

February 2019

Malaysia Revised its RE Target and Called for Open Tender for 500MW Solar Power Projects

The Malaysian Government has recently announced several major policy changes that could change the country's Electricity Supply Industry landscape drastically. The Ministry concerned has initiated the Malaysia Electricity Supply Industry (MESI) Reform 2.0 that will focus on 3 objectives: To increase industry efficiency; To future-proof the industry structure, regulations and key processes; To empower consumers.

On the Renewable Energy (RE) front the significant changes are: Increased focus on green technology development and renewable energy that has the potential to grow rapidly and creating more job opportunities; Renewable energy (RE) target will be increased from the current 5% to 20% by 2025; Reduce dependency on coal power plants which is one of the power generation methods that has a serious impact on CO₂ emissions; The country's investment policy will also be re-evaluated to give priority to high technology industries and to use energy from renewable resources and; Efforts to build nuclear power plants will be stopped.

In order to achieve the 20% RE target, about 3,991MW of new energy capacity will be required for addition to the grid. Other than large scale solar (LSS) projects, the government also plans to increase electricity generation through the various other feed-in-tariff sources, namely biogas, biomass, geothermal, mini-hydro as well as solar and net-energy-metering mechanisms (that is energy consumer to sell surplus solar energy to the grid). Solar currently accounts for about 67% of Malaysia's RE capacity while biogas and biomass account for the second largest portion at 28%

On 17 February 2019, the Energy Commission has requested proposals for the development of its third round of large-scale solar projects. Capacity to be tendered will be between 1MW and 100MW, with a target aggregate capacity of 500MW in Peninsular Malaysia. Commissioning is expected in 2021. The total value of this bid is estimated to be around RM2 billion. The competitive bidding process will be opened for six months until August 2019. The government is expected to finalise the tenders by end of year 2019. The first two cycles of projects have a total installed capacity of 958MW. To date, five projects with capacities of 131MW have reached their commercial operation status, with the remaining having a commission operation date in 2019-2020. The lowest bid for the next round of projects is expected to drop further compared to previous cycles, in line with lower costs involved.

Over the past 10 years, solar panel prices have dropped by about 60%, or an average 6% per year. However, project cost is also determined by site location and proximity to interconnection points as this will impact infra cost and power loss. 2 Bids in September 2016, saw an average rate of 45.43sen/kwh and lowest bid of 40sen/kwh for the 6MW-29MW range package. For the largest package of 30MW-50MW, the lowest bid was 39sen/kwh, with the mean bid at 43.77sen/kwh.

As for Cycle 2, in August 2017, the largest package scheme was smaller at the 10MW-30MW range and the lowest bid shrank by 15% to 33.98sen/kwh, while the mean bid dropped 14% to 39.05sen/kwh. It is expected that in this cycle 3, the lowest bid to drop to below 30sen/kWh levels, while the mean bid could drop to between 33sen and 34sen/kWh levels.

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Global Stories on Smart Grid

Hawaii PUC proposes performance based regulation framework

Staff of the Hawaii Public Utilities Commission (PUC) proposed performance-based regulations, the first step in developing a new regulatory framework that aims to lower electricity costs and better align utility business interests with the state's clean energy goals. Under the proposal, utility revenues would include a target level, additional revenues for meeting performance targets and an earnings sharing mechanism. The proposal seeks to create an earnings backstop to ensure the utility's financial integrity, which could allow the framework to include more utility revenues tied to performance.

Read More: <https://bit.ly/2X4kh0G>

New Integrated Resource Plan for Puerto Rico

Puerto Rico Electric Power Authority's draft version of the Integrated Resource Plan (IRP), 2019 lays out the future development and continued recovery of Puerto Rico's electric grid over the next 20 years and includes more than 2220 MW of solar energy, 1080 MW of energy storage and three additional LNG import facilities. The implementation of solar and storage facilities will allow PREPA and its customers to move away from high cost imported fossil fuels, reduce toxic emissions, and reduce costs for families and businesses.

