GSGF
Global Smart Grid Federation

NEWSLETTER

January 2020

Growing number of teaching and research chairs dedicated to Smart Grids in France

A "Smart city and Data governance" chair in Dijon

Over the past three years several industry chairs dedicated to Smart Grids have been created. Serving as gateways between business and academia, teaching and research chairs allow universities and schools to address new themes, to develop links with the R&D divisions of large corporation, and finance research projects thanks to effective financing over periods of 3 years or more.

On November 7th, Grenoble Ecole de Management launched its Academic Chair 'Energy for Society' in partnership with Air Liquide, Banque Populaire Auvergne-Rhône-Alpes, and Engie. The purpose of this chair is "to develop pioneering services and strategies in the field of Energy, based on new aspirations in terms of consumptions and uses". The Energy for Society chair gathers six permanent researchers, specialists in strategic innovation management and new technologies applied to Energy, as well as a PhD student and a postdoctoral researcher entirely devoted to the chair.

Expectations notably include the "understanding of new cooperation models to create innovative energy services" and also the "impacts of new uses on emerging economic models in the energy sector". What strategies will energy companies have to deploy to respond to this consumers' emerging tendency to "pay-as-they-go" rather than acquiring energy production or consumption equipment? What will be the resulting consequences and potentialities for services and equipment suppliers?

For its part, the chair Smart city and Data governance aims to build a synergy in research and training to best serve the Smart city Community (Citizen, companies, elected representatives, public services…).

This chair draws on the Smart metropolis project OnDijon, which set the stage for a connected piloting station shared by the 24 towns of the area. The station monitors urban equipment (traffic lights, public lighting, cameras…) in order to facilitate public space's management across the whole territory. The "Smart city and Data governance" chair is the product of a partnership between Université de Bourgogne, Dijon Métropole, Bouygues Energies & Services, Citelum, Suez, Keolis Dijon Mobilités, EDF et Enedis.

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Global Stories on Smart Grid

TERI, India develops blockchain-enabled prototype for solar power trading

The Energy and Resources Institute (TERI) has developed a blockchain-powered platform to facilitate peer-to-peer transactions of solar energy among consumers in the same neighbourhood. Developed in partnership with Noida-based blockchain and IoT start-up Sofocle Technologies Limited, the platform uses blockchain technology to ensure security, transparency and efficiency in the transactions that will take place among consumers.

The platform—developed as a prototype for enabling a peer-to-peer transactional control—allows electricity consumers such as residential premises, malls, schools, or even small and medium enterprises to trade local power generation from rooftop solar plants among themselves.

Read more : http://www.indiasmartgrid.org/viewnews.php?id=4296

Power Ledger partners with Malaysia government for P2P trading trial

Malaysia's first pilot test of a peer-to-peer energy trading platform is aimed at stimulating the local market for solar rooftop panels. Power Ledger's tech will enable the sale of surplus energy generated by solar photovoltaic panels. The experiment in Malaysia is an important milestone as the country plans to implement new regulations in the energy market. The country aims to achieve a renewable energy target of 20% by 2025 by leveraging rooftop solar panels.

Read more : http://www.indiasmartgrid.org/viewnews.php?id=4351

Largest Electric School Bus Program in United States Launching in Virginia

Dominion Energy has partnered with local Virginia school districts to begin replacing diesel buses with 100% electric school buses in phases. No phase can come too soon, so CleanTechnica wishes all school districts a rapid rollout after the initial 50 launch the program. Children are more sensitive to air pollution than adults, and it hurts them and their studies. Thomas Built Buses Inc (TBB) has been selected as the provider of all 50 of the initial electric school buses. These buses are supposed to go into operation this year. After 2020, Dominion Energy will add 200 electric school buses per year for the next 5 years, with the goal being to reach a 50% electric bus fleet, 1,000 electric school buses by 2025. The aim is to reach 100% electric school buses by 2030.

