

## Carilec Successfully Conducts its First Virtual Conference “Renewable Energy and Smart Grid Conference 2021”



CARILEC successfully conducted its “Renewable Energy (RE) and Smart Grid Conference and Tradeshow” virtually on the theme: “Remodelling the Future: Stronger, Greener, Smarter” on September 29th & 30th, 2021. The RE and Smart Grid Conference and Trade Show offered the latest insights, innovative technology solutions and exchange room to platform for exchange of best-practices and experiences regarding the sustainable integration of RE and the related development of Smart Grids in the Caribbean countries.

The Global Smart Energy Federation (GSEF) endorsed the event as a Supporting Sponsor and was invited to conduct a panel on the topic, “Power System Flexibility Solutions: How to Adapt International Best-Practices in the Caribbean Context” on September 30th, 2021. Mr. Reji Kumar Pillai, Chairman, GSEF; Mr. Mark McGranaghan, Vice President and EPRI Fellow, Electric Power Research Institute, Mr. Ravi Seethapathy, Ambassador-Americas; and Mr Juan Marco, Principal, European Distribution System Operators (E.DSO) represented GSEF on the panel.

Conference delegates included engineering personnel, RE experts, sustainable energy experts, energy-funding organisations, technical specialists, and CEOs of regional and international energy and electricity affiliated organisations.

The future of energy transition and RE expansion in the Caribbean was discussed by various experts and sector stakeholders. Topics included the current planning process for RE expansion and more grid resilience in Caribbean countries, as well as technical and regulatory measures related to grid flexibility, microgrids, RE integration and generation forecasting.

Participants and organizers concluded that RE technologies, such as solar and wind energy, are already cost-competitive in the Caribbean in most of the cases and have a lower Levelized Cost of Electricity (LCOE) than fossil fuel-based generation technologies. However, the increasing share of intermittent RE generation in Caribbean power systems creates the need for additional measures for grid flexibility to ensure the continued system stability. Such measures and their related costs should be considered in the further planning process of energy transition and embedded in respective regulatory frameworks.

The CARILEC 2021 RE and Smart Grid Conference and Tradeshow is a staple event on CARILEC’s roster of annual events, having recorded an impressive 150 attendees across the Caribbean region and beyond. Learn more about CARILEC’s upcoming events and initiatives by visiting their website at [www.carilec.org](http://www.carilec.org).

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# Global Stories on Smart Grid

## Rollout of Electric Vehicles (EVs) in the UK

Office of Gas and Electricity Markets (Ofgem) UK set out the plan for the rollout of electric vehicles (EVs) in Britain which ensure the infrastructure and technology is in place for the rapidly growing number of EVs on the road, with an estimated 14 million by 2030. The plan includes, ensuring the preparedness of energy network EV uptake. making connections to the energy network easier, maximising the benefits of smart charging. development of vehicle-to-grid technologies which allows EV owners to earn money by exporting electricity back from their car battery to the grid when it is most needed. helping drivers switch to EVs by providing range of products, services and tariffs for UK energy consumers.

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

## Bangladesh on the road to an Electric Future

Bangladesh is now nearer than ever to joining the global trend of switching to electric vehicles in the name of saving the environment and cutting down costs. Local automobile companies such as Bangladesh Auto Industries Ltd (BAIL) and Nitol Motors will start the manufacturing locally. Regulatory policies for EVs are also getting prepared to facilitate importing of EVs. Initiatives from the government, private and international companies present a promising future for EVs in Bangladesh. The state-owned transport corporation, Bangladesh Road Transport Corporation, BRTC, is going to introduce 50 e-buses to the public transport system on long routes such as Dhaka to Chattagram.

Read More: <https://bit.ly/3LIu7q>

## Washington state provides funds for Nine Microgrids:

Washington State announced \$3.9 million in grants from the state's Clean Energy Fund to design and build 18 electric grid modernization projects, including microgrids. Nine of the projects include microgrids and all help Washington's utilities move the state closer to its 2045 goal of having 100% of its electricity supply free of greenhouse gas emissions. Avista, Orcas Power and Light Cooperative, Puget Sound Energy, Seattle City Light, Snohomish County PUD, Tacoma Power are the utilities where microgrids projects are implemented.

