

Impact of Covid-19 Pandemic to Utility Lower Electricity Sales as Business Slowed



PETALING JAYA: Tenaga Nasional Bhd (TNB) (<https://charts.thestar.com.my/?s=TENAGA>) expects electricity sales to drop this year compared with last year as business activities had to be temporarily halted in the nationwide effort to contain the spread of coronavirus (Covid-19) Pandemic.

President and CEO Datuk Seri Amir Hamzah Azizan stated he expected electricity consumption to drop by 7% to 15% this year due to slowdown of activity in the commercial sector. "This 7% to 15% decline estimation is still in the early stage. President and CEO, TNB in his first press briefing since March 2020 when the Movement Control Order (MCO) was enforced, said if the recovery in economic activity is better than expected, the demand for electricity will pick up. Lower electricity sales could translate to reduced earnings for TNB this year. Notably, TNB is the sole electricity provider in Peninsular Malaysia. TNB's sales in electricity for the financial year which ended on 31st December, 2019 (FY19) stood at 11.5bil USD, up 3.5% from a year earlier. The MCO, which started on 18th March 2020 until 3rd May 2020, was enforced by the government to curb the spread of Covid-19 Pandemic.

Amir Hamzah said that during the MCO, TNB saw 30% to 50% drop in electricity usage from the commercial sector as many people were working from home. However, this was partially mitigated by the surge in household electricity usage that rose more than 20% during the MCO period, he added. An analyst said that close to 80% of TNB's sales in Peninsular Malaysia came from industrial and commercial customers. He said the electricity usage has increased when the government imposed the Conditional Movement Control Order (CMCO) in May 2020.

Read more: <https://bit.ly/3gL7hQf>

Dr. Ir. Cheong Kam Hoong
GSGF Ambassador (Asia Pacific Region)

Table of Contents

Page	News topic
1	Cover story: Impact of Covid-19 Pandemic to Utility - Lower Electricity Sales as Business Slowed
2-4	Stories across the globe on Smart Grids: Special: NARUC, NASEO Team up to Tackle Distributed Solar Cyber Risks as Vulnerabilities Grow
5	Member Updates Special: Resilience Preparation for Power Utilities: A Necessity for Coastal Cities
6-7	GSGF Update Special: SMR: A New Nuclear Renaissance By Ravi Seethapathy, "Ambassador for the Americas", Global Smart Grid Federation, USA Executive Chairman, Biosirus Inc., Canada
8	GSGF at a Glance



Global Stories on Smart Grid

Australia to Augment 1.2 GWh of Storage Capacity in 2020

According to Wood Mackenzie, Australia's cumulative energy storage investment to hit USD 6 billion which translates to 12.9GWh of cumulative storage deployments

Australia is set to add 1.2GWh of energy storage capacity in 2020, more than double the 499MWh installed in 2019 which takes the country's cumulative storage capacity to 2.7 GWh in 2020. Front-of-the-meter (FTM) capacity at 672 MWh will overtake the 581 MWh back-of-the-meter (BTM) capacity in 2020, a result of funding programmes by the federal and state governments, as well as ARENA. However, the coronavirus-led restrictions and economic downturn could cause delays or cancellations to the 4.6GWh announced projects in the pipeline over the next five years.

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

NARUC, NASEO Team up to Tackle Distributed Solar Cyber Risks as Vulnerabilities Grow

A new partnership between the National Association of State Energy Officials (NASEO) and the National Association of Regulatory Utility Commissioners (NARUC) aims to jump-start a conversation about cybersecurity best practices in distributed solar. Distributed solar is not subject to the same level of regulation as utilities, despite the sector's growing importance to electric infrastructure. The new NASEO-NARUC partnership is funded by U.S. Department of Energy to address the potential security implications of distributed solar technology.

