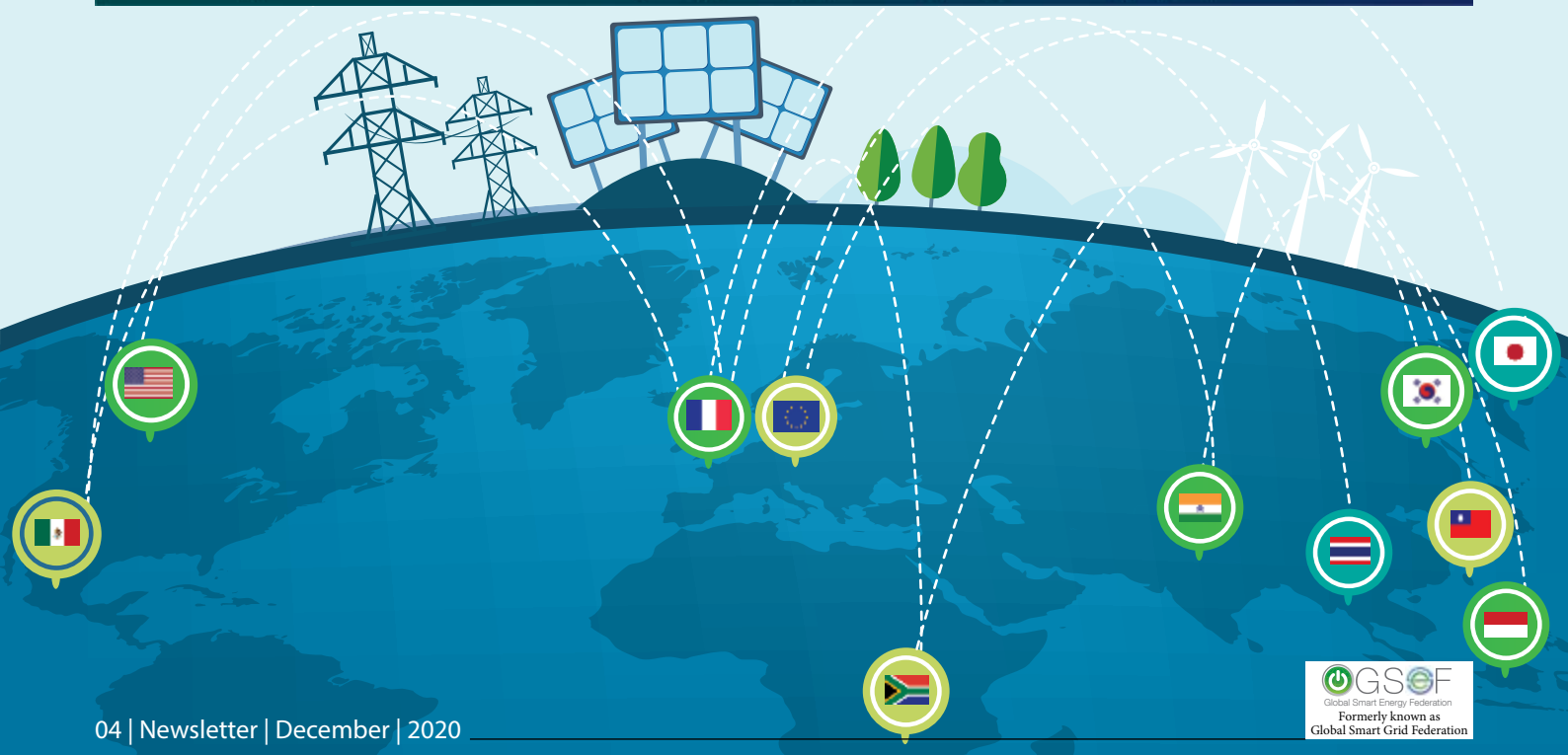
China perseveres with its fundamental national policy of conserving resources and protecting the environment. Prioritizing energy saving, the country understands that energy conservation means increasing resources, reducing pollution, and benefiting humanity, and exercises energy saving throughout the whole process and in all areas of economic and social development. Here are some key takeaways on China's all-round effort to reform energy consumption stated in the white paper titled "Energy in China's New Era" released by the State Council Information Office of China.