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

## Thailand Carbon Neutrality Energy Plan

Thailand proposes to be carbon neutrality by 2065-2070 under a new energy plan that could see renewable energy account for a 50% share of its new power generation, displacing natural gas which is currently the mainstay of its power generation sector, which is detrimental for the LNG sector in the long run as Thailand is one of the key growth markets for Asia's LNG demand. With natural gas caught in the energy transition crossfire, Thailand's state-owned oil company PTT Exploration and Production is looking to implement carbon capture utilization.

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

## Tying Quantum Computing to AI Prompts a Smarter Power Grid

Fumbling to find flashlights during blackouts may soon be a distant memory, as quantum computing and artificial intelligence could learn to decipher an electric grid's problematic quirks and solve system hiccups so fast, humans may not notice. Rather than energy grid faults turning into giant problems – such as voltage variations or widespread blackouts – blazing fast computation blended with artificial intelligence could rapidly diagnose trouble and find solutions in tiny splits of seconds, according to Cornell research forthcoming in Applied Energy.

Read More: <https://www.indiasmartgrid.org/viewnews.php?id=5427>

**INTERNATIONAL WEBINAR SERIES PART 2**  
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09:00 (New York)  
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[www.globalsmartenergy.org](http://www.globalsmartenergy.org) <http://www.apua-asea.org/lupdeal/ang/> REGISTER AT: <https://bit.ly/3ELEKjK>

# Global Stories on Smart Grid

## Dubai Taxi and BluWave-ai Launch Innovative Partnership for AI-Enabled Taxi Fleet Electrification and Optimization

Dubai Taxi has partnered with Canadian AI CleanTech innovators BluWave-ai to work towards AI-enabled fleet electrification and optimization. Dubai taxi, a division of the Road and Transit Authority (RTA), is one of the world's leading transportation entities at the forefront of taxi electrification worldwide. The last 3 years, Dubai Taxi has been operating 200 electric taxis and plans to transition much of its taxi fleet of over 5000 vehicles to a low emission, low-cost transportation network. The RTA has endorsed a long-term plan to have zero emissions by 2050 for public transport in Dubai. The city is the first government body in the MENA region to create such a sustainable plan for public transport.

**Read More:** <https://www.indiasmartgrid.org/viewnews.php?id=5428>

## Sunnova, AutoGrid Create Residential Virtual Power Plant for California Community Energy Supplier CPA

US residential solar company Sunnova and distributed energy resource (DER) controls platform provider AutoGrid will aggregate home battery energy storage systems to provide demand response for California energy supplier Clean Power Alliance (CPA). AutoGrid's Flex platform will be used to create a scalable virtual power plant (VPP) solution from Sunnova customers' battery units in Southern California. CPA provides energy to around three million people via a million accounts in Los Angeles and Ventura County.

**Read more:** <https://www.indiasmartgrid.org/viewnews.php?id=5430>

## California Regulators Predict 100 Hydrogen Fueling Stations by 2023

**Key Highlights:** The state is expected to have capacity to fuel 250,000 fuel cell electric vehicles (FCEVs) at 176 open-retail hydrogen fueling stations by 2026.

California is leading the way on hydrogen fueling stations in the U.S. The state is expected to have capacity to fuel 250,000 fuel cell electric vehicles (FCEVs) at 176 open-retail hydrogen fueling stations by 2026. The first 100 of those stations have potential to be operational by the end of 2023. Currently, California has nearly 8,000 FCEVs on the road and 48 hydrogen stations that are open to the public. The DOE recently launched a Hydrogen Earthshot program, with a goal of reducing the cost of clean hydrogen by 80% to reach \$1 per kilogram by 2030. The ultimate goal of California's zero-emission transportation programs is to reduce greenhouse gas and unhealthy criteria pollutant emissions.