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

Egypt's NREA Plans Additional 3170 MW of Renewable Energy

In line with the Egyptian government's aim to increase the share of renewable energy in the country's energy production mix by 20% by 2022, and doubling it by 2035, the New and Renewable Energy Authority (NREA) said it plans to add 3,170 MW of renewable energy comprised of solar and wind energy projects. The projects under consideration are wind farms with a total capacity of 2,200 MW and solar power plants with a combined capacity of 970 MW. The country already has a mega project underway with the BenBan solar complex in the south of the country with a total capacity of 1650 MWp which corresponds to an annual production of approximately 3.8 TWh.

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

US Residential Storage Shines in First Quarter, Nabs Fourth Consecutive Record

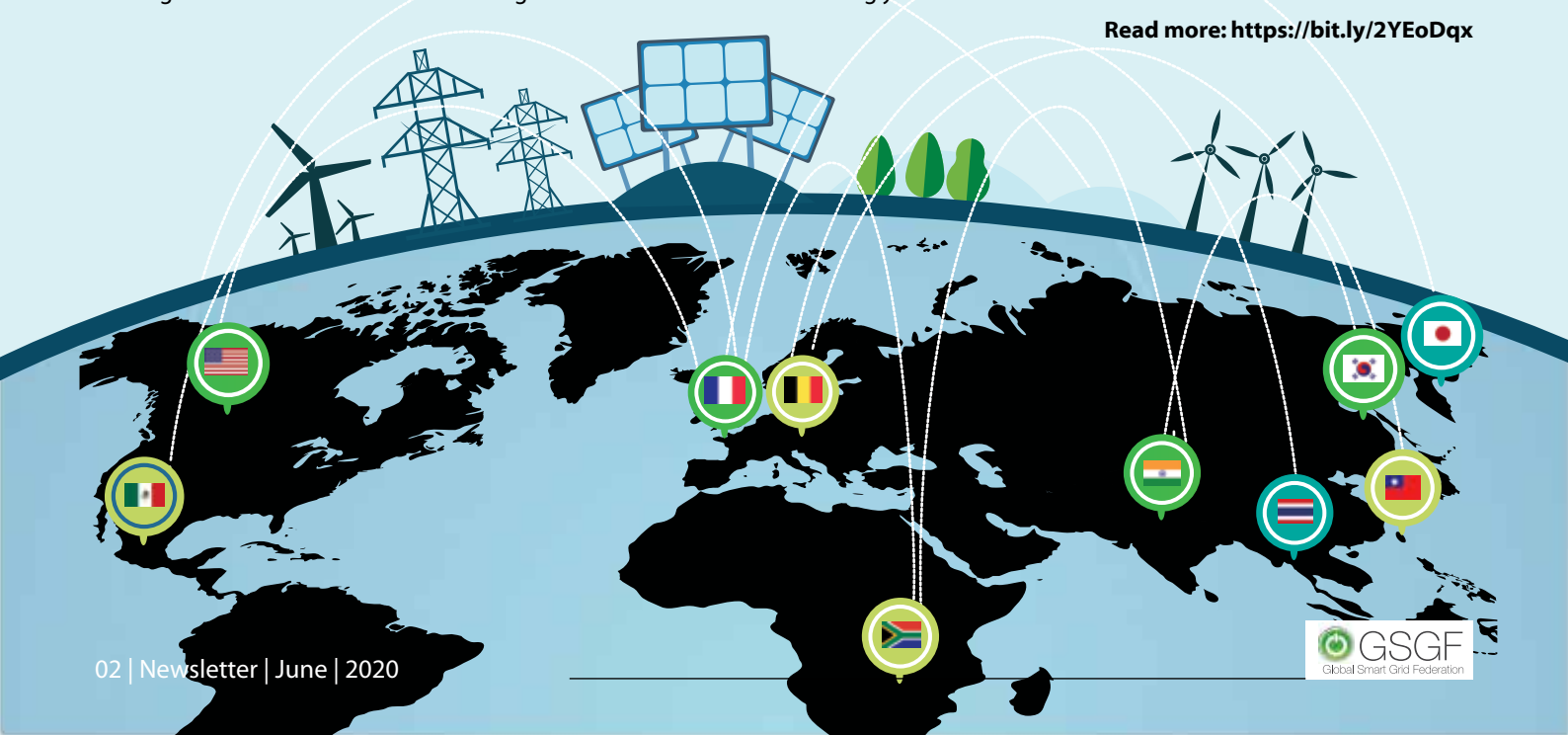
Residential batteries outperformed the rest of the energy storage sector in first-quarter deployments. The first quarter of 2020 marked the fourth consecutive record for home battery installations. The sector delivered 44 megawatts/102 megawatt-hours, up 10 percent from Q4 2019. That's all the more striking because home solar installations typically dip in the first quarter of a given year. In the fall, Northern California utility PG&E cut off power to millions of people to avoid starting fires. As the reality sank in that Bay Area homeowners couldn't count on the grid working during a prolonged heat wave, they started taking matters into their own hands. Solar-paired batteries provide clean backup power for critical loads—or the whole house, if the customer pays for enough battery capacity. California offers grants to cover the cost of batteries to households that are most acutely affected by power shutoffs. Residential storage handily beat front-of-the-meter storage in the first quarter. But coronavirus shelter-in-place orders that arrived in late March cast doubt on the industry's ability to keep the growth streak running in Q2. Installers have had to revamp sales and delay some installations based on local rules.

