

## Smart Grids for Universal and Decarbonized Energy Access in Africa

On 6<sup>th</sup> April, 2021 Think Smartgrids, organized a webinar during which its members presented completed and ongoing smart grid projects in West Africa. The deployment of smart grids in the region is essential to ensure universal access to quality energy that is as carbon-free as possible.



Maxence Bocquel, Senior Manager at Yélé Consulting, a consulting firm specialized in digital transformation, presented his Smart Connected Microgrids project in Côte d'Ivoire. Based on its experience with the Nice Grid project, a smart solar district to manage peak consumption, Yélé's ambition is to create urban microgrids based on renewable energies, which would improve the quality of electricity supply, reduce losses for the local utility and generate energy savings for consumers, without generating new constraints for the central network.

Luc Richaud, Project manager at Odit-e, a startup that analyses data to model networks, presented a smart metering project in Burkina Faso, led by a consortium of French companies headed by the Institute Smartgrids. The local utility, Sonabel, wants to use smart metering to prevent network overloads by temporarily reducing consumer power. The project has received green innovation funding from the French government and is currently being deployed. The partners are already planning an extension and several replications of the project.

Orange Energie, which is present in some Twenty African countries, has been working for several years now on the development of green energy in Africa, replacing the diesel generators that used to power its Telecom Towers. Natsy Missamou, Director of Orange Energie Middle East & Africa, explained how Orange is partnering with solar panel installers to create minigrids that power both households and its telecom infrastructure.

Article contributed by Think SmartGrids

Link to Article: <https://bit.ly/2RRxC80>

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# Global Stories on Smart Grid

## World's Biggest Battery Storage Project Announced by Australian Renewables Fund

CEP Energy, a specialist renewable energy fund company in Australia, has just announced the largest proposed grid-scale battery project in the world so far, with up to 1,200MW rated output. Aimed at helping to integrate growing shares of renewable energy on the grid and in turn accelerate the phasing out of fossil fuels, the project will be sited in the small town of Kurri Kurri in the Hunter Valley region of New South Wales, about 150km north of Sydney on Australia's east coast. The town lies within the Hunter Economic Zone, an industrial redevelopment scheme.

CEP Energy, which plans to build out four battery storage plants at different locations around Australia totalling 2,000MW, that a 30-year lease agreement has just been signed for the project in Kurri Kurri with local property development group Hunter Investment Corporation. Nevertheless, CEP Energy's battery storage system would be up to four times larger in rated output than the 300MW / 1,200MWh Moss Landing Energy Storage Facility in California, recently inaugurated and currently the world's biggest battery energy storage system (BESS).

**Read more:** <https://bit.ly/3cVhbQA>

## Green Hydrogen Can Spearhead India's Transition to Clean Energy

Energy is a master resource which has the ability to catapult or cripple a growing economy. The rising threat of climate change has transitioned from climate-science conferences to billions being spent on disaster relief expenses. Global markets are increasingly demanding carbon-free products. Realizing the impending threat to their economies, several countries have announced net-zero targets. The top two energy consumers and emitters, the US and China, recently released a joint statement on climate change. Electricity dominates the public discourse on the energy economy. However, it accounts for only 18% of India's total energy demand. The rest 82% comprises other energy sources such as coal, oil and gas, and biomass.