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

Residential solar and storage to participate in New England Wholesale Energy Capacity Market

ISO New England approved 145 MW of solar systems to provide capacity to the local grid, including those with battery storage facility and for the first time solar energy has been a significant participant in ISO New England Inc.'s annual forward capacity auction. Sunrun, the largest U.S. residential-solar company, which won contracts to provide 20 megawatts of capacity to the regional power grid, plans to store solar power in thousands of battery systems across the region to supply to the grid as per requirement.

Read More: <https://bit.ly/2SPN9nn>

Flexiciency – A Market Place for Energy Services in Europe

Flexiciency has built a platform to connect developers and users of energy services to accelerate their development

New services such as flexibility are at the core of the delivery of a distributed, variable renewables, prosumer-based energy system. With the changes occurring primarily at the distribution level, the distribution system operator (DSO) is set to become the main provider and such services to be a key distinctor and the basis for their competition. The question, however, is how these might be best delivered, given the large numbers of players and datasets involved and the range of services that can be envisaged. In order to investigate this issue, a major initiative named Flexiciency was launched in 2015 in Europe under the leadership of Enel Distribuzione drawing together DSOs, research centres, IT solution providers and other parties across 10 European Union (EU) states. The project, which was supported from the EU's Horizon 2020 programme, included five national and two cross-border demonstrations. Now four years on, it has concluded.

Read more: <https://bit.ly/2T1xoLd>

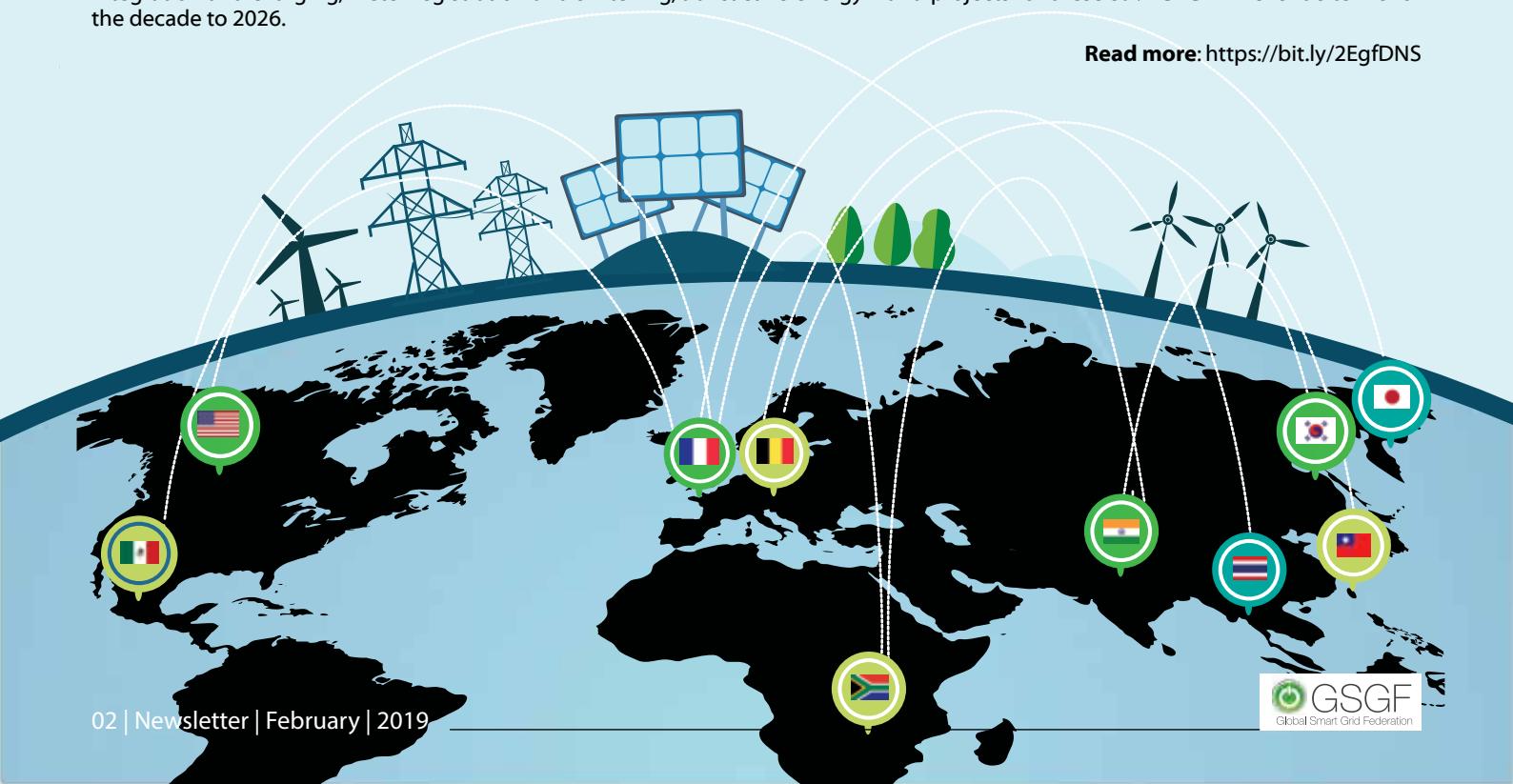
Energy Web Foundation is gearing up for the release of its blockchain platform the Energy Web Chain