Read more: <https://bit.ly/3hukJsU>

Germany Approves NECP, Targeting 30% Renewable Energy by 2030

The German Government, just ahead of its EU Council Presidency starting in July, has finally approved its 2030 National Energy and Climate Plan (NECP). The country has also adopted a new National Hydrogen Strategy. It will be critical in shaping the EU green recovery and will also shape Germany's approach to its EU Presidency, where its energy priorities are offshore wind expansion, hybrid offshore projects and renewable hydrogen. The country's NECP aims for 65 percent renewable electricity and 30 percent renewable energy by 2030. To deliver these targets, it plans to expand its installed wind energy capacities to 67-71 GW onshore and 20 GW offshore by 2030. For onshore wind where Germany has 53 GW today, this means building new wind farms and repowering existing wind farms, especially the large number of those that are coming off the feed-in tariff in the coming years.

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



Global Stories on Smart Grid

Australian Government Awards \$13.2 Million for Microgrid Feasibility Studies

The Australian government has awarded about \$13.2 million (U.S.) for microgrid feasibility studies as part of a growing effort to bolster grid reliability and provide electricity in unserved areas across the continent. The fund supports feasibility studies looking at microgrid technologies to replace, upgrade or supplement existing electricity supply arrangements in off-grid and fringe-of-grid communities in regional and remote areas. The first tranche of funding will help 17 projects study whether setting up a microgrid, or upgrading existing off-grid technologies, can better meet the electricity needs of regional and remote communities.

One of the larger projects, for example, will test the feasibility of setting up microgrids for the dairy industry based on biogas anaerobic digester power generation. Another will explore setting up microgrids using solar-diesel hybrid generation to serve Aboriginal people living in Western Australia's remote communities.

Read more: <https://bit.ly/3e9aLuL>

Post COVID-19 Smart Meter Shipments to Hit 34.8 Million Units in 2021

Major first-wave rollouts in countries such as France and the Netherlands are expected to be completed according to timelines in the next couple of years while the largely delayed UK rollout is forecasted to ramp up during the same time period. Meanwhile, Italy is now in the late stages of its deployment of smart gas meters as well as in the midst of its second-wave rollout of smart electricity meters, contributing with significant volumes in the next few years. With large-scale second-wave rollouts also beginning in Sweden and Finland during 2020–2021, upgrades of first-generation smart electricity metering systems are forecasted to account for 30–35 percent of annual European smart electricity meter shipments during 2020–2024. Central and Eastern Europe will moreover account for an increasing share of smart meter shipments in the 2020s as mass-deployments in Western Europe are being completed while the widespread take-off of second-wave rollouts is still years into the future.