**Read More:** <https://www.indiasmartgrid.org/viewnews.php?id=5090>

## Canada Invests In Nine Clean Energy Projects In Rural And Remote Communities In British Columbia

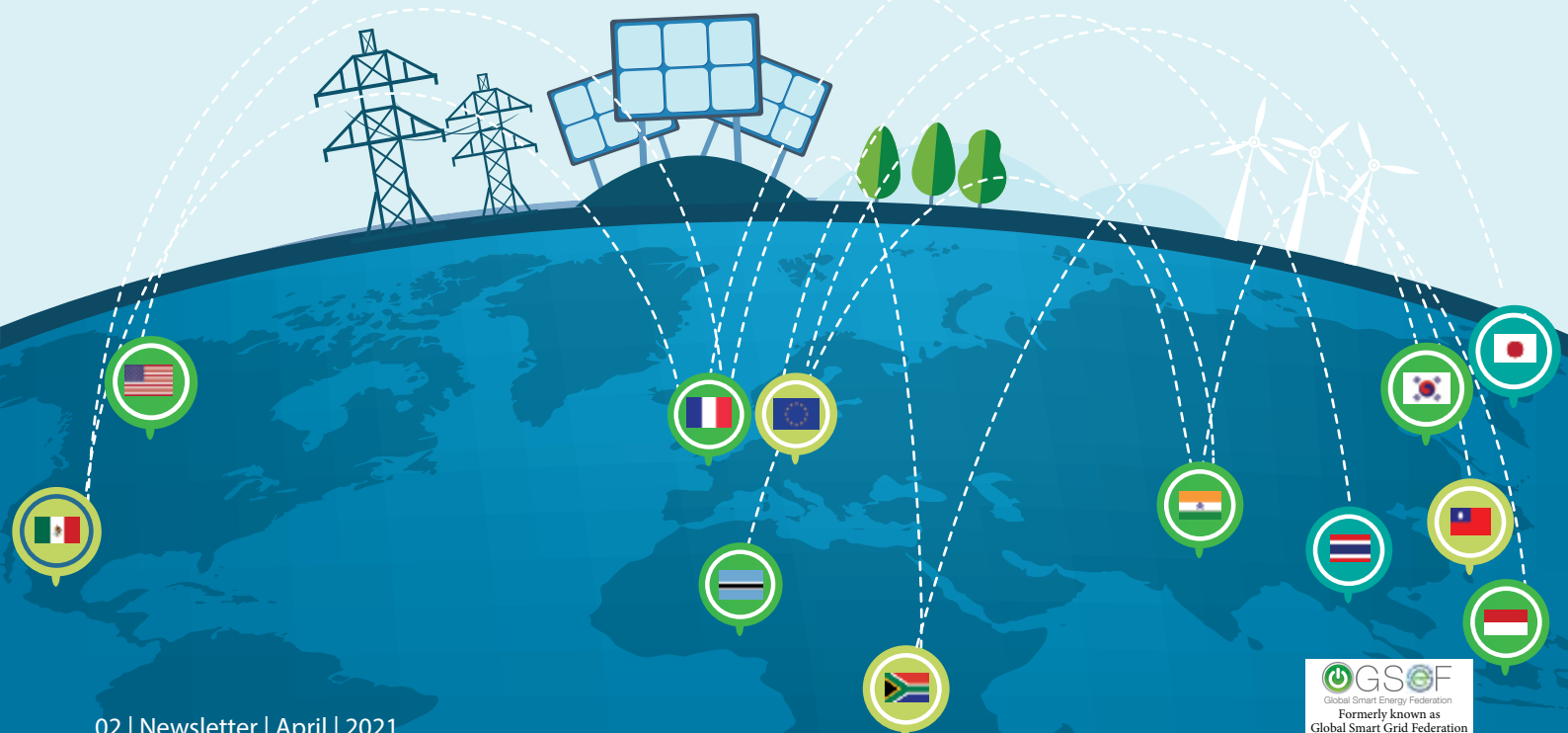
The Clean Energy in Rural and Remote Communities (CERRC) program supports projects across Canada to reduce the reliance of rural and remote communities on fossil fuel for heat and power. This program also supports community-level capacity building to increase clean energy opportunities, including renewables and energy efficiency, and contribute to reducing diesel reliance in rural and/or remote communities. Kwadacha will be producing compressed sawdust logs called "briquettes" for use in woodstoves for residential space heating within the community. The briquettes are made from accumulated waste from the wood chipping operation that supplies fuel to Kwadacha's CHP bioenergy plant. Briquette production will offset diesel-generated electricity and propane.

**Read More:** <https://www.indiasmartgrid.org/viewnews.php?id=5088>

## South Africa To Lift Power Generation Licence Threshold to 10MW

South Africa plans to lift the licensing threshold for small-scale power generation projects to 10 megawatts (MW) from 1MW, a government notice showed on Friday, giving a boost to firms anxious to curb their reliance on ailing state utility Eskom. SA regularly suffers electricity outages because of faults at Eskom's creaking coal-fired power stations. But onerous regulations have prevented many companies, such as miners, from setting up their own generation facilities.