A clear trend in the energy sector is the growing interest from utilities in testing blockchain which is essential for the future uptake of the technology

While blockchain still has to be addressed from a regulatory perspective, and also is ensured to meet the increasingly stringent data protection regulations that are emerging, such as the General Data Protection Regulation in Europe and forthcoming Consumer Privacy Act in California, there is little doubt of the market potential. For example, a recent report from Research and Markets projects blockchain in the energy market globally to grow at a CAGR over 65% during the period to 2023.

A Q2 2018 report from Navigant Research considers five use cases – wholesale energy trading, certificates of origin, electric vehicle integration and charging, meter registration and switching, transactive energy – and projects for these 59% CAGR in revenue terms for the decade to 2026.

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



Global Stories on Smart Grid

Harnessing Weather Forecasting for building Energy Efficiency

Artificial intelligence-based weather forecasting demonstrates improved building energy management control

Utilities are an obvious beneficiary of such advances and some use cases being demonstrated in day to day operations include outage prediction and field worker mobilisation. With weather dependent renewables a growing contributor to the energy mix, other key use cases are renewables dispatch and load management. One area that has received little attention so far, however, is building energy management and this has now come under investigation by Cornell University researchers with early results demonstrating significant energy efficiency potential. Machine learning based weather forecasting relies on data on forecasts and actual weather conditions, the longer the datasets the better and with new data continually being added in the goal of improving the forecasting.

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

Puerto Rico Energy Plan Calls for More Solar Battery Storage than Rest of U.S. Combined

The plan outlined in the draft has dramatic highs and lows for clean energy and environmental advocates, containing both plans for by far the largest buildup of solar and battery storage in the U.S., as well as plans to build three new liquid natural gas (LNG) import terminals

Puerto Rico's publicly-owned utility (PREPA) released a draft version of the 2019 integrated resource plan (IRP), a document that lays out the future development and continued recovery of Puerto Rico's electric grid over the next 20 years. Puerto Rico's people and electrical grid were devastated by Hurricanes Irma and Maria in September 2017. In addition to the loss of life and the personal tragedies that happened all across Puerto Rico, the electrical grid was completely destroyed and full service was not restored to the island until nearly one year later. Even prior to the hurricane, PREPA was reliant on expensive and dirty bunker oil and coal-fuelled power stations to generate electricity, creating significant air and land pollution, and some of the highest electricity costs in the country. The updated energy plan includes over 2220 MW of solar energy and 1080 MW of energy storage. This would be an unprecedented investment in battery storage, the entire U.S. grid currently only includes 1031 MW of storage. Puerto Rico's plan also includes the phase out of the use of coal and bunker oil to generate electricity on the island, great news for public health and clean air.