Read More: https://indiasmartgrid.org/viewnews.php?id=4864

Work Begins on California Solar-Plus-Storage Project with 2,165 MWh Battery Capacity

Renewable energy developer Terra-Gen has partnered with construction firm Mortenson to build what the pair claim is the world's largest standalone solar-plus-storage project to date. Called the Edwards & Sanborn energy project, it consists of 1,118MW of solar and 2,165MWh of energy storage in Kern County, which has become California's unofficial large-scale solar capital due to the number of projects being built there. Terra-Gen's project will supply energy for all hours of demand. The developer said it will break ground on the project in early 2021, and expects it to come online by the end of 2022. It will utilise more than 2.5 million solar and more than 110,000 lithium-ion battery modules.

Read more: https://bit.ly/3mqGydZ



Member Updates

LEGISLATIVE MEASURES TO IMPROVE POWER SYSTEM RESILIENCE OBJECTIVES OF THE REVISION OF THE ENERGY-RELATED ACTS

The power system infrastructure, in which electricity is generated by renewables and fossil fuels and supplied to ultimate users such as households and factories, is of critical importance to the economy as well as our daily lives.

In recent years, a series of extreme natural disasters have threatened the power supply in Japan. Accordingly, it is becoming essential to establish a more disaster-resilient power system infrastructure.

In order to support this, the "Act for Establishing Energy Supply Resilience" that stipulates the revisions to the relevant energy-related Acts passed the Diet in June, 2020.

This article highlights the objectives of the revisions and presents salient points of each related Act.

Link to the Article: https://bit.ly/3bvrqds

Article contributed by Japan Smart Community Alliance

INDONESIAN GOVT FINALIZES NEW RULES FOR RENEWABLE ELECTRICITY

Jakarta: Indonesia's government is finalizing a draft regulation aimed at simplifying pricing for electricity from Renewable Sources and to encourage more investment in the sector, said an Energy Ministry official.

The Government aims to have 23% of Indonesia's Energy coming from Renewable sources by 2025, up from around 9% in July 2020, but progress developing Renewable power projects has been slow. Authorities currently forecast only 2,500 Mega-Watts of additional Renewable Power capacity by 2025, while around 10,000 Mega-Watts are needed between 2019-2025 to reach the energy mix target, said Mr. Harris Yahya, Director for Various of New and Renewable Energy at Ministry of Energy and Mineral Resources, Greater Jakarta Area, Indonesia. He also said that the Government hoped the new regulation would improve the appetite for investment into renewables.

The new rules would include simpler pricing, including a feed-in tariff system for certain plants, which mean the power producers won't have to negotiate pricing with the sole off-taker state power company PT Perusahaan Listrik Negara (PLN), Harris said. He also said "Other than that, more incentives will be offered in the regulation. The Government will even pay for the gap between pricing that would be detailed in the regulation and PLN's basic cost of electricity supply,".

Government data showed Indonesia has over 400 Giga Watt potential capacity of Renewable energy from sources such as Hydropower, Solar and Geothermal, but only around 2.5% had been utilized.

Harris said the Government will focus on boosting solar since the infrastructure was becoming more affordable and hydropower due to big potential in places like North Kalimantan Province.

Recently, Indonesia's parliament has started discussions on a Renewable Energy Law.

URL Link: https://ceomorningbrief.theedgemalaysia.com/2020/0073/

Article contributed by: Dr. Ir. Cheong Kam Hoong GSEF Ambassador for Asia Pacific

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GSEF Smart Grid Editorials

ARE OUR SMART CITIES REALLY SMART

Societal trends typically latch onto to a few major themes (problems and potential solutions) and then marches to its own drum beat. Like-minded people join the movement and it transforms into a something "smart". The Smart Cities movement is one such, which has caught the attention of many globally. It focusses primarily around climate change (GHG reduction). While I am all for it and applaud this initiative, we also need to keep our sights on other critical elements that could potentially derail this GHG objective and its benefits.