**Read More:** <https://www.indiasmartgrid.org/viewnews.php?id=5091>



# Global Stories on Smart Grid

## Scientists at NREL Develop New Synapse-Like Phototransistor

Researchers at the U.S. Department of Energy's National Renewable Energy Laboratory (NREL) have developed a breakthrough in energy-efficient phototransistors. Such devices could eventually help computers process visual information more like the human brain and be used as sensors in things like self-driving vehicles. The structures rely on a new type of semiconductor — metal-halide perovskites — which have proven to be highly efficient at converting sunlight into electrical energy and shown tremendous promise in a range of other technologies.

In general, these perovskite semiconductors are a really unique functional system with potential benefits for a number of different technologies. NREL became interested in this material system for photovoltaics, but they have many properties that could be applied to whole different areas of science.

**Read more:** <https://bit.ly/3aQq6kq>

## Veritone Announces GRID Initiative to Improve Grid Reliability in the Global Transition to Green Energy

Denver based Veritone, Inc., the creator of the world's first operating system for artificial intelligence, aiWARE™, recently announced its new Grid Reliability in Device (GRID) initiative, an aggressive plan to embed Veritone's intelligent predictive controllers into common renewable grid assets, including solar and storage inverters, battery storage systems, EV chargers, wind turbines and hydroelectric power systems. The Company expects this initiative to simplify distributed energy resource (DER) integration, prolong asset life and increase grid resilience. The patented model optimization and control technology can be built into every grid asset to make electrical grids everywhere more green, cost-effective and reliable.

**Read more:** <https://bit.ly/3xxAWFB>

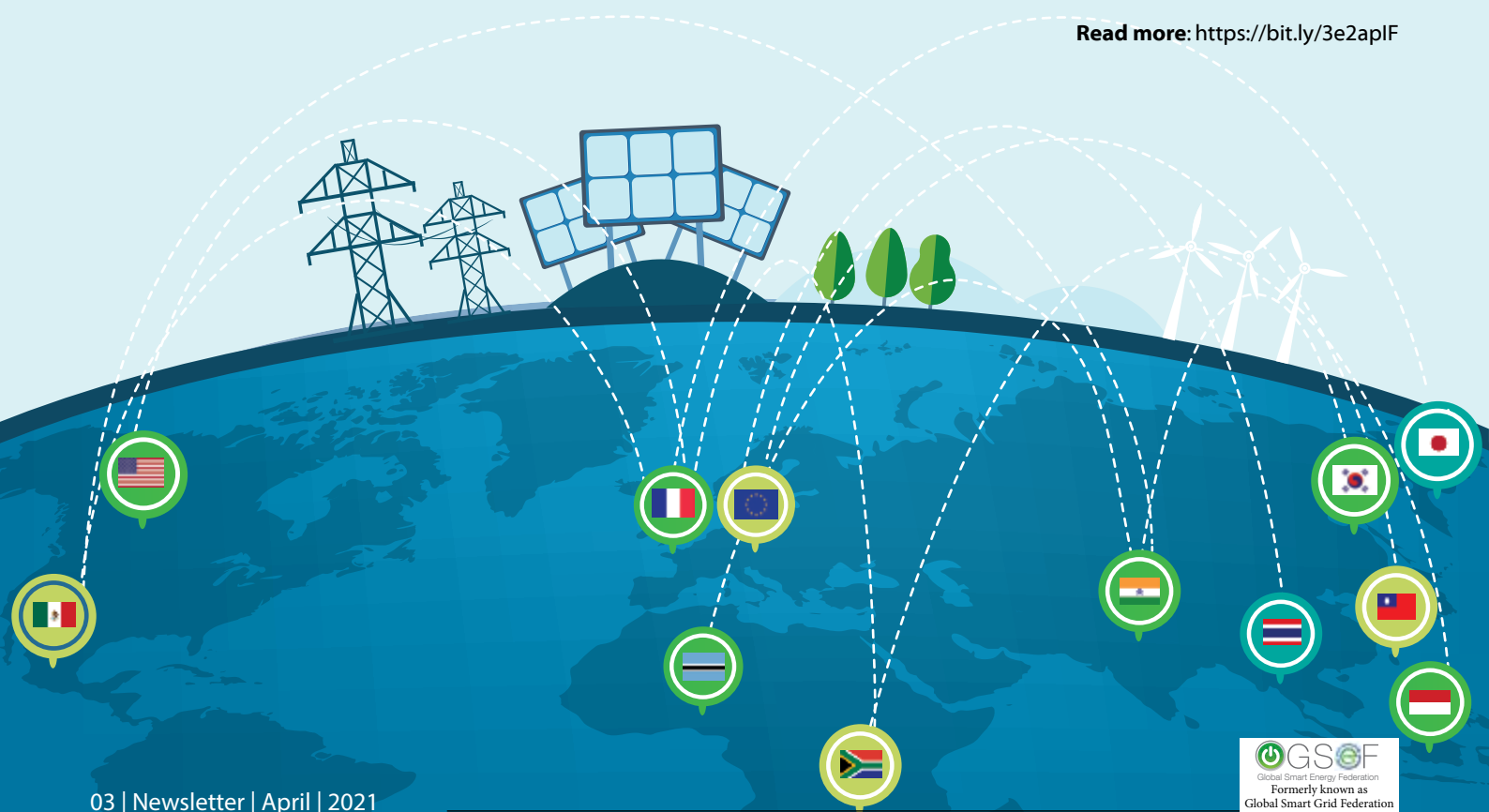
## IoT will save more than 8 times the energy it consumes by 2030