Read more: <https://bit.ly/37Ct2yi>

Bicycles Push Aside Cars in Europe's Cities

Bicycles are increasingly muscling aside cars on Europe's city streets, as COVID-19 accelerates a shift toward pedal power. Even before the pandemic, bicycles were enjoying an uptick in demand from environmentally conscious consumers, but the risk of contagion on buses and subways have increased the appeal. The emergence of e-bikes, which boost pedal power with an electric motor, has removed some of the sweat factor, making biking a viable option for more consumers after lockdowns lifted. Governments are fueling the trend, offering buying incentives ranging from 100 euros (US\$112.45) to as much as 1,500 euros for heavy business users of e-bikes. Cities from Berlin to Lisbon are also opening up more space for cycling, with almost 1,500km of new bike lanes promised as a result of the public health crisis, the European Cyclists' Federation said.

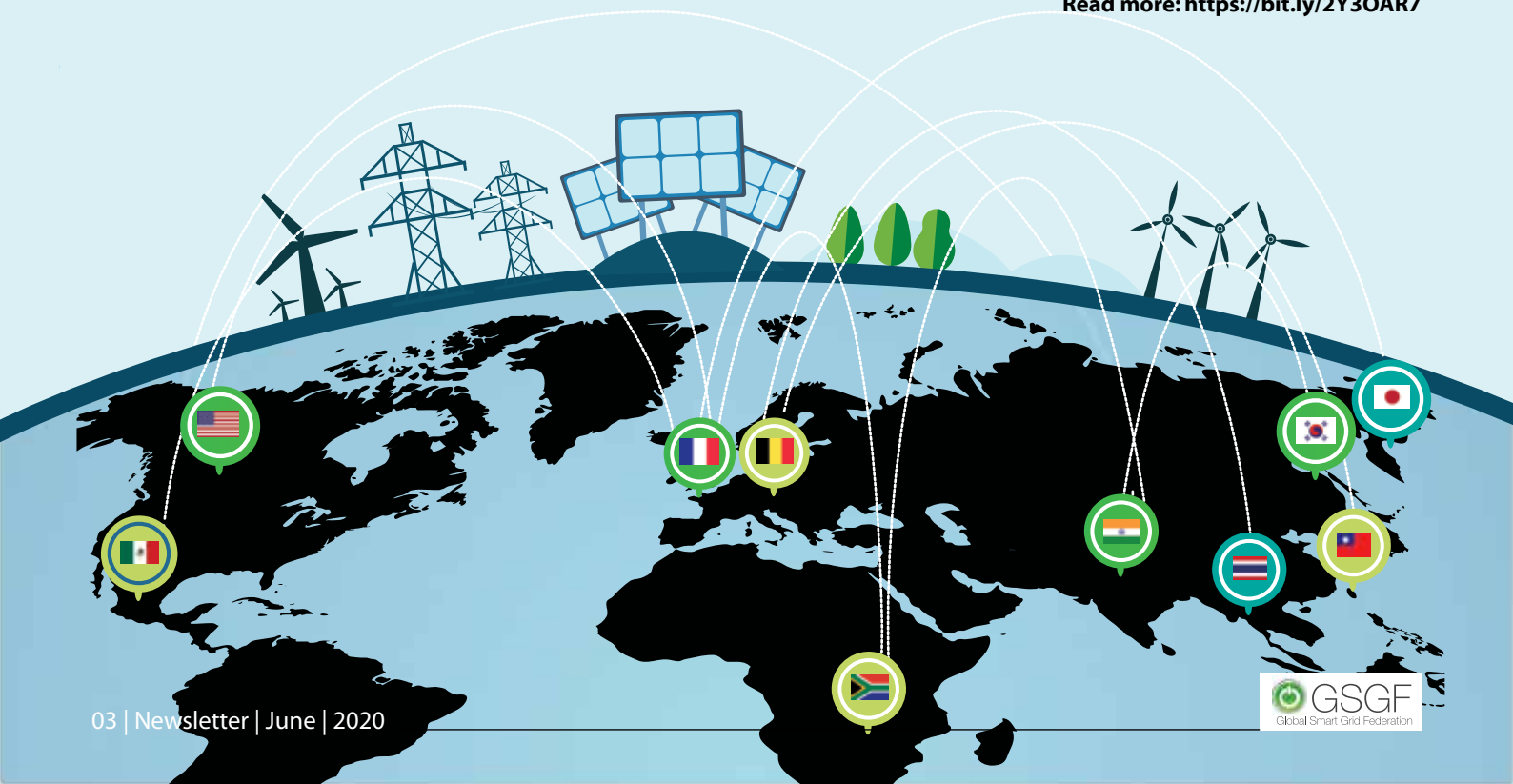
Read More: <https://bit.ly/3e3mWbB>

Thailand Turns to Blockchain to Boost Renewable Energy Push

Thailand is teaming with a Blockchain firm to encourage peer-to-peer trading of renewable energy.