Read More: https://bit.ly/3a52c2r

First Liquid Air Energy Storage System Planned for USA

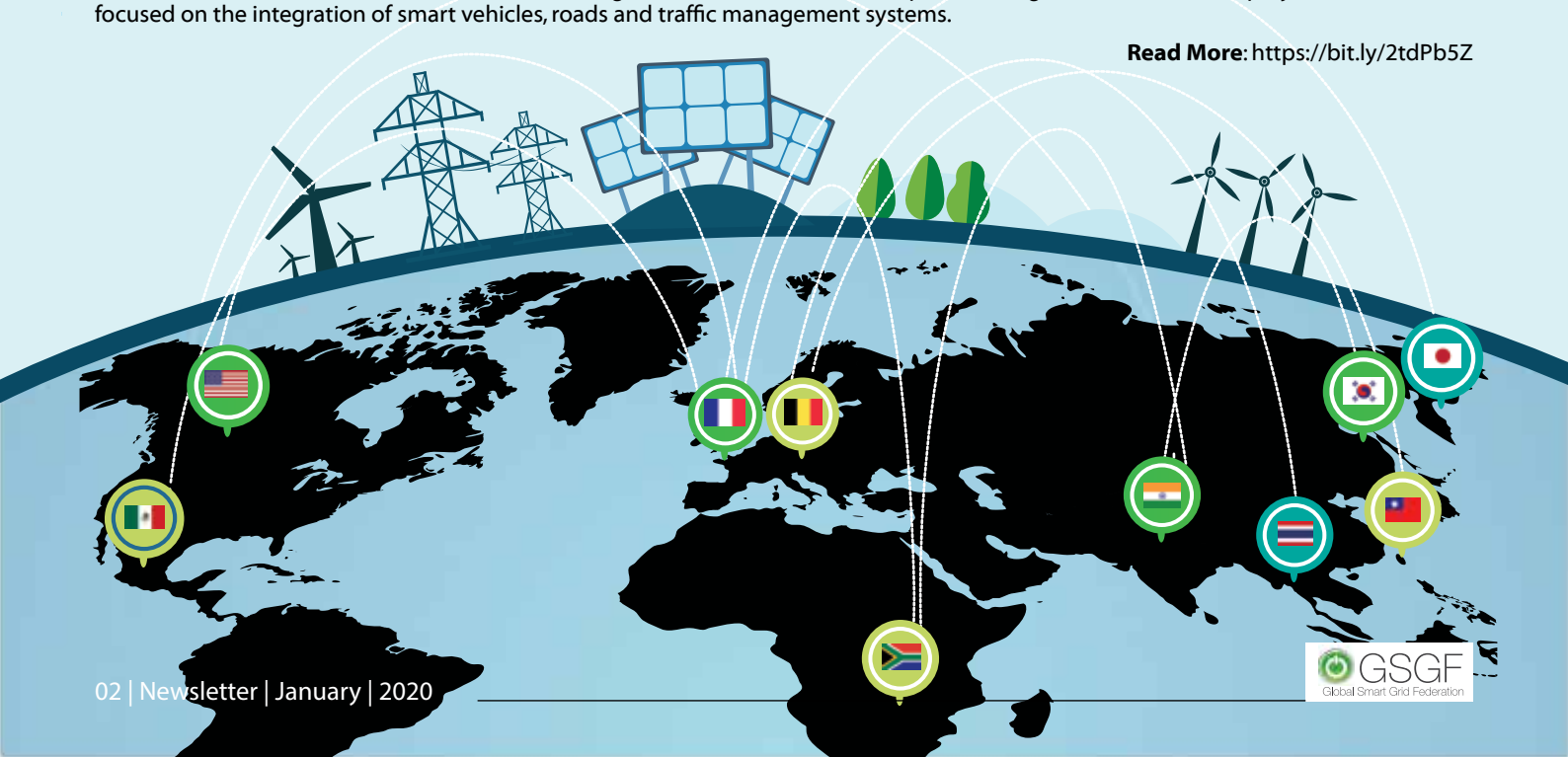
Located in northern Vermont, the plant will have a total capacity of 50MW and will provide an excess storage of eight hours (400MWh). The project is the first of many utility-scale, liquid air energy storage facilities Highview Power plans to develop across the US to help increase the deployment of renewable energies. The facility will help solve the energy transmission problems surrounding the state's Sheffield-Highgate Export Interface and allow efficient transmission of excess power from renewable sources, such as solar and wind power. In addition to providing clean, reliable and cost-effective energy storage, the facility will also provide transmission system services to the area to help integrate renewable energy, stabilize the regional electrical grid, and ensure future energy security during disruptions.