Read more: <https://bit.ly/2Eck1xC>

ABB to install Microgrid at IIT-Roorkee campus

This is part of the larger Research and Development collaboration outlined in a MoU between ABB and IITR signed in July 2018

ABB, Switzerland-headquartered technology and Automation Company, is planning to install microgrid with battery energy storage at the campus of Indian Institute of Technology, Roorkee (IITR) as part of the smart campus development project. This is part of the larger Research and Development (R&D) collaboration outlined in a Memorandum of Understanding (MoU) between ABB and IITR signed in July 2018. The agreement for technology collaboration also includes the creation of a Smart Grid Resource Centre, joint R&D facilities and support for PhD students. The ABB microgrid is part of the extended R&D collaboration between ABB and IITR to create platforms for research on various aspects of smart city technology deployment.

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

Portland General Electric to be build solar-wind-battery storage hybrid

Oregon utility Portland General Electric (PGE) has partnered with NextEra Energy on a large new energy facility that combines 300 MW of wind, 50 MW of solar, and 30 MW of battery storage – the first in the country to combine these three resources. The project, known as the Wheatridge Renewable Energy Facility, will also be one of the largest solar installations in the state and the battery facility will be one of the largest in the country. With the new facility as well as the pre-existing wind farms, the utility expects to produce over 1 GW of electricity from wind, enough to power 340,000 homes. And with this solar/wind/battery project, PGE expects to meet about 50% of customer demand with renewables.

Read More: <https://bit.ly/2H12sDz>

Hong Kong University of Science and Technology launches "Sustainable Smart Campus as a Living Lab"

The Hong Kong University of Science and Technology (HKUST) launched the "Sustainable Smart Campus as a Living Lab" (SSC). The living lab is an initiative that aims to transform the campus into a testing ground for learning, experimenting, and advancing smart and innovative ideas to address real-life challenges. With a pledge of HK\$50 million over the next three years, the University aims to identify sustainable, smart and cross-disciplinary home-grown HKUST projects and implement them on campus. Projects are collaboratively developed by faculty, staff, students and alumni.

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



Roundtable on Regional Grids in Asia: ASEAN-SAARC/BIMSTEC- GCC Grids at India Smart Utility Week 2019

Smart Utilities for Smart Cities

12 -16 March 2019, New Delhi, India

India Smart Grid Forum (ISGF) has been conducting India Smart Grid Week (ISGW) since 2015 which is today considered to be one of the top 5 events on Smart Grids and Smart Cities in the world. With launching of 100 smart city projects by the Government of India, water and city gas distribution utilities will also need to equip themselves with latest technologies for improved operational efficiency and successful integration into the smart city systems. **ISGF organized India Smart Utility Week (ISUW) 2019, an International Conference and Exhibition focused on Smart Energy, Gas and Water for Smarter Cities from 12 – 16 March 2019 which had plenaries, interactive workshops, keynotes, and technical sessions.**

A roundtable session was conducted on the topic "**Interconnection of Regional Grids in Asia: ASEAN-SAARC/BIMSTEC-GCC Grids**" on 15th March 2019 in New Delhi. This roundtable was held on the side-lines of India Smart Utility Week (www.isuw.in), the annual event organized by India smart Grid Forum (ISGF) which is an international conference and exhibition that witnessed 1800+ participants from 41 countries.