**Read More:** <https://bit.ly/3CykOW3>

## Solar Microgrid Proposed for Southern California Army Airfield

The Joint Forces Training Base-Los Alamitos Army Airfield in Orange County, California, is planning on hosting a 30 MW solar microgrid. The California Army National Guard, which operates the airfield, would develop the microgrid. The microgrid would provide increased energy resilience and security at the Joint Forces Training Base-Los Alamitos Army Airfield. The airfield's mission is to provide critical response during emergencies in the Southern California region. The single-axis-tilting solar PV arrays would be built at two separate 15 MW sites on the airfield, and the power generated would feed directly into SCE's grid.

**Read More:** <https://bit.ly/2VZuqJJ>

## Willdan to Install Smart City Upgrades in Dublin, California, for \$21.2 M

Willdan Group, Inc. has been selected by the City of Dublin, California, to implement citywide energy efficiency, infrastructure, resiliency, and smart-city upgrades under \$21.2 million contract. Under this comprehensive contract, Willdan will perform project engineering, development, construction, commissioning, and savings measurement and verification at over 20 sites across the city, including the deployment of distributed energy resources (DERs) at 10 sites. The projects are estimated to complete construction within the next 18–24 months, and Willdan will support three years of operations and maintenance once the projects are in service. Ten sites will receive additional solar capacity, totaling 1.4 MW-DC capacity, and four of the sites will be paired with battery storage to support power resiliency during extreme weather events or heavy demands on the local power grid.

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

**Webinar on**  
**“System Challenges and Opportunities in Electric Vehicle Integration with the Grid”**  
27<sup>th</sup> October 2021  
08:00-10:00 (New York) 14:00-16:00 (Paris) 17:30-19:30 (New Delhi)  
21:00-23:00 (Seoul)  
Organizers  
**GSEF** Global Smart Energy Federation  
**ISGAN** INTERNATIONAL SMART GRID ACTION NETWORK  
**REGISTER NOW**  
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# Member Updates

## METRO DETROIT BLACKOUTS REVEAL POWER GRID'S VULNERABILITY | OPINION

Over the summer, Southeastern Michigan has seen hundreds of thousands of residents lose power due to high winds, storms, and flooding. Recurring storms have led to multiple blackouts — and even prevented Federal Emergency Management Agency (FEMA) teams from assessing damage from previous weather events.

But it's not just Michigan that is struggling with a vulnerable power grid. Last month, Hurricane Ida bore down on the Gulf Coast, leaving over a million residents in the dark, and Tropical Storm Henri knocked out power to 100,000 more in Rhode Island. Outages in California have become common due to wildfires, and Texas saw millions lose electricity during a blizzard earlier this year.

No one in the 21st century should have to live with this level of disruption, but power outages are becoming more frequent across the United States as infrastructure ages into disrepair and weather becomes more extreme. Couple those factors with our increasing electricity consumption, and it's clear we must make power systems a priority. Although we cannot stop extreme weather, we can control the quality of the electrical infrastructure that keeps our world moving



The U.S. power grid gets a C- rating from the American Society of Civil Engineer's 2021 Report Card for America's infrastructure. An energy infrastructure grade may seem theoretical, but the results are concrete – power outages cost the U.S. economy up to \$169 billion annually and affect tens of millions of Americans every year. Some of our energy infrastructure was built before Orville and Wilbur Wright took their first flight. It's time our energy infrastructure caught up with our needs and modern technology.

Fortunately, there are solutions available. The U.S. Department of Energy offers millions of dollars in grants to help energy users harden grids against extreme weather. Additionally, the U.S. Senate's recently passed infrastructure legislation would invest \$73 billion in grid improvements – the largest federal investment in the grid in history. However, without a federal framework for evaluating the reliability of grids, it can be difficult for cities, states, and power districts to know where to start.