Read more: https://bit.ly/2R7UfAW

Shanghai 5G Demonstrator Integrates Smart Roads, Autonomous Buses and City Systems

Human Horizons (Chinese automotive technology company) is using 5G, V2X communication, big data, cloud computing, LiDAR technology and artificial intelligence (AI) to realise an ecosystem of autonomous driving in Zhangjiang Hi-Tech Park in Shanghai. Human Horizons is demonstrating the first 5G autonomous driving traffic management system in the world to integrate the vehicle-road-city ecosystem. The Vehicle-Road-City Integrated Smart City development, in the AI hub of the Zhangjiang Hi-Tech Park in Shanghai, aims to lay the groundwork for the operation of autonomous vehicles in future smart cities. The traffic management monitoring centre receives and analyses data from the road and the three L3 dual-redundant autonomous shuttles travelling within the park. It uses cloud computing for remote, on-demand dispatching of vehicles. The 3D + 3 Sensing holographic road sensing network uses high-precision cameras, radar and LiDAR to monitor vehicles and evaluate driving conditions. The initiative is part of a larger Human Horizons project called 3 Smart focused on the integration of smart vehicles, roads and traffic management systems.

Read More: https://bit.ly/2tdPb5Z



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Read more: https://bit.ly/2R7UfAW

UK's New Registers Open Access to over 1MW of DER Capacity

The UK's electricity network companies have worked together through the Open Networks Project to launch System Wide Resource Registers, which will give the entire industry more information about connected generation over 1MW. The initiative is hoped to make a significant contribution to the country's 2050 net zero target, whilst making it easier for prosumer customers and flexibility service providers to connect to their networks. They will benefit from greater transparency and access to information.

Read More: https://bit.ly/371zbSK

E.ON Pilots 'Energy of the Future' Concept in Steinburg

German electric utility company E.ON has announced that it will be testing its 'Energy of the Future' concept in the district of Steinburg in Germany this 2020. E.ON is partnering with subsidiary Schleswig-Holstein Netz, utility Stadtwerke Kiel AG and transmission system operator TenneT as part of research project ENSURE – Neue EnergieNetzStruktURen für die Energiewende (new energy network structures for the energy transition). The aim of the project is to clarify how centralised and distributed energy supply elements must be designed as part of an overall system leveraging information and communication technologies.