Lowering GHG primarily means cutting back or eliminating fossil fuel use (electricity, heat, transport, industry production). This means substituting more renewable energy (fossil fuel displacement) and/or improving energy efficiency (consume less fossil fuel). To do this effectively, one needs to create a larger (denser) user-base, to not only defray (and limit) the new capital investments, but also decrease its ongoing operating costs. Cities often become the best targets for GHG reductions due to their larger population, commercial presence, and economic activities. Thus, the densification and a shared services model, is one of the pillars of smart cities. Today, many technologies (RE, telecom, IoT, sensors, EV) are available to build such smart cities and lower GHG emissions. This technology focus, often becomes the central theme in smart cities with tenets around (a) energy use; (b) connectivity; and (c) clean environment.

To accommodate this higher urban density, more infill/multi-family/multi-purpose build is being encouraged with many new high-rise buildings. The result is that, suburban sprawl is morphing into tight-knit high density cores. This objective in itself, is not bad, but the construction of such high-density cores has attributes that go against the above smart city tenets. These include:

1. Increased use of concrete (0.9 tons of CO_2 per ton of cement production)
2. Increased roads/pavements (impervious surfaces, rain water run-offs, flooding)
3. Increased use of glass curtain walls (entire glass walls at a much lower insulation rating)
4. Increased use of electric baseboard heat and mini-split A/C cool in each room (avoid HVAC/Duct costs)

Builders (allowed by building codes) are adopting these, as they are faster and cheaper to execute. The irony is that such smart city build, is investing upfront capital in high-GHG material additions, and then adding further investments in GHG reduction through energy efficiency improvements. This approach is expensive and will take decades to just "recoup" the GHG added, let alone lowering it on a net-basis for the long run. Further, in 15 years, most of the glass curtain walls will lose their already poor insulation values even further (leaky seals, argon gas leaks, moisture ingress) resulting in even higher heating/cooling costs or warrant expensive replacements. In 2018-20 Toronto/Canada's downtown core, saw over 400 buildings in the works (each 12 stories or higher) with above attributes. Ironically, the higher costs of energy (both electricity and gas) are being borne by the occupants, not the builders.

At the other end of this spectrum, lies the older buildings that make up 90% of most cities' building assets. Only less than 1% of such existing stock undergo deep energy efficiency retrofits annually. At this rate it would take "forever" to make them (and the entire city) energy efficient. But smart cities are paying little attention to this conundrum. Landlords/owners shy away from such upgrades unless it leads to revenue growth, quick paybacks, and other financial benefits. There is an urgent need to address this through public policy and make it a priority.

In my view, "a city's true character lies in its easy-access streets, entertainment and outdoor surroundings". Hence, mobility and convenience, plays a big part in enabling this experience. But climate-change mitigation in the transportation sector is a hard complex problem to solve. The reduction of GHG emission from public and privately owned multi-vehicular traffic is daunting. Congestion fees, parking, bicycle lanes, pedestrian-only streets and mass transit systems all needed to be weaved together with convenience, affordability and/or commute time. Many cities have successfully integrated airport terminals with transit, while others have multi-level transit systems inside their inner core. Others have greatly enhanced walkability and bicycling. However, noise and tail-pipe pollution has remained a sticky issue thus far. The introduction of e-mobility (battery or hydrogen vehicles) in both public and private transport, offers a good solution to the above noise and pollution problems. However, the "fuel infrastructure" requires careful architecting to manage such "clean fuel" availability to consumers. Currently it is planned as an add-on to the existing electric and gas infrastructure, which will be a huge burden, as demand grows with adoption. Even the production of such cleaner transport "fuels" needs to come from clean non-GHG emitting sources (a challenge for many countries that rely on coal/oil/gas electricity production).

