



Global Smart Energy Federation
Formerly known as Global Smart Grid Federation

NEWSLETTER

February-March 2023

9TH INDIA SMART UTILITY WEEK 2023 28 FEB - 04 MARCH 2023, THE LALIT, NEW DELHI

After two digital editions, ISUW returned with a bang in March 2023 in New Delhi. Distinguished experts from around the world collaborated on evolving technologies for the Net Zero Power and Transportation Sectors.

The 9th edition of India Smart Utility Week (ISUW), a five-day international conference and exhibition, was held in New Delhi from February 28 to March 4, 2023, and was attended by over 2200 delegates. ISUW 2023 was attended by Visionary Leaders, Utility CEOs, Regulators, and Subject Matter Experts from around the world, including 236 Senior Officials from 31 Utilities in India. ISUW 2023 featured 264 presentations/speeches by experts from over 22 countries. The event provided an excellent opportunity for Utility Leaders, Regulators, Government Officials, and Technology Providers to network and share experiences.

Reji Kumar Pillai, President of ISGF and Chairman of the Global Smart Energy Federation (GSEF), welcomed participants to ISUW 2023, and the following luminaries delivered inaugural keynotes: N Venu, Managing Director and CEO of Hitachi Energy; Praveer Sinha, MD and CEO of The Tata Power Company Limited; Richard Schomberg, President of RJS Energy, EDF Fellow, and IEC Ambassador for Smart Energy; Eddie Widiono, Former President of PT PLN and and Founder-Chairman of PJCI, Indonesia; Abel Tella, Director General of Association of Power Utilities of Africa; Mohammed Al Ta'ani, Secretary General of Arab Renewable Energy Commission; Helvio Neves Guerra, Director of Brazilian Electricity Regulatory Agency (ANEEL); Robert Denda, Global CEO of Gridspertise; and Luciano Martini, Chair-Executive Committee of ISGAN. Reena Suri, Executive Director of the ISGF, delivered the Vote of Thanks.




















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Guests(L-R)- Eddie Widiono, Gerald Salge, Mani Vadari, N Venu, Robert Denda, Abel Tella, Reji Kumar Pillai, Praveer Sinha, Luciano Martini, Helvio Neves Guerra, Richard Schomberg, Reena Suri

Key themes of ISUW 2023 were

 INDIA @ 100 in 2047: Vision for the Indian Power System	 INDIA @100 in 2047: Vision for Net Zero Transport Sector	 Evolving Architecture of the 21st Century Grid with Two-Way Power Flows	 Power System Flexibility: Strategies & Solutions
 Electric Mobility and Grid Integrated Vehicles (GIV)	 Grid Interactive Buildings and Campuses	 Climate Proofing of Future Grids and Advanced Materials for Extreme Weather Events	 Digitalization of Utilities, Digital Twins and Digitalization Roadmaps
 Super Grids for Energy Transition and Energy Security	 Blockchain, Web 3.0 and Metaverse for Utilities	 Customer Engagement Strategies and Social Media for Utilities Customer Portal, Chatbot, Voice Bot	 Regulations for the Evolving "Green Grid" of the 21st Century
 Utilities Integration, New Services and Revenue Streams for Utilities	 Cyber Security for the Digitalized Grids	 250 Million Smart Meters in India Rollout Strategies and Business Models	 Artificial intelligence, Machine Learning and Robotics for Utilities
 5G Rollout and its Impact for Smart Grid Technologies	 Smart Water Distribution	 Transformers and Generative AI: Open AI GPT3, ChatGPT and tools for Audio2Text (A2T), Text2Audio (T2A), Image2Text (I2T), Text2Image (T2I), Text2Code (T2C), Text2Motion (T2M), Brain2Text (B2T) etc	

Parallel workshops were held with NITI Aayog, USAID, BEE, GIZ, APUEA, US DOC, USIBC, FCDO, and DoT on a variety of topics. There were concurrent sessions on water distribution and city gas distribution. Bilateral Smart Grid workshops were also held with the United States, the European Commission, and Germany to facilitate knowledge sharing, project partnerships, collaboration, and knowledge dissemination.

Global Stories on Smart Grid

EDF Signs 20 Year Solar PPA with BESS Option for Southern California Public Power Authority

EDF Renewables North America has signed a 20-year power purchase agreement (PPA) with the Southern California Public Power Authority (SCPPA) for its 117 MW solar PV project in Riverside County. The Sapphire Solar project is set to come online by the end of 2026 and will supply power to the cities of Anaheim, Pasadena, and Vernon through their participation in SCPPA. The agreement also contains an option for SCPPA to access a 236 MWh battery energy storage system. EDF renewables – a subsidiary of France's state-owned EDF Group – has developed over 16 GW of solar, storage and wind projects in the US.

Read More: <http://bitly.ws/Cafa>

FirstEnergy Helicopter Crews Upgrade Power Lines in Ohio

American Transmission Systems, Inc. (ATSI), a subsidiary of FirstEnergy Corp., is using helicopter crews to upgrade a high-voltage transmission line in Ohio's Ottawa County, stringing new, larger wires that can handle additional demand if other lines in the area are out of service. The 138 kV transmission line runs nearly eight miles southwest from the Lakeview Substation in Port Clinton to the Ottawa Substation in Salem Township. In addition to stringing the new wires, ATSI will replace six existing transmission structures along the route with new steel monopoles that can better support the larger wires. ATSI also will make modifications to another 42 transmission structures, installing new components and insulators to support the wires. Using helicopter crews to perform the work is faster and more efficient than deploying ground crews, which would require the creation of access roads for large trucks and equipment.