Read More: https://bit.ly/3998rRF

ADFD formalizes 33 million USD in RE loans for Togo, Niger and Liberia

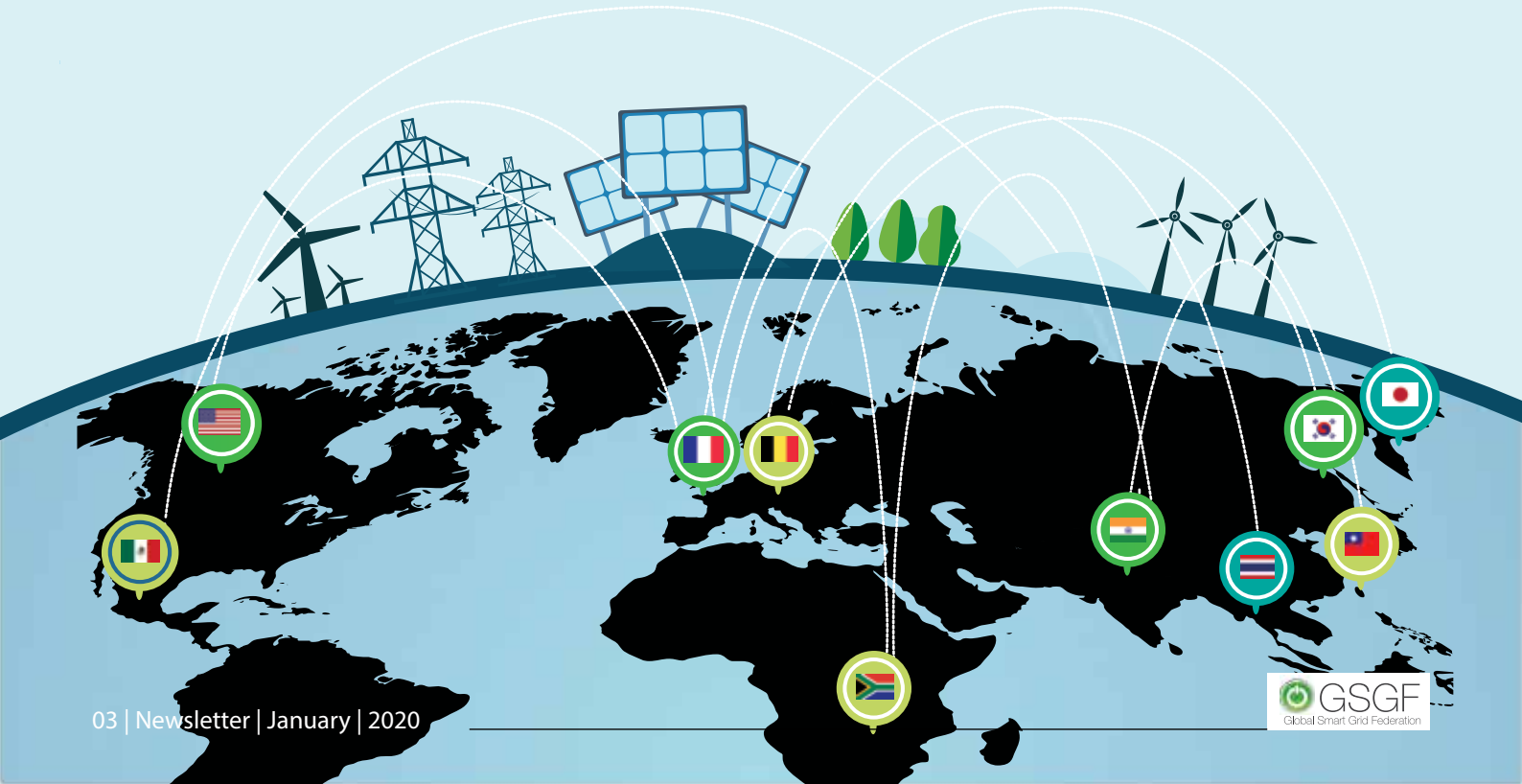
Abu Dhabi Fund for Development (ADFD), formalized three loan agreements valued at 33 million USD (AED121 million) with the Governments of Togo, Niger and Liberia. The capital is to be channelled into three renewable energy projects in the West African nations within the framework of the IRENA/ADFD project facility. Amount of 10 million USD (AED37 million) has been allocated for the 2.1 MW solar rural electrification project that will benefit 100 villages in Niger, an allocation of 8 million USD (AED29 million) has been made to finance the 2.1 MW River Gee mini-hydro project in Liberia, while 15 million USD (AED55 million) has been earmarked for the 30 MW Blitta solar PV project in Togo. These renewable energy ventures will benefit more than 750,000 households along with facilitating long-term economic growth, creation of job opportunities, enhancing climate resilience etc.

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

Small-scale solar installations in Australia doubled in 2019

Australia saw its installations of sub-100kW PV double to a record 2.13GW in 2019 as compared to 2017. The sub-100kW solar market also saw three years of over 33% annual growth, in contrast with the 2013-2016 period of market contraction. The growth was attributed to a combination of high electricity prices, low solar equipment costs, and increased awareness of solar energy's value proposition across the value chain e.g. many residential customers are installing systems as large as permitted by their network operator, with an eye to future battery installation or factoring in a future Electric Vehicle purchase

Read More: https://bit.ly/2RUdH4u



Member Updates

Brexit is Causing Implications for Ireland's Energy Sector
Article by: Mr. Marc Boillot

The Single Electronic Market (SEM), was previously the wholesale electricity market for Northern Ireland and the Republic of Ireland, governing the all-Ireland electricity sector. The SEM was established in 2007 by unifying EirGrid (the Republic of Ireland's transmission operator) with the System Operator Northern Ireland (SONI). This is very much in keeping with the EU principles of free trade across borders.