**Article contributed by** Mahesh Ramanujam, President and CEO of the U.S. Green Building Council (USGBC), Green Business Certification Inc. (GBCI) and Arc

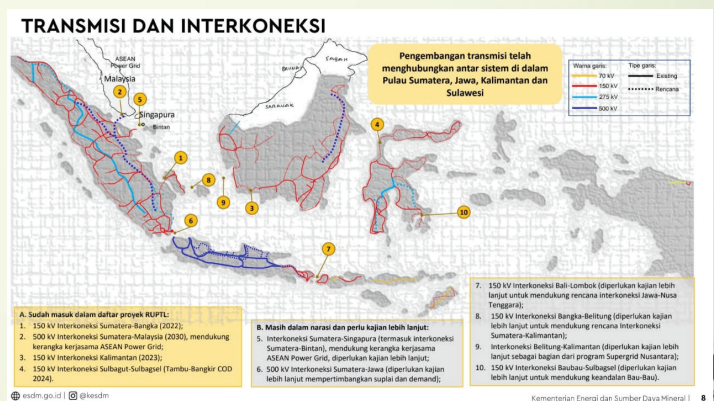
**Registration link:** <https://bit.ly/3AvV7Us>

## PLN'S ELECTRICITY INFRASTRUCTURE EXPANSION PLAN

On 28th September 2021, Government of Indonesia (GoI) endorsed the Business Plan (RUPTL) 2021–2030 of PLN, Indonesia's Government owned State Electricity Company, that map the electricity infrastructure expansion plan for the next 10 years. GoI label it as a Green RUPTL.

For the next 10 years, total 40.5 GW generation plant will be built, 51.6% (20.9 GW) will be Renewable Energy (RE) power plant. The rest 19,6 GW, consist of Coal Power Plant with already signed contract, and gas fired power plant for load follower and peaker.

In 2015, Indonesia ratified Paris Agreement with NDC (Nationally Determined Contribution) to reduce 29% GHG emissions (without international support) and 41% (with international support) by 2030. RUPTL 2021-2030 is also meant as the basis to achieve Carbon Neutral in 2060.



continued.....

# Member Updates

Earlier in August 2021, Government-issued Minister Regulation on Net-Metering Rooftop solar PV, that will encourage the installation of rooftop solar PV in residential, commercial, and business customers up to 3.6 GWp by 2025. Combined with the endeavor of RUPTL, Indonesia aims to achieve 23% renewable energy in its electricity energy mix.

PLN electricity production in 2021 is 290.5 TWh, which will increase to 354.4 TWh (23% will be RE) in 2025 and 445.1 TWh (24.8% will be RE) in 2030. PLN serves 81 million in 2021, and in 2030 is predicted to become 103 million. In 2020, PLN installed capacity is 63.3 GW (PLN owned and IPP owned), of which 50% coal, 37% gas and diesel, 8% Hydro, 4% Geothermal, and the rest other RE. For the next 10 years, 40.6 GW generation capacity will be built, and 4.7 GW will be retired. So, installed capacity in 2030 will be 99.2 GW that consist of coal Plant 44.8 GW, Gas fired 25.6 GW, Hydro 15.6 GW, geothermal 5.8 GW, Solar PV 4.7 GW, other RE 2.8 GW.

Gol will encourage the involvement of more private RE developers/investors. Around 11.8 GW of RE plant to be developed by private IPP, while 9.1 GW RE Plant will be built by PLN. The RE Plant consist of Geothermal (3.4 GW), Hydro (9.3 GW), Minihydro (1.1 GW), Solar PV (4.7 GW), Wind Turbine (0.6 GW), Biomass/Waste (0.6 GW), RE Base (1 GW), RE Peaker (0.3 GW).

In the next 10 years, PLN will replace its dispersed Diesel Plant in 2,130 sites with RE. The Diesel Plant's total capacity is 588 MW will be replaced with 1.2 GWp Solar PV plus Battery.

PLN is starting to deploy EV Charging infrastructure and continue to expand it, to support the growth of EV demand that predicted to achieve 38,500 Evs in 2024. PLN will deploy Smart Grid system to facilitate the integration of Variable RE to the grid. PLN is also starting to deploy 110,000 Smart Meter/AMI in 2022. This Smart Meter/AMI deployment will achieve 7.5 million by 2025. PLN will support Gol policy to push domestic capability in manufacturing renewable energy equipment and Smart Meter. PLN will build 17,700 km-circuit transmission and 76,700 MVA Substation HV/MV, to transmit power from the power plant to central load and to interconnect between island and systems.

