



Global Smart Energy Federation
Formerly known as Global Smart Grid Federation

NEWSLETTER

November 2021

DELHI METRO'S LINE 7 ACHIEVES PEER GOLD CERTIFICATION



DMRC Continuing to Set Higher Standards and Benchmarks for Their Peers by Achieving Peer Gold Certification of Pink Line.

A day (November 12, 2021) when Delhi was choking due to air pollution, DMRC's Line 7 achieved yet another PEER certification by meeting the requirements on resilience, reliability, safety, and most importantly environmental impact reduction. DMRC is a mass rapid transit system serving Delhi and the National Capital region of India, is totally committed in supporting global goals by building a sustainable infrastructure with aim to achieve 100% green energy for their metro rail network. In continuation to the PEER certification for DMRC's blue, green, and yellow lines, DMRC Line 7 (Pink line) pursued PEER certification and achieved it to benchmark, analyze, and assess their performance with other networks locally and globally.

The line 7 (Pink Line), that connects Majlis Park to Shiv Vihar, has 38 stations in total and nearly three lakh people the transit system to commute every day. Through rooftop solar and procuring power from REWA, DMRC meets their carbon reduction targets. Line 7 has 2.75 MW capacity of rooftop solar installed across depots and stations. Further on the efficiency side, DMRC has variable frequency drives (VFDs) and temperature control valve (TCV) which together ensure efficient operation of chilled water pumps and air handling units. Such measures on energy conservation and renewable energy generation demonstrates DMRC's commitment towards achieving sustainability in transportation.

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“PEER measures and improves power system performance and electricity infrastructure. PEER provides a framework to ensure grid resilience for critical infrastructure such as hospitals, transit systems, airports, and utilities. It encourages the adoption of reliable, resilient, and sustainable practices and helps utilities solve aging infrastructure, save money, share best practices, build for resilience, and prevent failures. PEER is the LEED program for power grids, microgrids and distributed energy systems”.

Article contributed by Ishaq Sultan, Associate Director, Green Business Certification Inc.

Global Stories on Smart Grid

UK to Require Charge Points for Electric Vehicles in New Buildings

Charging points for electric vehicles will be required to be installed in new buildings in Britain from next year under new legislation to be announced by Prime Minister. The regulations would lead to up to 145,000 extra charge points being installed in England each year in the run-up to 2030, when the sale of new petrol and diesel cars will end in Britain. The requirement will apply to new homes and to non-residential buildings such as offices and supermarkets. It will also apply to buildings undergoing large-scale renovations which leave them with more than 10 parking spaces.

Read more: <https://bit.ly/3l0ajEz>

Battery Energy Storage System with 50 MW Capacity Goes Live

Pivot Power, Wärtsilä and EDF have together activated a 50 MW battery energy storage system in Kent, southeastern England. The unit is based at Pivot Power's Kemsley site and the companies hope it will help bolster the UK's net zero ambitions. The lithium-ion battery energy storage system is directly connected to National Grid's network and will be used to provide more flexibility and support to the country's electricity grid. This is the second project of its kind to begin operations, as part of Pivot Power's plans to build 40 similar sites across the UK to provide 2 GW of flexible capacity. The first project was built in Cowley, Oxford and went live June, 2021.

Read more: <https://bit.ly/3Fw5QRQ>

New 6 GW Green Hydrogen Project in Australia Eyes Ammonia Export to Japan and Korea

The Moolawatana Renewable Hydrogen Project will combine about 3 GW of wind and 3 GW of solar with electrolyzers, a desalination plant, and a dedicated H2 pipeline around 500 km long to a local port, where the hydrogen will be used to produce green ammonia for export with Japan and South Korea mentioned as possible destinations. The project, 570 km north of Adelaide, is still at the pre-feasibility stage, and preliminary consultation with stakeholders is now under way. It is one of several gigawatt-scale green hydrogen projects proposed in Australia with an eye on exports to Asia, including the 28 GW Western Green Energy Hub, 14 GW Asian Renewable Energy Hub, 8 GW HyEnergy Zero Carbon Hydrogen and the 5 GW Murchison Renewable Hydrogen Project, all in Western Australia; the 3.6 GW Pacific Solar Hydrogen and 3 GW H2-Hub Gladstone projects in Queensland, and the 2.8 GW Tiwi Hydrogen Project in the Northern Territory.