Brexit potentially poses a number of risks to Ireland's energy sector, including security of supply, future investment into interconnectors, maintenance of emergency oil stocks, regional integration within the Internal Energy Market and of course most obviously, the future of the Single Electricity Market on the island of Ireland.

These challenges are compounded by the controversy around the issue of a hard vs soft border between North and South of Ireland. It is clear that the market is facing a degree of uncertainty, since final UK-EU Brexit arrangements are yet to be agreed.

Confusingly, although the ISEM now manages the market, the decision-making committee for it is called the SEM Committee. It is comprised of EirGrid and SONI. Hence the committee is jointly comprised of northern and southern regulators. Making the things extremely complicated.

Smart Grid Events

March 18 - 20 2020: Lebanon Sustainability Week 2020, Lebanon, https://www.rawmec-lb.com/

March 31 – April 03 2020: The International Microgrid Event, Australia, https://www.iqpc.com/events-international-microgrid

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

April 20 – 23 2020: IEEE PES T&D CONFERENCE AND EXPOSITION, USA, https://www.ieeet-d.org/IEEE20/public/enter.aspx

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

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

June 04 – 05 2020: CIRED Berlin 2020 Workshop, Berlin, https://www.cired2020berlin.org/

August 19 – 20 2020: Australian Utility Week, Melbourne, Australia, https://www.powerandutilitiesaustralia.com/

August 24 – 28 2020: CIGRE Session 2020, Paris, https://www.cigre-exhibition.com/

Disclaimer: This information is from the public domain. GSGF does not hold any responsibility for the information provided in this section.

Events Supported by GSGF

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

UNLEASHING A SOLAR ROOFTOP REVOLUTION IN INDIA

Reji Kumar Pillai
President, ISGF and Chairman, GSGF

India is pursuing an ambitious program for development of 175,000 MW of renewable energy by 2022. This comprises of 40,000 MW from rooftop solar panels installed on 20 million buildings across the country; and year-wise targets were allotted to all the states. While the about 50% of the overall target of 175,000 MW is achieved by December 2019, the performance of the rooftop segment is less than 10%. All the states and union territories in India had issued net-metering policies between 2013 and 2016. Theoretically every electricity consumer can be a "prosumer" – producer and consumer of electricity by installing solar panels at their premises. Initially, electricity distribution companies (DISCOMs) were not enthusiastic about promoting solar rooftops in their service areas owing to the fear of revenue losses. That is fast changing. Now, with the prices of the kilo-watt (kW) scale solar photo-voltaic (PV) systems in the range of INR 50,000/kW (or US$ 700/kW) including installation charges, and many DISCOMs actively promoting solar rooftops, the time has come to unleash a solar rooftop revolution in the country.

Cost of Solar PV Systems

Cost of installing 1kW and 5 kW systems are presented in the Table-1 below:

S. No	Item/Components	Cost (in INR)			Remarks
		Cost/ Watt	1 kW System	5 kW System	
1	Solar PV Panels	₹20	₹20,000	₹1,00,000	
2	Inverter	₹12	₹12,000	₹50,000	1kW system with a single-phase inverter and the 5kW system with a 3-phase inverter; cost of inverters reduces as size increases
3	Support Structures	₹4	₹4,000	₹20,000	
4	Balance of System	₹6	₹6,000	₹30,000	
5	Installation and Commissioning Charges	₹10	₹10,000	₹40,000	For bigger systems installation cost reduces
	Total cost	₹52	₹52,000	₹2,40,000	

To read the full report, visit the following link: http://www.indiasmartgrid.org/viewnews.php?id=4406

Government's Role in Managing Energy Risk

By
Ravi Seethapathy P.Eng., MBA, FCAE
"Ambassador for the Americas", Global Smart Grid Federation, USA
Executive Chairman, Biosirus Inc., Canada