Thai Digital Energy Development (TDED) – a public-private joint venture – has inked a deal with blockchain energy startup Power Ledger to develop a blockchain-based digital energy business. The deal, also in collaboration with energy suppliers in Thailand, seeks to develop solutions for peer-to-peer energy trading and environmental commodity trading, Australia-based Power Ledger said in a press release. Ultimately, the partners aim to assist Thailand's drive to hit a 25% renewable energy target by 2037 as the nation transitions away from fossil fuels. Power Ledger's co-founder and executive chairman, Jemma Green stated that "Blockchain-enabled transactive energy solutions including peer-to-peer (P2P) energy trading, virtual power plants as well as renewable energy certificates and carbon credits trading will be the key to establishing economically viable renewable energy markets."

Read more: <https://bit.ly/2Y3OAR7>



Global Stories on Smart Grid

US Department of Energy Researchers Finds Blockchain to be Revolutionary for Renewable Energy

The National Renewable Energy Laboratory (NREL), a unit of the U.S. Department of Energy, has been investigating blockchain for energy transactions. Some use cases are a natural fit for blockchain. The proliferation of solar energy and other renewable sources has a missing link. For neighbors to share energy during peak times rather than sourcing it from the grid, there's a need to trust the data about how much energy has been transferred, and it requires a cheap means of payment. Blockchain meets both requirements.