**Article contributed by** Harry Harytoyo, Head of International Relation Division, PJCI, Indonesia

## WHAT SKILLS ARE NEEDED FOR THE ELECTRICITY NETWORKS OF TOMORROW?

As the energy transition and the digitalisation of networks accelerate, accompanied by strong growth in global electricity demand, the challenges in terms of recruitment and training are high. On the occasion of CIGRE's centennial session, Think Smartgrids organised a webinar on the Theme "Skills for the Electricity Networks of Tomorrow".

Antoine Belosselsky, Task team leader at the French Development Agency (AFD), shared the increasing concern of the agency to integrate skills issues into the evaluation of energy transition projects to be financed. He mentioned several HR challenges for future electric grids: the ageing workforce in electricity utilities, increasing tensions on the labour market, the technology disruptions that create a need for new jobs and new skills, and the global growth in electricity demand. AFD develops training centers and academic partnerships to contribute to the reinforcement of skills, especially in Africa.

AFD's concerns are confirmed by an exhaustive survey of the number of employees in the electricity sector in France and the projected needs by 2030, published last year and to which Think Smartgrids contributed. Andrea Michiorri, Research Engineer and professor at MINES ParisTech and Chair of Think Smartgrids' Training Commission, presented the main results of the study: 23 shortage occupations were identified, representing 30% of jobs in the electrical sector. Mr. Michiorri stressed the dire need for Electric engineers, Design office technicians, Technical business managers and Data analysts. Lifelong professional training, increasing the attractiveness of the electricity sector to recruit new talents and involving local authorities are among the main recommendations of the study

**Article contributed by:** Think Smargrids

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



## CLIMATE CHANGE: EXPANDING ROLES FOR ENERGY ASSOCIATIONS



Last year, I contributed five newsletter articles on climate change issues (Managing Energy Risk, Flex-Fuel Policies, Upcoming Cooling Crunch, Clean Fuels, and Policy-Regulation Nexus). This year I have written four more (Texas Outage, National Energy Security, "Karmic" Utility Role and City Island Grids). I am adding one more (below) drawing attention to a potential wider role for energy associations.

The last decade saw dramatic increases in extreme weather events (hurricanes, flash floods, forest fires, and droughts). This year has been worse, with the restoration effort likely in the billions of dollars. In all this, the common-mode failure has been the loss of electricity, affecting homes, businesses, medical-centers, gas-stations and water services.

Climate Change agenda is not new. It was first acknowledged in the 1992 Rio Summit and since then many international deliberations and IPCC reports have followed. In these 30 years, the needle has been steadfast pointing to global warming, predicting extreme weather patterns. Today, 100-year recurrence interval events are occurring every few years, making historical extreme-weather data (temperature, rain, wind) largely irrelevant. Yet, our post-calamity fixes, assumes that old normal will return again.

Planning for calamities requires a full 360-degree solutions approach. This is seldom done as analysis (by definition) requires breaking complex problems into smaller parts for deep introspection. Thus, we divide to analyze with an endeavor to re-synthesize. However, the synthesis effort (post analysis) often lags and rarely makes it back as whole again. Climate Change infrastructure strategy is one such.

Several publications have repeatedly pointed to (1) drastically reducing GHG emissions; (2) making our infrastructure resilient; and (3) introducing cost/technology sharing frameworks to bridge the North-South divide. All these recommendations are intrinsically tied to energy. In fact, energy is both a cause as well as a solution to this problem. We need it in our everyday lives (heat/cool, water, transportation, agriculture, public health). However, our collective global solution to climate change remains far-fetched and unsure of timing (some by 2030; others by 2050) and most previously committed funds never materialized. The collective global dialog is stuck in complex (albeit valid) debates around (a) "polluters first"; (b) "per capita vs. tonnage"; (c) "West subsidize the Rest"; and (d) "energy access rights". The analysis runs deep, but there is no effective synthesis.