In a recent ("Energy Central") article by Jake Brooks, Executive Director, Association of Power Producers of Ontario, Canada, he states, "*The art of government is always about balancing competing objectives. One of the more rewarding balancing acts in the near future will be deciding whether and how to manage energy risk. Recent developments ranging from technology change to public expectations are introducing new risks into the energy market. Because higher risk translates to higher costs, the question inevitably arises – should government play a role in reducing the risk of new energy investments?" and he continues "While experience has demonstrated that government is generally not well-positioned to make specific investment choices, it must inevitably make choices that determine investment conditions"*. I agree with Jake.

Energy security (economy, investments, imports) is often pitted against public wishes (climate change, use, lifestyle, affordability). However, a third factor (prosumers, technology, DERs, EV, IoT) is the one to watch, as it rapidly influences this space. Notwithstanding free-market policies, government often get mired in managing energy, for fear of political backlash.

In developed countries, we have well-established market-facing policies, good regulatory oversight and private sector financial risk models. Contract law is applied for dispensation (fallback for investment risk). *However, in real-terms, the residual financial consequences are borne by the tax/rate payers*. Examples include "see-saw" coal power and oil-pipeline policies in North America and political backlash for rising renewable energy prices in EU.

In developing countries, the scenario is very different. Not only are policy/regulatory/legal framework less established, but affordability and economic growth, often become lightning rods for "knee-jerk" policy interventions. *The right of an elected body to overturn a legislation (using backdating instruments) is often employed, to fix past "wrongdoings". No consequence nor contract law is applied*. In total, about 100 GW of stranded GT&D assets lie in legal limbo, waiting to be financially settled.

In most global jurisdictions, high capital investment dictates energy exchange markets to be "very thin" (majority being bilateral long-term fixed price contracts, guaranteed or managed by government agencies). True market power is not present and consumers do not get to choose their commodity suppliers. It is here that the previously outlined third factor creates new risks for traditional energy markets. The International Energy Agency recently noted, "*whichever way you look, we are storing up risks for the future*". They point to reductions in capital spending on conventional power facilities combined with under-investment in clean energy technologies.

Notwithstanding the need for free-market systems, the rule of law and other established regulations, the energy risk is both big and political in all countries, for governments to simply stay away. *The problem however, is that the rate-payer and/or the tax-payer pays for such policy course-corrections, while businesses get their dispensation under contract law. So the question is, given policy lag-effect and government's sub-par track record, what would be an acceptable framework (acknowledging error-bands), that will still drive a positive investment climate.*

These views are entirely mine and are outlined below, in simple high-level policy principles:

1. *Broad policy directions should not be halted or reversed in a shorter time frame than the number of years it has been in force* (example: knee-jerk shifts on climate change, GHG targets, carbon tax).
2. *Legislate, but avoid using backdated instruments to fix things* (example: reducing RE tariffs; resetting RE incentives).
3. *Societal aspirations for change must be tackled with stated fallback policies, in case key variables change* (example: IoT, blockchain, and grid-edge prosumer enablement).
4. *Prescribe requirements, but do not pick technologies* (example: selecting battery chemistry; specifying EVs as opposed to "zero" tailpipe emissions).
5. *Settle residual investment risks contractually, upon course corrections* (example: stranded coal power and RE generation).
6. *All financial dispensation should first be "absorbed" within the government budgets for five years (i.e. reduce other expenditures), before being passed on to the tax and rate payers as cost increases*. (example: the government must shoulder their fair share of pain)

Simply put, "we do not know, what we do not know", but there is a need for an established risk framework, if private sector investment in energy is sought to be sustained. This sector is too capital intensive, for any government to lose investor confidence.

GSGF at a glance

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India Smart Grid Forum

Japan Smart Community Alliance

Korea Smart Grid Association

Smart Grid Mexico

Prakarsa Jaringan Cerdas Indonesia (PJCI)

GridWise Alliance

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Electricity Supply Commission of South Africa (ESKOM)

EDM Mozambique

Tenaga Nasional Berhad Malaysia

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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.

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