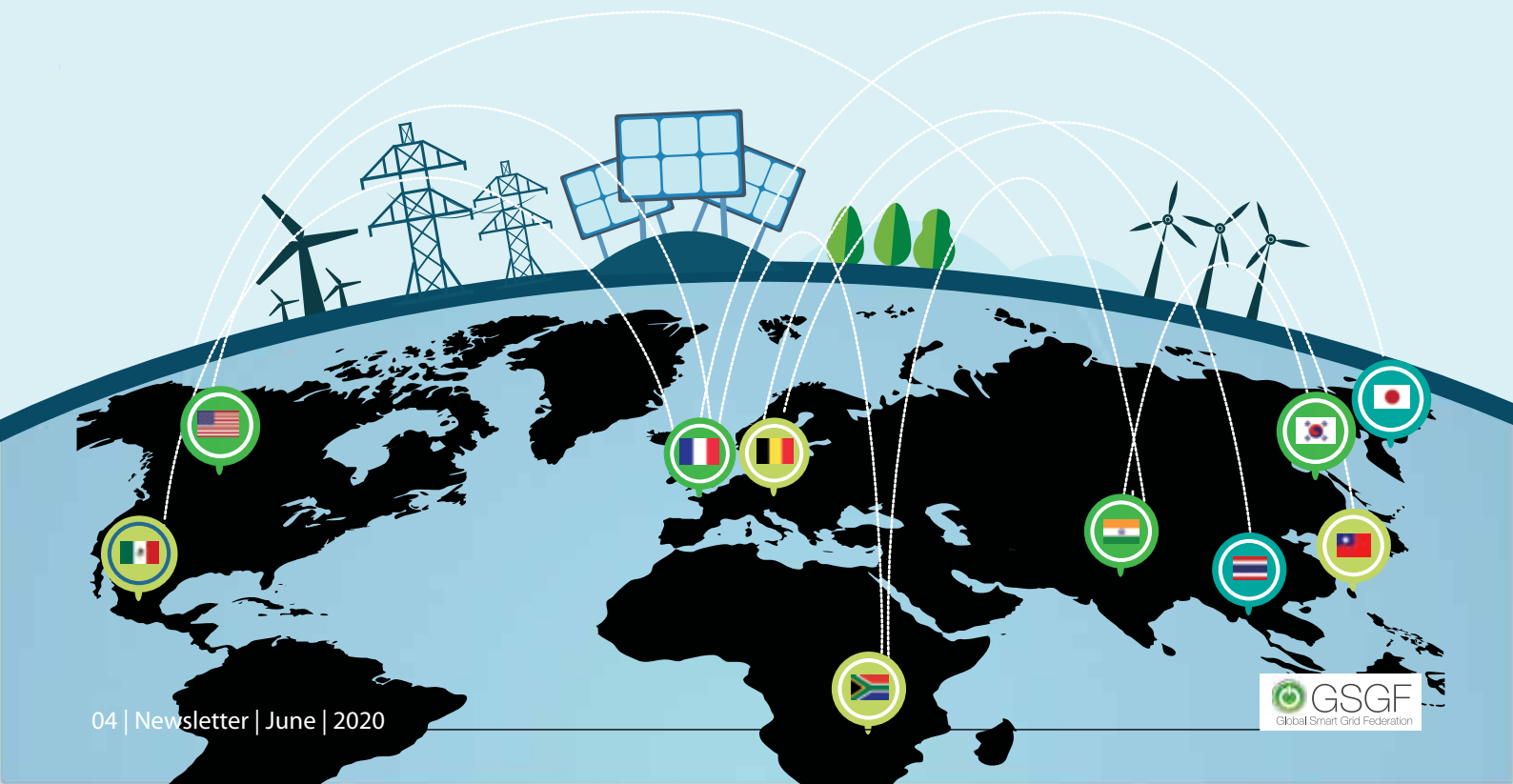
Read more: <https://bit.ly/2B81dSg>

Events Supported by GSGF



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

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



Member Updates

Resilience Preparation for Power Utilities: A Necessity for Coastal Cities

Globally, natural and man-made disasters are on the rise, affecting our day to day life. The impact it creates on power infrastructure is very high, as majority of the urban grid infrastructure is old and needs modernization. According to the Centre for Research on the Epidemiology of Disasters, Asia has lost an estimated \$1 trillion over the past century due to natural disasters, and this shows no sign of slowing down.

Super cyclone Amphan came ashore on the coast of India May 20, of this year. The damage it has caused to the people, community and cities infrastructure is irrecoverable. One of the sectors that has faced tremendous impact is the power distribution system as the city has ran out of power for more than a week. It is a dramatic reminder of the importance of resilience to power utilities, especially amidst the pandemic situation.



"Building a resilient power infrastructure that can resist, absorb, accommodate to, and recover from the effects of a hazard in a timely and efficient manner is a need for all the buildings that focuses on safety of equipment operation and personnel involved."

GBCI's PEER program focuses on grid resilience to provide confidence and guidance to the investors and owners of power utilities, microgrids and storage technologies. It provides a thorough assessment of power system performance.

This article discusses resilience preparation for power utilities and the importance for coastal cities.

Read more: <https://bit.ly/3gzD8D6>

Marianne Laigneau Elected President of Think Smartgrids

On June 25th, Marianne Laigneau, Chairman of the Management Board of Enedis, was elected Chairman of the Think Smartgrids association, which brings together French players in the smart grids sector.

Marianne Laigneau becomes President of the Think Smartgrids association where she succeeds Olivier Grabette, member of the RTE Executive Board, who is appointed First Vice-President of the association.