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

India Launches E-Amrit Web Portal for all EV Related Information

The government of India has launched a web portal for electric vehicles at the ongoing United Nations Climate Change Conference in Glasgow, Scotland, named as “E-Amrit”; the website will be a one-stop destination for all information related to electric vehicles such as their purchase, investment opportunities, policies and subsidies. The E-Amrit portal has been developed and hosted by NITI Aayog under a collaborative knowledge exchange programme with the UK government.

Read more: <https://bit.ly/3HFDA19>

Ford has mammoth EV dreams, plans to make 6 lakh EVs by 2023

Ford announced that it is going to double the production capacity of electric vehicles to six lakh per year by 2023. Ford is trying to establish itself in the electrification arena with its Mustang Mach-E and F-150 Lightning. The company's production plan is to produce 600,000 electric vehicles per year globally by end of 2023 which two times of their original plan. Blue Oval City is the new facility center, as a big new electric pickup truck factory along with three new battery gigafactories. The new plant is expected to start the manufacturing process in 2025.

Read more: <https://bit.ly/3HHUQ60>



Global Stories on Smart Grid

DTE Plans \$7B, 5-year Investment in SE Michigan Electric Grid

DTE Energy Co. plans to invest \$7 billion over the next five years to modernize southeast Michigan's electric grid and prepare for increasing demand from electric vehicles. The investment will seek to combat power outages, especially in light of increasing storm frequency and strength. The intention by the Detroit-based utility is to decrease costly outages and provide greater reliability to its 2.3 million modern customers. Funds will help to update and build new substations throughout the utility's footprint in Metro Detroit and the Thumb region of Michigan. These efforts will add 700 MW of capacity — enough to power 110,000 electric vehicles or 180,000 residential homes.

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

Enel Pilots 5G in Smart Grid in São Paulo

Brazil's capital São Paulo is the setting for the first 5G project in Latin America's power distribution sector. The initiative, which was launched by Enel Brazil in August, is piloting the use of 5G as a backhaul for real-time messaging and data access in a substation in the Vila Olimpia neighbourhood near the centre of the city. Currently, Enel uses the 3G network to connect to its control centres, which is slower with a latency of a few seconds. With 5G, the latency is in the range of one to five milliseconds.

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

Smart City to Open E-Charging Stations in City for Public

Smart City Thiruvananthapuram Limited (SCTL) will open its charging stations at Gandhi Park to the public in an effort to promote e-mobility in the city. The charging stations were installed at Gandhi Park in conjunction with the city's introduction of e-autos and e-rickshaws. The SCTL is in discussions with the private firm that installed the station about developing a mobile payment app. Additionally, at the charging station, UPI scanners will be installed. According to SCTL officials, rates will be determined in consultation with KSEB and the electricity regulatory commission. Apart from the financial gain, SCTL intends to promote e-mobility and address the issue of an insufficient number of charging stations for private e-vehicles.

Read More: <https://indiasmartgrid.org/viewnews.php?id=5550>

Smart City Driverless Vehicle Pilot Project Planned for Kamakura & Fujisawa Areas

Mitsubishi Corp is in talks with Kamakura City's municipal government about developing its urban core and surrounding region into a smart city. Recently, the partnership joined forces with four other interests to commence a pilot project that will combine autonomous-driving technologies and healthcare services in Shonan Health Innovation Park (Shonan iPark). Along with Shonan iPark, the other partners on this project are Tokushukai Shonan Kamakura General Hospital (Kamakura General), Macnica Inc and Mitsubishi Electric Corporation.

Read More: <https://indiasmartgrid.org/viewnews.php?id=5551>

Illinois' new clean energy law could be a regulatory playbook for other states

Under the Climate and Equitable Jobs Act (CEJA), Illinois became the first Midwest state to commit to net-zero carbon emissions, setting a deadline of 2050

Government of Illinois signed into law a historic bill to decarbonize the state's energy sector, transition it to clean and renewable forms of generation, and do so with a focus on equitable job creation. Over the next two-plus years, the Illinois Commerce Commission (ICC) will work under tight statutory deadlines to resolve complex questions about how the distribution grid should be planned and operated in order to achieve the law's objective like accommodating and incentivizing more renewable generation, increasing deployment of customer-owned distributed energy resources (DER), and hastening uptake of electric vehicles (EVs), all while ensuring grid reliability and a just and reasonable distribution of the costs and benefits of these transformational efforts.