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All of the above components of a smart city (buildings, transit and roads) require increased paved surfaces for access and mobility. The increase in such impervious surfaces causes excess rain water run-offs causing a high stress on storm-drains and snow clearing/melt in cold countries). With increased intensity in rains in recent years (climate change), these often lead to flash floods and water logging in urban streets causing commuter disruptions. Again, an unintended consequence.

Higher densification leads to increased congregated institutional settings (senior homes, hospitals, universities, malls, schools/daycare, offices, condos). The creation of such congregated institutions (albeit efficient), leads to a higher common-mode failure risk (fires, floods, pandemics). So, resiliency and backup alternatives need to be incorporated to mitigate this. The current COVID-19 pandemic and its disproportionate urban impact on such congregated institutions, points to lowering such urban density. This is evidenced from a people impact perspective, i.e. (a) downtown core businesses (55% of city GDP) disproportionally affected versus suburbia locations; (b) tall office buildings essentially sitting empty; (c) disproportionate spread in senior homes, high-rise buildings and universities. Will the COVID experience make us rethink smart city tenets?

All the above (urban density, building materials, paved-surfaces, transit) needs to be addressed comprehensively in smart cities and not just GHG reduction alone. The race to developing urban cities is driving land values up, which in turn is warranting higher densities to make such development economically viable. Currently, smart cities do not imbibe many comprehensive principles. We need to rethink Smart Cities in an entirely new way, one which reflects the following:

(a) Building Codes - imbibe conservation, energy efficiency and recycled/green building materials

(b) GHG Emissions - limits in GHG-intensive building materials and not reductions through energy conservation

(c) Retrofit Focused - affordable and actionable through policy instruments with municipal purchase/aggregations

(d) Resiliency First – a planned recovery/backup (with capped densities) of congregated institutions

(e) Greening Outside – open spaces that can absorb surface water easily

Concrete has shaped our cities for decades, now it threatens to shape our future. More such buildings mean more heat islands, more demand for air conditioning/heating, more fossil fuels burnt, more certainty that our climate will change faster and more severely. Over time, the damage will be much worse. Recent trends offer us a pause to rethink (we are at such a crossroad). The very thing we wanted to address (climate change via a lower GHG route), is giving us opposing signals.

This may indeed lead to smaller cities (or well interconnected suburbs and boroughs), but it will be sustainable in the long run. The materials used in such infrastructure builds, must themselves not be high GHG emitting materials (like concrete, cement), but lower GHG and recycled/recyclable long-lasting materials (steel, aluminum, wood, stone, calcium-silicate, MgO, composites, etc.). Such building materials and systems exist, but need to be promoted and incentivized.

In my view, given all that we now know from climate change (drought, floods, fires) and the recent pandemic, we should not attempt to go back to the normal "as we knew", but rather learn from it and create a "new normal". This applies to Smart Cities as well!

Article contributed by Ravi Seethapathy, GSEF Ambassador for Americas

Smart Grid Events

13 Jan 2021: Common Information Model 2021, Virtual Conference, https://www.smartgrid-forums.com/forums/common-information-model/

24 February 2021: Advanced Metering Infrastructure 2021, Virtual Conference, https://www.smartgrid-forums.com/forums/advanced-metering-infrastructure/

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

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

27 January 2021: IEC 61850 USA 2021, Virtual Conference, https://www.smartgrid-forums.com/forums/iec-61850-usa/

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

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

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 | Advanced Metering Infrastructure 2021

24th February 2021|Virtual Conference

SMART GRID FORUMS | NextGen SCADA Global 2021

24th -25th March, 2021

SMART GRID FORUMS | IEC 61850 USA 2021

27th January 2021 | Virtual Conference

SMART GRID FORUMS | Common Information Model 2021

13th January 2021 | Virtual Conference

Enlit Asia

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**

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Electricity Supply Commission of South Africa (ESKOM)

EDM Mozambique

Tenaga Nasional Berhad (TNB) Malaysia

European Distribution System Operators (E.DSO)

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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