It will also reduce in CO2, water usage and e-waste, according to a joint new study.

According to the Research report from Transforma Insights, 6GWorld and InterDigital, by 2030 IoT deployment and its disruption of various industries is expected to save more than eight times the energy it consumes. This would result in net savings of 230 billion cubic meters of water and eliminate one gigaton of CO2 emissions.

The report found that by 2030 IoT solutions will reduce electricity consumption by more than 1.6 petawatt-hours (PWh), enough electricity to support more than 136.5 million homes' energy use for one year; IoT's net effect on fuel consumption will reach a yearly 3.5 PWh reduction of (hydrocarbon) fuel; IoT devices and emerging technologies will conserve nearly 230 billion cubic meters of water – 35% of this impact will result from improved smart water grid operations, and remaining water savings will be supplemented by IoT-enabled agricultural applications like crop management and remote pest control; The manufacturing of new and emerging IoT technologies is expected to increase global electricity use by 34 terawatt-hours (TWh) but will be offset by the more than 1.6 PWh of electricity conserved by IoT solutions; IoT will result in an additional 53 TWh of fuel used for distribution and deployment of solutions. This distribution and deployment will generate incremental eWaste, including additional hardware per device and increased levels of device shipments. The overall impact will be more than 657,000 tons of eWaste; IoT solutions will collectively enable one gigatons benefit in CO2 emissions. The impact on CO2 emission is notably lower in regions that have a greater representation of renewable energy in their generating profile.

**Read more:** <https://bit.ly/3e2apIF>



# Global Stories on Smart Grid

## Austin Utilities to implement a single AMI network for Electricity, Gas and Water

Data collected by the AMI network will be managed and analysed via the AclaraONE software platform, providing a single repository for data from all the meters. The multi-service utility will replace a manual meter-reading system with the new AMI network, which will support 12,000 electric, 9,500 water and 11,000 gas meters. For its electricity services, Austin Utilities will deploy Aclara's kV2c commercial and I210 residential meters. Aclara's AMI network will also facilitate in establishing the infrastructure needed to efficiently and cost-effectively collect and manage data from all our electric, gas and water meters. In addition, the AMI network readily supports additional applications including distribution automation, methane detection and water system monitoring, which will give real-time insight into events on electric, gas, and water distribution networks.

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

## States ask FERC to eliminate MOPR, grant more Flexibility to PJM Capacity Market

State legislators suggest FERC allow states and their utilities to procure less than 100% of their resources through the FRR

State legislators within the PJM Interconnection requested FERC to allow more flexibility in pursuing alternatives to the grid operator's capacity market, as they pursue a fix to the minimum offer price rule (MOPR) expansion. Fixed Resource Requirement (FRR) can be an option that could, if legislatively mandated, will allow utilities in some states to procure resources to meet projected future demand outside the current capacity market. New Jersey and Illinois are actively considering using the mechanism as a way to better control their resource procurement and add more clean energy resources to their power mix.