The roundtable was attended by key stakeholders from GCC, SAARC/BIMSTEC and ASEAN regions (list of participants given at the Appendix to this note). Mr Reji Kumar Pillai, President, ISGF, welcomed the participants and briefly introduced the objectives of the roundtable and the benefits of interconnection of the 3 major regional grids in Asia. A brief presentation on the concept of a Pan Asian Grid Interconnectivity Project (PAGIP) was made by Mr SK Ray, Principal Advisor, ISGF and a presentation on technical feasibility and technology options for interconnecting the regional grids was made by Mr N Venu, Senior Group Vice President, South Asia, Middle East & Africa, Power Grids Division, ABB. A technical paper on the subject prepared by ISGF was circulated to all the participants. The participants expressed interest on the theme presentation and the technical presentation and discussed the various aspects of the Pan Asian Grid Interconnectivity. The technological, economic, environmental and social benefits were discussed in details. The feasibility of various options and points of interconnection were looked into. The participants also discussed the various challenges and opportunities that the Pan Asian Grid Interconnectivity shall lead to.

For more updates on India Smart Utility Week 2019, kindly visit <http://isuw.in/>.

Events Supported by GSGF



ICSG Istanbul 2019
April 25-26, 2019, Turkey



Partnered Events: Supported by GSGF
For participation in the above events
please write to info@globalsmartgridfederation.org

GSGF Updates

Post-Clean Energy Package: new challenges and opportunities await European Distribution System Operators

Update by Christian BUCHEL, Chairman, E.DSO 4 SmartGrids

The 'Clean Energy for all Europeans' legislative package, for which institutional negotiations came to an end, will enter into force in coming months. This Package is going to shape the electricity landscape for the future and it is perfectly clear that DSOs, as neutral market facilitators, are going to play a key role in the energy transition. E.DSO continues actively to support its members' positions and will follow its implementation. However, new topics and challenges will focus our attention in all our areas of expertise: policy, projects and technology..

Digitalisation and Cybersecurity - It is an understatement that the grid is getting more and more digitalised: smart metering platforms are rolled out and smart grid applications are implemented. E.DSO takes into account the increase of cyber threats among the electricity sector. Electricity networks need to be more secure and resilient as they are vital infrastructures for society. It is in this perspective that E.DSO hosted a joint event with ENCS to raise awareness and discuss on smart grid and cybersecurity.

E-Mobility – DSOs have a centric role in electric mobility as vehicles are directly connected to the distribution network. EV batteries also make it possible to integrate volatile energy produced from renewable sources. However, Mobility Transition cannot be achieved without resilient and smart networks. In May, E.DSO published its key messages, recalling the need to modernise networks and to send incentive price signals to the market and customers in order to ensure both the security of supply and the development of e-Mobility.

Smart Cities – EU funds pay particular attention to the development of Smart Cities in a view to reinvent the city of tomorrow. Many of E.DSO members are involved in several innovative projects. This continues to demonstrate the major role of distribution network in shaping cities and meeting the growing expectations of European citizens to live in smarter places.

Technical challenges of the grid – In the future, both DSOs and TSOs will face numerous technical challenges. Active system management is one of them to integrate all new distributed resources and new service providers. Cooperation with transmission system operators is necessary as we often share the same interests on the common responsibility for the security of supply. This cooperation is also expressed through the drafting of network codes. With this mind, E.DSO will continue to collaborate with ENTSO-E when updating their Memorandum of Understanding.

E.DSO's agenda is going to be particularly intense: The Clean Energy Package formally recognised the major role of DSOs but also all these new opportunities. The diversity of topics covered shows that DSOs no longer have to prove their contribution to the Energy Transition as their field of expertise is constantly growing with new skills and so does their capacity to innovate. Innovation and the use of new technologies are keys to build new models that bring added value to the society.

The legal framework set up by the Clean Energy Package is the cornerstone of the energy system of tomorrow. Nevertheless, in the future, overregulation could cripple the new role of DSOs and would not be beneficial to achieve the energy transition: a strong sandbox approach have also to be kept.

Building on our member's successful experiences, E.DSO is committed to remain the trusted voice of European DSOs.



GSGF at a glance

Charter Members



Think Smart Grids



India Smart Grid
Forum



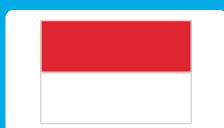
Japan Smart
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Korea Smart
Grid Association



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

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