In the particular context of the Covid-19 crisis, the new president will aim to bring together the players in the French smart grids sector around the "Energy Transition and Smart Grids" recovery plan initiated by Think Smartgrids.

Marianne Laigneau will pursue the development of the association both in France and internationally, particularly through the partnerships initiated in India, Singapore, Indonesia and Senegal.

Five years after its creation, the association intends to support the accelerated deployment of smart grids through a French industry committed to their industrialization in France and abroad. Through its actions, it will also contribute to the development of the electric vehicle and the need for charging infrastructures, to the transformation of the building sector, to the need for flexibility in production and consumption uses, and to the challenge of using energy data for the benefit of all consumers.

Hugues de Bantel, co-founder and CEO of Cosmo Tech, has been reappointed 2nd Vice President. Antoine de Fleurieu, General Delegate of GIMELEC, retains his mandate as Treasurer and Valérie-Anne Lencznar continues her mission as General Delegate of the association.

The chairmanships of the commissions are confirmed with PrNouredineHadjsaid (INP Grenoble) at the head of the Scientific Council, Philippe Vié (Capgemini) as chairman of the innovative territories and smart grids commission and Andrea Michiorri (Mines Paris Tech) as chairman of the Training commission. For his part, Thomas Bazin (Schneider Electric) becomes president of the international commission, following the departure of Christophe Durieux from General Electric.





SMR: A New Nuclear Renaissance

By

Ravi Seethapathy P.Eng., MBA, FCAE

“Ambassador for the Americas”, Global Smart Grid Federation, USA
Executive Chairman, Biosirus Inc., Canada

In early 2019, I was introduced to various nuclear Small Modular Reactor (SMR) technologies and architectures and since then I have been involved in a few such conversations. It brought back memories of my technical training in thermal/nuclear power generation, project engineering and later in generation performance. In many ways (despite my stints in T&D), I have come back (full circle) to being deeply involved in distributed energy resources (DERs) technology in the last ten years (thanks to Smart Grid).

Large nuclear power generation has been (and still is) one of the two non-GHG generation options (other being large hydro) for many countries (top ten are USA, France, Japan, U.K., Russia, China, Germany, South Korea, Canada, Sweden). In these countries, old reactors are being given life-extensions through expensive refurbishments. Each country followed their own pathways, with the majority adopting (enriched fuel) BWR/PWR, followed by GCR and a distant third being the (non-enriched fuel) CANDU. Only France has additional Fast Breeder Reactor (FBR) technology in its mix. Another 21 countries (many developing) have nuclear power generation (Ukraine, India, Finland, Spain, South Africa, Argentina). The world today has 455 nuclear power reactor units (55 units underway) totaling 393 GW, generating 2,600 TWh annually. The rationale for nuclear generation is (a) reducing oil dependency; (2) fuel diversity; (3) low cost power; and (4) reducing an ever-rising carbon emission.

The last 20 years has seen public choice move to cleaner energy and this saw efforts in “miniaturizing” traditional generation, add new renewable generation (RE) and introduce Demand Response (DR) designs. The objective continues to be total cost optimization (i.e. savings in generation, T&D and utilization) while meeting combined heat/power energy needs. This DER transformation has been very successful globally. The only laggard (up until now) has been small-nuclear designs.

Not to be left behind, the nuclear industry has been hard at work over the past ten years to “miniaturize” nuclear power generation. It had to address several objectives i.e. (1) high cost overruns and long duration projects; (2) public perception of nuclear safety and nuclear waste; (3) meet DER criteria for varied urban/remote locations; and (4) demonstrating better flexibility to load following (i.e. non-base load generation). In attempting this exercise, the industry fell back on proven nuclear pathways/designs with an emphasis on (1) factory built/shipped, (2) smaller site-footprint and (3) requiring few operating staff.