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



Member Updates

MKI SMART GRID WEBINAR SERIES EPISODE 8: DRIVING A SUSTAINABLE FUTURE THROUGH DIGITALIZATION AND DISTRIBUTION AUTOMATION

The panelists shared their views on the rise of digitalization and the challenges that come with it. Nanang R. Perjmana (ABB) shared ABB's solutions for implementing distribution grid automation and smart substation control. Yohanes Sukrilismono (PT PLN) presented PLN's willingness to shift from manual monitoring and reactive maintenance to digital monitoring and predictive maintenance. Edi Leksono (Institut Teknologi Bandung) gave his insights on the use of digital technology for future sustainable energy, including challenges to have a better treatment of data (data cleaning, management, exploration, interpretation and visualization).

More than 200 attendees followed the webinar on Zoom and Youtube. During the Q&A session, they were interested to know how digitalization could help to better control and even overcome the challenges of renewable energy intermittency. A lot of questions were also targeted to the consumer side, and how a digitalized distribution grid could prevent breakouts or poor quality of service. The issue of data network security, which becomes more prevalent with the expansion of digitalization, was also raised.

This is the second webinar organized by MKI in which Think Smartgrids is participating to present the French know-how in smart grids, after that of October 13, 2021 on the theme: Smart City. Think Smartgrids has been working with Indonesia for several years, including through the signing of a MoU with PLN.

Think Smartgrids federates and represents the French smart grid ecosystem, with a hundred members, from startups to large groups and grid operators, research laboratories, universities and clusters, covering the entire smart grid value chain: electronic engineering, utilities, automation, telecommunication equipment and information systems, business models, training, and regulation.

Re-watch the LIVE at: <https://www.youtube.com/watch?v=mFP0m573688>

Article contributed by Think Smart Grids, France



The poster features a white background with blue and green abstract circular graphics. At the top left is the ISGAN Award of Excellence logo. The main title 'ISGAN-EPI-GSEF 8th ISGAN AWARDS OF EXCELLENCE' is prominently displayed in the center. Below the title, it states 'Calling all Global Leaders in Smart Grid and Clean Energy' and 'The Awards Opportunity for Global Recognition'. The poster is divided into two columns: 'COMPETITION THEMES' and 'IMPORTANT DATES'. The 'COMPETITION THEMES' section includes 'EXCELLENCE IN EV INTEGRATION IN SMART GRID' and 'EXCELLENCE IN SMART GRID WORKFORCE DEVELOPMENT FOR AN INCLUSIVE ENERGY TRANSITION'. The 'IMPORTANT DATES' section lists 'SUBMISSION OF APPLICATIONS' (15 Nov. 2021-21 Jan. 2022), 'NOTIFICATION OF ASSESSMENT RESULT' (21 Mar. 2022), 'AWARDS CEREMONY' (13th Clean Energy Ministerial (CEM13), U.S., Sept. 2022), and 'AWARDS' (Immediately following award ceremony and thereafter). At the bottom, there are logos for 'EMPOWERING PEOPLE', 'ISGAN', and 'GSEF'. The background of the entire page features a green field with a wind turbine and butterflies.

ISGAN-EPI-GSEF
8TH ISGAN
AWARDS OF EXCELLENCE

Calling all Global Leaders in Smart Grid and Clean Energy
The Awards Opportunity for Global Recognition

COMPETITION THEMES

EXCELLENCE IN EV INTEGRATION IN SMART GRID

Projects include those that integrate EVs with the grid and successfully demonstrate functionalities any three of the following functionalities with a fleet size of minimum 6 EVs and in operation for a minimum period of one year as on 21 January 2022

- Smart Charging of EVs
- Vehicle to Home (V2H) or Vehicle to Building (V2B)
- Vehicle to Grid (V2G) Services
- Virtual Power Plant (VPP) Operation of EVs
- EV Charging with Renewable Energy
- RTPV Integration with EV Charging Stations

EXCELLENCE IN SMART GRID WORKFORCE DEVELOPMENT FOR AN INCLUSIVE ENERGY TRANSITION

Projects include those that demonstrate innovative approaches to workforce development for smart grids, including, but not limited to: training aimed at all career levels, such as attracting youth or re-skilling senior workers; professional development for youth; supporting worker transition; recruiting and retaining underrepresented communities; addressing structural discrimination; strategies to promote equity, diversity, and inclusion; and promoting access to affordable clean electricity for under-privileged communities