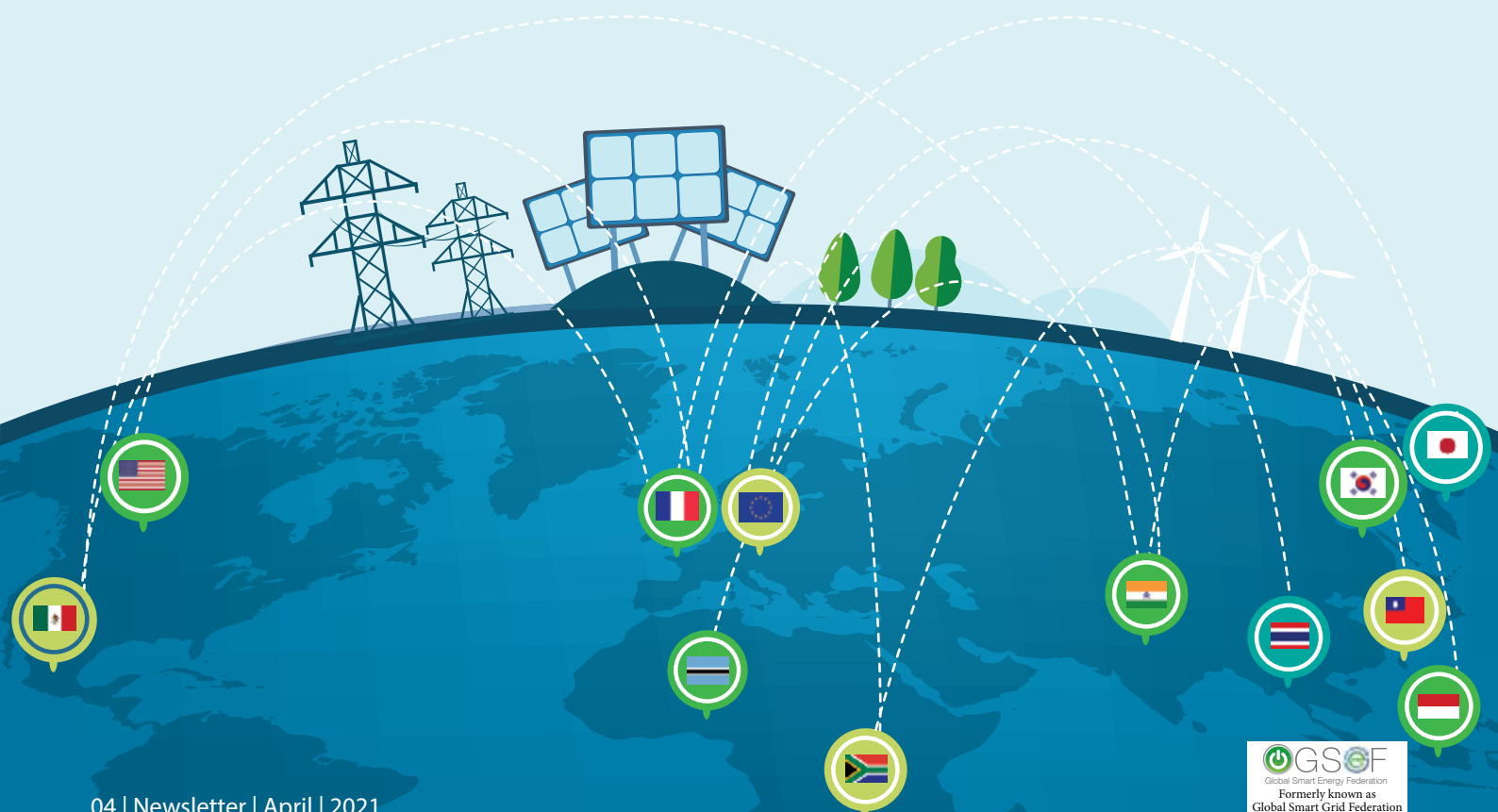
**Read More:** <https://bit.ly/3aPURpt>

## Tech Meets Purpose at Petronas Ventures

It has been 18 months since national energy company Petroliaam Nasional Bhd (Petronas) announced its foray into the venture capital space with the setting up of a US\$350 million fund. Its corporate venture capital arm Petronas Ventures has been working hard and now has three local and nine overseas start-ups under its belt.