This brings me to the role of energy associations. Most associations represent their industry segments (Generation, T&D, Hydrogen, Wind, Solar, Coal, Oil, Gas, etc.) or coalesce along business attributes (tax, regulation, finance). While good progress has been made by associations (e.g. RE, microgrid, energy storage, EVs), such advocacy has often led to policy jerkiness and redirection (targets, subsidies, taxation, duties, etc.). For example, variable renewable energy (VRE) production, grid integration, delivery and behind-the-meter utilization are often represented by separate associations. Other examples include charging stations and e-fleet deployments (typically by transport associations), or Green-building materials (by building associations). Since energy is a common thread, an expanded advocacy role by energy associations, across the entire energy value-chain, will offer a more comprehensive long-term synthesized solution.

A second important aspect is for energy associations to shape such dialogs along "pragmatic implementable pathways". Today, much emphasis is placed on echoing scientific speak (e.g. 1.5 deg C) with little or no pragmatic explanation. For example, impacts related to temperature rise, flood levels, rain intensity needs to be explained within a local community context and with mitigation options (what, how, when). This over-arching dialog is important since once new infrastructure is built, it serves for the next 50+ years. So, rather being reactionary to policy announcements, energy associations must anticipate and preempt this by having a periodic dialog with various public stakeholders on evolving options, challenges and solutions. This can only be achieved through (a) partnerships across multiple organizations; (b) being people-oriented rather than technology experts; and (c) having the capacity to advise on implementation where required. This adjunct role by energy associations, is vital to shaping national climate change policies and pragmatic mitigation solutions.

In my view, the following are the most immediate areas for public engagement:

1. Maximizing renewables and grid implications – grid architecture, costs, plans, regulatory
2. Weather-proofing last-mile energy delivery assets – systems, cost/benefits, social impact,
3. Role of utilities in carbon reduction – areas, regulatory implications, technologies
4. Enabling Net-Zero Energy Ratepayers – tariff, policy/regulatory implications
5. Promoting Prosumers – PV/Wind power, cost/benefits, incentives, network implications

Many of the above issues may not fall within the current ambit of energy policy, regulation or the utilities themselves, but failure to grasp and understand upcoming “headwinds” in simple lay-terms is part of the current societal dilemma. A continuous dialog by energy associations to address the pros/cons and evolving solutions, to the government, regulators, utilities, NGOs, and the public, will go a long way in understanding the issues. In my utility days, we successfully used this pre-emptive approach to share knowledge/ information, when renewables were first making rapid entry into the distribution grid.

In closing, the above attempt is not to block or promote a decision (or outcome), but rather facilitate a shared process with evolving knowledge, identifying community options and pragmatic implementation.

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

## Smart Grid Events

**18 - 22 October 2021:** Smart Grid Forum IEC 61850 Week 2021

<https://www.smartgrid-forums.com/iec-61850-week-2021>

**25 - 29 October 2021:** EU Sustainable Energy Week (EUSEW) 2021

<https://eusew.eu/>

**28 - 29 October 2021:** The Future of Grid by Enlit Asia

<https://www.enlit-asia.com/the-future-of-the-grid/>

**08 - 11 November 2021:** Future Energy Series: Africa

<https://futureenergyseriesafrica.com/Home>

**30 November 2021- 01 December 2021:** Hydrogen North America 2021

[https://reutersevents.com/events/hydrogen-north-america/?utm\\_source=Energy+Global+&utm\\_medium=listing&utm\\_campaign=launch](https://reutersevents.com/events/hydrogen-north-america/?utm_source=Energy+Global+&utm_medium=listing&utm_campaign=launch)

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

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

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

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

**25 - 29 October 2021:** Solar World Congress

<https://www.swc2021.org/>

**03 – 05 November 2021:** 14<sup>th</sup> International Energy Congress and Expo

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

**18-19 November 2021:** Distribution Utility Meet

<http://dumindia.in>

**30 November – 02 December 2021:** Enlit Europe, Milan (formerly known as European Utility Week)

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

**01 - 04 March 2022:** India Smart Utility Week 2022

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

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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.D.S.O.)



Botswana Power Corporation

## Associate Members



Green Business Certification Inc.



Florence School of Regulation (FSR)



Energy BlockChain Consortium



Caribbean Electric Utility Services Corporation



Electric Power Research Institute

## 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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