IMPORTANT DATES

SUBMISSION OF APPLICATIONS
15 Nov. 2021-21 Jan. 2022 at 24:00 UTC

NOTIFICATION OF ASSESSMENT RESULT
21 Mar. 2022

AWARDS CEREMONY
13th Clean Energy Ministerial (CEM13), U.S., Sept. 2022

AWARDS
Immediately following award ceremony and thereafter

Contact: www.iea-isgan.org/award2022
isgan-awards@smartgrid.or.kr

EMPOWERING PEOPLE
FORWARD OF THE CLEAN ENERGY TRANSITION

ISGAN
INTERNATIONAL SMART GRID ASSOCIATION

GSEF
Global Smart Energy Federation

Member Updates

UTILITY BUSINESS MODEL (UBM) WORKING GROUP WRAPS UP A YEAR OF BUSINESS MODEL TRANSFORMATION DISCUSSIONS

The Utility Business Model (UBM) Working Group is sponsored by EPRI (<https://www.epri.com/>), SEPA (<https://sepapower.org/>), Grid Forward (<https://gridforward.org/>), and the GridWise Alliance (<https://gridwise.org/>). The working group involves information sharing and discussions about issues and technologies that are influencing future utility business model strategies. The group meets on a monthly basis with rotating sponsorship of the monthly meetings. Each meeting explores a particular topic or issue with utility representatives and experts from the industry providing perspectives to get the discussion started followed by general discussion of the topics from the entire group. We have just published the summary of learnings and discussions from the last eleven webcast sessions -

Read More: <https://www.epri.com/research/products/000000003002023073>

Here is a list of topics that were discussed in these sessions -



The image shows the cover of the 'UBM Working Group 2021 Report' on the left and a list of 'UBM Webcast Topics' on the right. The report cover features logos for EPRI, Smart Electric Power Alliance, GridForward, and GRIDWISE ALLIANCE, along with the text 'ubm WORKING GROUP' and '2021 REPORT'. The list of topics is as follows:

- 1. Smart Communities
- 2. The Impact of Changing Utility Regulation on the UBM
- 3. Utility Strategies for Carbon-free Power Goals
- 4. DER Monetization Strategies
- 5. Managing Innovation of the UBM
- 6. Exploring Grid Investments to Achieve Decarbonization
- 7. Performance-based Regulation (PBR) in Implementation
- 8. Equity & Innovation: Ensuring Vulnerable Communities Benefit from Grid Modernization
- 9. Energy Storage and Its Value to the UBM
- 10. Defining a Framework for Grid Readiness
- 11. Stakeholder Engagement and Utility Decarbonization Plans

We will start another year of these monthly discussions in January. If you are involved in business model strategies for utilities, feel free to register to be part of this working group at -

Read More: <https://www.eprievents.com/event/f0cea006-d4e4-4e47-aa18-1b2325f7d35f/summary>

Article contributed by Mark McGranaghan, Fellow, Electric Power Research Institute

BURYING GRANDPA'S GRID



At a recent discussion amongst former US utility CEOs, the above term came up as an expression to burying the last mile overhead distribution wires to climate-proof the electric grid. In my view, this term has an even broader meaning (both philosophical and historical) as it relates to the evolution of our current grid. Perhaps, it does require an introspection. In some ways it may already be happening.

“Burying Grandpa’s Grid” can be interpreted in several ways, (a) undergrounding overhead wires; (b) reducing or eliminating parts of a grid/network; (c) consumers achieving load-generation balance locally; and (d) substituting parts of the current electrical network with another energy network (natural gas, thermal, hydrogen). A more philosophical interpretation could be (a) can we manage with a localized electrical network in a 100% renewable energy world; (b) can lifestyle changes adapt to intermittent localized renewable energy with a limited local district-style grid supply; and/or (c) will climate change force our societies back in time to live in harmony with nature and use its energy only when available.

Given our times, many elements of these will become a reality in the next 30 years. Affordability and customer choice, will force this change. In my view this trend has already started (as evidenced by):