Petronas Ventures "tests what's out there, which could complement" the parent company's three mid- and long-term targets, with potential investments anchored to three key pillars: the Future of Facilities, the Future of Chemicals and Advanced Materials, and the Future of Energy.

**Read more:** <https://www.indiasmartgrid.org/viewnews.php?id=5092>



# Member Updates

## TRANSFORMING DELHI'S FUTURE THROUGH SUSTAINABLE METRO TRANSIT SYSTEMS



### Importance of Sustainability in Transport Infrastructure

Transportation infrastructure is fundamental for economic development and growth of the nation. With increasing air pollution and vehicular traffic, sustainable infrastructure has become more than a necessity for Cities to thrive. Building sustainable infrastructure, creates the future for next generation. Sustainable transport infrastructure is one that focus on sustainability during implementation, building vibrant communities, reduce material use, reduce energy consumption and thereby reducing the environmental impacts. Globally there are organizations, that have demonstrated sustainability through their leadership, mission, and values. GBCI through its PEER (Performance Excellence in Electricity Renewal) has helped projects in developing environmentally friendly reliable power infrastructure.

### Redefining Delhi Metro through Sustainable Power Transformation

The Delhi Metro is a mass rapid transit (MRT) system serving Delhi and its satellite cities of Ghaziabad, Faridabad, Gurugram, Noida, Bahadurgarh and Ballabhgarh, in the National Capital Region of India. With network of 12 lines having 285 stations, and spread over 389 kms, the DMRC (Delhi Metro Rail Corporation) has established itself as one of the leading metros in the world. Yet, to be a leader in sustainability needs astounding commitment and leadership support.

DMRC achieved the LEED (green building) rating for their metro stations, and further committed itself to take up the PEER certification across their portfolio of lines and stations to benchmark and evaluate their power system performance, with single objective of providing quality service to its commuters. To date, DMRC has achieved PEER certification for Line 2 (Yellow line), 3 (Blue line), 4 (Blue line), 5 (Green line) and 6 (Violet line). Several other metro lines are under certification with GBCI (Green Business Certification Inc.) that measures reliability, resilience, safety, and efficiency in power system. Using PEER, Delhi metro has assessed their electrical network that includes traction and non-traction loads, power system hardening strategies, validated its system efficiency, and created a renewable energy roadmap for decision-making.

Rooftop solar panels at stations and depots, procuring off-site green power, all electric cables undergrounded, regenerative braking, SCADA and monitoring system, multiple level of power redundancy from different utilities were some of the key efforts taken towards sustainable transportation that helped in achieving PEER certification. Further, during pandemic remote operation of their power systems, establishing safe operational procedures in handling electrical systems, highlights their importance taken towards safe and hassle-free commuting experience. All such measures create an economic, environmental, and social impact towards building a greener metro. With the portfolio level of certification for the metro station and lines, DMRC has been a true frontrunner compared to their global peers.

**Article contributed by** Ishaq Sultan, GBCI

**Link to Article:** <https://bit.ly/33BRbUt>

# Member Updates

## NEDO EXTENDS REDOX FLOW BATTERY SYSTEM PROJECT TO CONDUCT AN ADDITIONAL DEMONSTRATION OF A MICROGRID AS A SOLUTION TO POWER OUTAGES IN CALIFORNIA

The New Energy and Industrial Technology Development Organization (“NEDO”) and Sumitomo Electric Industries, Ltd. have installed a redox flow battery (RFB)\*1 system for a demonstration project to improve the power quality of the transmission and distribution network in the U.S. state of California. NEDO has decided to extend the project to conduct an additional demonstration of a microgrid, in which a part of the distribution line, including residential customers, will be isolated under the operation of the RFB system. The project is scheduled to run until December 2021. It aims to demonstrate not only the technical features that strengthen resilience, but also the commercial value of the RFB system as a power source for a microgrid in emergency situations as well as for market participation in normal times. Grid resilience is increasingly important as California grapples with more frequent Public Safety Power Shutoffs (a tool implemented statewide to reduce wildfire risk) and also reliability concerns during peak summer periods. California experienced its first rotating outages in 20 years during the summer of 2020.