Since 2018, there are about 15 SMR designs that are being actively reviewed by various countries. They range from 5 MW to 400 MW employing slightly enriched fuel (12-17 percent enrichment) with primary coolant using molten salts, helium gas, tritium, and liquid lead. Some are fueled for life (about 30 years), while others require refueling around mid-life. Many in the smaller range offer heat (around 700 deg C) as the primary output either for power generation or industrial process. The smallest plant footprint is about 100 x 100 meters (300 x 300 feet). The energy market for these SMRs is estimated at \$50 billion/year. Best applications include power requirements in remote mines and communities where the cost of transported diesel fuel is high. These plants have an edge over Solar PV/Wind which are both intermittent and weather/climate dependent.

A few applications have moved beyond initial regulatory phases and have begun forming partnerships with nuclear power generation operators and EPC contractors. They are reasonably confident to expect to move to the final phases over the next few years on engineering and construction regulatory approvals prior to a green light to start building. The process in the United States and Canada appear well along its way to perhaps see an operating plant by 2028.

In all this, there are several aspects that are yet to be determined:

1. **Public Stakeholder Consultations:** The general public is beginning to be consulted as a part of the required public and stakeholder consultation process. The three key groups to win over would be (1) the local residents who live in the site vicinity; (2) anti-nuclear NGOs who may intervene; (3) Indigenous and Native populations on whose lands these plants may be sited; and (4) any political backlash from citizens.

2. **Capital and Operating Costs:** For commercial reasons the financial numbers are being kept secret till the relevant regulatory hearing. It is assumed that while the initial plants may be expensive, the costs will come down due to (a) factory build; (b) fewer sub-systems; (c) industrial supply chain; and (d) a “cookie-cutter” design-build approach (much like T&D substations).
3. **Nuclear Waste Disposal:** For the countries that already have large nuclear power generation, this aspect is less likely to be critical. For countries that do not have enriched fuel waste storage, new avenues may need to be found to store them. It is unlikely that vendors who ship nuclear fuel in, will agree to take it back after 30 years.
4. **Nuclear Liability:** It will be interesting to see if SMR nuclear liability (being smaller and simpler) would be covered by insurance companies. Currently, each country assumes general liability (public liability and environmental risk) with limited liability (against defects) with the manufacturer (in some jurisdictions it lies with the generation owner/operator).
5. **Load Following:** While most SMR design claim to have a part base-load with some load following capability, operational experience will prove such maneuvers and ramp rates. This is an important feature if SMRs are to be counted as DERs, else it could potentially conflict with “must run” renewable generation and daily/seasonal load fluctuations (particularly in remote sites).
6. **Site Locations:** The preferred locations for these SMRs are being touted in remote mines, remote refining and associated communities. The critical areas would include availability of local skills for O&M and to be able to get global experts to such sites quickly.

In closing, a new nuclear renaissance is upon us and we must examine its acceptance. SMRs provide a clean non-GHG emitting thermal and electrical power source that can displace expensive diesel fuel at remote mines, oil-sands extractions and other heavy extraction industries.

Advanced Metering Infrastructure 2020 13 - 15 October Virtual Conference	Providing the roadmap for achieving 100% smart meter coverage, fostering standardisation in the industry and scaling up your AMI related data analytics 3-Day Online Conference, Exhibition & Networking Forum
--	--

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



GSGF at a glance

Charter Members



Think Smart Grids



India Smart Grid Forum



Korea Smart Grid Association



Prakarsa Jaringan Cerdas Indonesia (PJCI)



GridWise Alliance

Regular Members



Smart Grid Mexico



Japan Smart Community 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
- **Flexible Grid-Towards Customer Enablement**
Chair- Ambassador, Americas

Working Groups in Pipeline

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

Contact us for more information.

Global Smart Grid Federation (GSGF)

1800 M Street, NW, Suite #400S, Washington, DC 20036

@ info@globalsmartgridfederation.org

www.globalsmartgridfederation.org

Newsletter Team

Aashima Chaney | Bindeshwary Rai | Sudhasatta Kundu | Balasubramanyam Karnam
Parul Shribatham | Shuvam Sarkar Roy | Ravi Seethpathy | Marc Boillot | Dr Cheong Kaam Hoong