1. In many rural energy access projects in the developing world, “grandpa’s grid” is not even being considered. Solar PV, small energy storage and load control is enabling distributed Micro /Nano /Pico grids (some as small as 1-5 KW). These are unitized to a residence or a community cluster, thus eliminating the need for utility wires. Mobile or stationary PV Agri-pumps would be another.
2. Low voltage DC (LVDC) standardization is beginning to eliminate traditional rural house wiring with ethernet style USB-C connectivity to feed low-power devices such as LED lights, small fans, PCs and very small appliances. Gone is the traditional 120V and 240V power wiring to these devices. One now gets power and data in a single network.
3. With massive adoption of LED street lamps, stringing 1.5 sq. mm power wires from pole to pole, to feed 50/75-watt LED lights (300W/450W incandescent equivalent), has now become the most expensive item. So, once these assets age, expect solar panels with small batteries on these poles with the utility wires duly eliminated.
4. In Mumbai India, digging up congested streets to upgrade utility cables is prohibitively expensive (high municipal levies to discourage digging). This has resulted in using load side energy storage to mitigate cable overloading. As cables reach end-of-life, it will be interesting to see if there will be a different supply architecture (leveraging customer-side assets in a microgrid).
5. Ravensthorpe area in Western Australia is currently experimenting with eliminating electric poles and wires (upon end of life) with off-grid PV and energy storage as a part of a lower cost non-wires energy strategy.
6. Distribution overloads is forcing utilities to contemplate demand charges and time/location-based tariffs (dynamic and/or congestion pricing) to even small retail and residential customers. Any such move will trigger investments in home energy storage, conservation and rooftop PV. This will put regulatory pressure to seek more non-wire solutions when replacing utility’s aging assets.
7. High connection cost (some as high as \$ 20,000+) in rural USA, Canada and Australia, is turning rural residents away from the grid. For that high initial price and annual bills, a home with PV and battery storage (with propane heating in the winter) is making an alternative business case.
8. Notwithstanding climate change, there is a move by the process industry towards natural gas CHP use (lower CO2 emissions than coal). Also, residences today served with piped natural gas have the opportunity to retro fit small 5-7 KW gas-fired generators to get both heat and electricity

It should be acknowledged all of the above “limited-wire” solutions come with efficiency penalties, lifestyle changes and a probabilistic/stochastic power model. While this may be acceptable for millions seeking energy access in the rural developing world, it may not suit those living in urban areas. Leveraging 100% intermittent RE power (without grid) is currently not viable, particularly for those living in cold climates (heating) and very hot climates (cooling). District energy leveraged by RE and local fossil generation may be a viable solution till such time long-duration (8-10 hour) thermal and battery energy storage becomes affordable. However, for those in the far northern and southern hemispheres, leveraging 100% RE (even with energy storage) will still be a challenge due to seasonal energy storage requirements (4-5 months).

Notwithstanding all of the above, non-wires technical solutions are fast evolving. They are currently being held back by relatively cheaper electricity tariffs and a reliable grid supply. Any significant shift in reliability and/or tariffs will trigger a flight away from wires. In many ways the electrical grid may indeed be “going back to the future” with smaller distributed microgrids. Such systems appear to be more resilient to climate change than a centralized grid.

The critical strategy for utilities is to not rely on their regulatory safety-net, but to seek answers to difficult questions that may lie outside their current regulatory framework, such as (a) enabling customers to become climate resistant (less grid dependent by leveraging RE and storage); (b) enable accommodative hookup processes to customer's own DER devices; and (c) helping customers reduce their demand and energy consumption.

Electricity regulation needs to become more proactive (akin to finance and telecom) to seek answers to futuristic scenarios and technologies. Collaboration with natural gas regulators in such discussions will be useful. The MV/LV grids will be under careful scrutiny when such asset replacements are due. Future availability of "carbon-offset" natural gas, biomass and biogas will enable smaller packaged localized CHP units (till a hydrogen network becomes viable). All these will be an alternative to our current grid supply.

In closing, all this appears radical, but climate change, new technologies and alternative solutions are pushing us towards decentralization. The next three decades will be a key test in many countries (particularly the West) due to end-of-life asset replacements. With the technology here and the customer wanting such options, the tipping point will be rising tariffs, falling storage costs and/or higher unreliability. "Grandpa's grid" may indeed be on its declining spiral as we speak:

Article contributed by Ravi Seethapathy, GSEF Ambassador for Americas

Smart Grid Events

7-9 January 2022: 8th International Conference on Renewable Energy Technologies (ICRET 2022)
<http://www.icret.org/>

26-28 January 2022: DistribuTECH 2022
<https://www.distributech.com/>

31 January - 02 February, 2022:
8th European Gas Conference
<https://energycouncil.com/event-events/european-gas-conference/>

01 - 04 March 2022: India Smart Utility Week 2022
www.isuw.in

15-17 April 2022 : 7th International Conference on Renewable Energy and Smart Grid (ICRESG 2022)
<https://www.icresg.org/>

22-24 April 2022 : Asia Conference on Smart Grid, Renewable Energy and Computing Technology (SGRECT 2022)
<http://www.sgrect.net/>

22-24 April 2022 : Asia Conference on Electrical, Power and Computer Engineering (EPCE 2022)
<http://www.epce2022.net/>

22-26 May 2022 : ENERGY 2022: The Twelfth International Conference on Smart Grids, Green Communications and IT Energy-aware Technologies
<https://www.iaria.org/conferences2022/ENERGY22.html>



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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