Article Contributed by Japan Smart Community Alliance

For more details, please refer to URL: [https://www.nedo.go.jp/english/news/AA5en\\_100433.html](https://www.nedo.go.jp/english/news/AA5en_100433.html)



**India SMART UTILITY Week 2022**  
**01 - 05 March 2022**  
New Delhi

**ISUW 2022**  
International Conference and Exhibition on Smart Energy and Smart Mobility for Smart Cities

[www.isuw.in](http://www.isuw.in)

Organiser  
**ISGF**  
India Smart Grid Forum

1 <sup>st</sup> March 2022 Tuesday	2 <sup>nd</sup> March 2022 Wednesday	3 <sup>rd</sup> March 2022 Thursday	4 <sup>th</sup> March 2022 Friday	5 <sup>th</sup> March 2022 Saturday
Master Classes	Conference & Exhibition	Conference & Exhibition	Conference & Exhibition	Technical Tours

**ISGF INNOVATION AWARDS: 4<sup>th</sup> March 2022**

## CLIMATE CHANGE AND NATIONAL ENERGY SECURITY



The 40-country Climate Change (virtual) Summit, hosted by the US President concluded this week. It called for a collaborative vision to embrace green energy and adopt clean fuels and efficient utilization. All in all, a “together we stand” approach was echoed which is vital for collective success. The Summit reiterated its support to the four broad solutions advocated by IPCC/COP21 i.e., (a) maximizing clean energy sources; (b) lowering GHG emissions by 40% in a decade by the top 10 emitters nations; (c) achieving net-zero by 2050 for atmospheric CO<sub>2</sub> pullout; and (d) switching from fossil combustion to electricity utilization, as a cleaner and more efficient energy use (transport, cooking, heating). Even countries that rely on fossil power today, are being encouraged to switch to electric utilization, to reduce urban and other last-mile pollution. The consequences of waiting, it warned, are severe (air/water pollution, extreme weather). Once in a hundred-year weather events seem to occur more frequently.

The clean energy technology push, over the last 20 years, has led to many innovations in renewable sources (solar, wind, hydrogen). On the clean utilization front too, giant strides have been made in efficient/clean conversion processes (EV, induction stoves, fuel cells, battery storage). With such good achievements, one would conclude that what remains to be done, is to drive costs lower for wide global adoption.

While this strategy is accepted by all countries, its implementation appears not to be in unison. Developing countries have referenced such staging based on “just and fair” and “per capita” principles. To plan and execute the above, each country needs to map out its own “Clean Energy Transformation” Roadmap. Such roadmaps often bring about domestic debates around (a) societal insecurity (needs, lifestyle, affordability); (b) economic uncertainty (jobs, knowhow, dependencies) and (c) financial viability (to pay for infrastructure). The heavy reliance on electrification poses the need for additional regulatory assets (energy storage, charging stations, hydrogen infrastructure and district energy). Equally important would be the treatment of stranded fossil assets.

The Summit however, did not explore, how energy security could be accommodated. Each country’s roadmap needs to include this. Many have just fossil fuels as their principal source. The current pandemic has exposed weakness in international supply chains, with national health security, overriding many commercial arrangements. Energy security is no less a priority and is crucial to economic development and poverty alleviation. Today, key areas such as solar cells, wind turbine blades, lithium cells, and related technologies are the monopoly of a few. Till date, all dialogs have offered no assurances in either supply chain (products) or technology know-how (processes).

In my view, two aspects are essential to level the playing field, to make this work. Otherwise, we risk arguing past century emission statistics (sins and atonement). The global dialogs should focus on:

### 1. Accommodating National Energy Security

Each country needs to leverage its own abundant domestic fuels and explore technologies that can transition them into a clean energy society. Some are endowed with both natural and renewable energy resources, but many others are not. Thus, considerations for many will be, whether this transformation will (a) impede current economic progress; (b) be financially viable; and (c) be technologically secure. For example, the best options for fossil fuel intensive nations, could be coal-gasification, CCS and blue hydrogen, augmented by solar/wind/nuclear. Moving away from domestic fuel focus, to an import ideology, would not be prudent.

A question then arises, as to how we can achieve this transformation together, if individual national pathways take different “sub-streams”. The answer lies in (a) forming partnerships amongst nations that have similar fuel situations; (b) ensuring unfettered technology transfers; and (c) financial transfers to bridge investment gaps in new infrastructure build. For example, coal power nations like China, India, Poland, Germany, UK, Indonesia and USA could form a “coal technology partnership”. The oil and gas nations such as Russia, EU, Canada, GCC countries, Brazil, Nigeria, Qatar, and USA could form another. There could be other permutations as well. Expecting developing countries to pay “full commercial freight”, will stall progress. Lots of hand-holding will be required.

### 2. Leveling Industrial and Lifestyle Energy Intensity

This transformation is not just about clean energy sources and utilization, but also about using less energy both in industrial and lifestyle choices. De-emphasizing energy efficiency over cheaper clean fuel production alone (solar, wind, hydrogen), conveys a wrong message. The best transformation should result in lowering energy intensity and less-consumption in daily lives. This is technologically possible today, without compromising a higher standard of living (may cost more initially).

Very good progress has been made by the large industrials, but this is not the case with MSMEs who form the backbone of most economies. Similarly, personal/lifestyle energy use is another area where much effort is required. The per capita energy consumption disparity today is as high as 1000:1. Our humanity still relies on about 75% its energy from fossil fuels, an everyday inter-twining that makes CO2 elimination that much more difficult. Unless some reasonable level of per capita metrics is agreed upon, the developing countries are unlikely to play ball.

In closing, there is no magical solution to CO2 reduction. The IPCC goal of 1.5 deg C temperature rise limit, is still far away. It is not clear if carbon capture can deliver this or if fossil fuel intensive countries can ever achieve net-zero. But try we must. Bringing the developing world along in this clean energy transformation will not be easy. Many benevolent overtures from developed countries will be expected. Even amongst developed country populace, differing viewpoints will likely be debated. A collective problem requires a collective solution, but respecting national energy security is a much safer tact.

**Article contributed by** Ravi Seethapathy, GSEF Ambassador for Americas

## Smart Grid Events

**25 - 28 May 2021:** Eurelectric Power Summit 2021

<https://powersummit2021.eurelectric.org/>

**14 – 18 June 2021:** Asia Clean Energy Forum (ACEF)

by Asian Development Bank, Manila

<https://www.asiacleanenergyforum.org/home-2021/>

**21 – 25 August 2021:** CIGRE, Paris

<https://www.cigre-exhibition.com/>

**06 -08 October 2021:** EM Power Europe

<https://www.em-power.eu/home>

**10 - 12 October 2021:** Turkey Energy Summit

<http://turkeyenergysummit.com/en/>

**30 Nov – 02 Dec 2021:** Enlit Europe, Milan

(formerly known as European Utility Week)

<https://www.enlit-europe.com/>

**26 - 28 January 2022:** DISTRIBUTECH International

<https://www.distributech.com/event-information>

**10-12<sup>th</sup> June 2021:** Solarex Istanbul

<https://solarexistanbul.com/en/about-the-fair/>

**17 – 18 June 2021:** International Istanbul Smart Grids and Cities Congress and Expo (ICSG), Istanbul

<https://icsgistanbul.com/>

**20 – 23 September 2021:** CIRED, Geneva

<https://www.cired2021.org/>

**06 – 07 October 2021:** Innovation for Cool Earth Forum (ICEF), Tokyo

<https://www.icef-forum.org/>

**25 – 29 October 2021:** Singapore International Energy Week

<https://www.siew.gov.sg/>

**03 – 05 November 2021:** 14th International Energy Congress and Expo

<https://www.worldenergy-congress.com/>

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# GSEF at a glance

## Charter Members



Think Smart Grids



India Smart Grid Forum



Korea Smart Grid Association (KSGA)



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 (TNB) Malaysia



European Distribution System Operators (E.DSO)



Botswana Power Corporation

## Associate Members



Green Business Certification Inc.



Florence School of Regulation (FSR)



Energy Blockchain Consortium



Caribbean Electric Utility Services Corporation

## 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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