Read More: <http://bitly.ws/Caga>

Global Stories on Smart Grid

VoltUp And BSNL Partners To Set Up Battery Swapping Stations for EVs In India

VoltUp, a startup that offers battery-as-a-service (BaaS), announced it had partnered with BSNL to set up battery swapping stations for electric vehicles in the country. The company stated that the initial four locations for battery swapping stations under the partnership will be in Gurugram. This will enable an infrastructure of more than 150 charging docks. The project will eventually be extended to other cities in Haryana, and 30 more locations by the year-end. VoltUp now boasts 110 charging stations and more than 1,300 charging docks in 10 cities and 8 states. VoltUp plans to have around 2000 stations by the end of 2024.

Read More: <http://bitly.ws/Caif>

IntelliSmart Infra Launches INSTINCT 3.0 to Foster Innovation in Smart Metering

INSTINCT 3.0 to discuss the possibility of collaboration for the commercialisation of bright ideas that will collectively benefit the smart metering industry and the power sector. IntelliSmart Infrastructure, a joint venture between Energy Efficiency Services and government-backed National Infrastructure Investment Fund, has launched INSTINCT 3.0. The flagship initiative, which has generated ground-breaking ideas, will discuss the possibility of collaboration for the commercialisation of bright ideas that will collectively benefit the smart metering industry and the power sector in general. More than 900 colleges, 2368 students, 81 start-ups, 184 professionals, and 145 incubation centres are engaged in the program.

Read More: <https://www.thehindubusinessline.com/companies/intellismart-infra-launches-instinct-30-to-foster-innovation-in-smart-metering/article66652198.ece>

Electricity Act Amendments In Canada Allow More Energy Storage Solutions

Amendments to the Electricity Act introduced on March 22, will open the door for more storage solutions for renewable electricity. Changes to the act will allow the Department to issue requests for proposals for energy storage solutions, like large-scale batteries. Currently, only Nova Scotia Power is permitted to own such storage methods. Other amendments will allow the Department to issue contracts for well-developed, innovative energy storage projects that can be implemented quickly. These projects will also help identify the best ways for using energy storage in Nova Scotia. The amendments support the addition of more renewables to the electricity system while reducing costs for ratepayers.

Read More: <https://novascotia.ca/news/release/?id=20230322004>

Over 500 MWh Standalone Battery Storage Facility Enters Operation in Texas

The battery is the largest merchant energy storage facility in the world. Wärtsilä Energy and Eolian LP partnered for the 200 MW grid-scale battery system. Eolian LP, a portfolio company of Global Infrastructure Partners, has completed construction on what will become the largest merchant energy storage facility in the world, the companies stated. The Madero and Ignacio energy storage plants have combined power capacity of 200 MW. The grid storage projects will participate in the retail energy power market in the Electric Reliability Council of Texas (ERCOT) grid. The Texas project is the first U.S. storage project to make use of the Investment Tax Credit (ITC) for standalone utility-scale energy storage systems, which was introduced in the Inflation Reduction Act of 2022.

Read More: <https://pv-magazine-usa.com/2023/03/27/over-500-mwh-standalone-battery-storage-facility-enters-operation-in-texas/>

Iron-Air Batteries: A New Class of Energy Storage

Iron-air batteries are an innovative, exciting development in high-performance energy storage. This article will look at what this technology means for the battery industry and modern society, and the technological solutions provided by Form Energy. The impact of modern industrialized society on the environment has become a crucial issue in recent decades. Fossil fuel exploitation and use in energy generation and heavy industry lead to greenhouse gas emissions, a primary driver of climate change and rising global temperatures. Renewable energy generation technologies, such as photovoltaic solar cells and wind turbines, electric vehicles, hydrogen-based technologies, and energy storage devices, have all received intense research focus.

Read More: <https://www.azocleantech.com/article.aspx?ArticleID=1673>



Global Stories on Smart Grid

Enedis Tops Smart Grid Benchmarking for 2022

French distribution system operator Enedis outperformed other utilities with best practices in six out of the seven smart grid 'dimensions' evaluated in the annual index.

These are monitoring and control, data analytics including smart meter coverage, distributed energy resource integration, green energy, cyber security and customer empowerment and satisfaction, with supply reliability as measured by SAIDI and SAIFI.

With this Enedis, which also gained an improved score, retains its top position from 2021.

Tying in second place are Taiwan Power Company and UK Power Networks and in fourth place Consolidated Edison from the US and Western Power Distribution from GB. Australia's CitiPower is the sixth utility to achieve a score over 90, albeit with a slight decline in its overall performance since 2021.

Read More: bit.ly/3Zz7pbq

Technology Trending: Solar Energy Harvesting, 3D Printed Batteries, Nuclear Fission Rocket Engines

Self-assembling nanoparticles for solar-thermal energy harvesting, 3D printed solid state batteries and nuclear fission rocket engines for deep space travel are on this week's technology radar.

Solar-thermal technology such as concentrated solar power or on a smaller scale solar water heating is a promising option for growing renewables penetration but it is challenged by suppressing the energy dissipation while maintaining a high absorption.

But now researchers from Harbin University, Zhejiang University, Changchun Institute of Optics, and the National University of Singapore believe they can overcome this challenge with an absorber comprised of iron oxide nanoparticles that self-assemble to form an organised quasi-periodic material structure based on their interactions with nearby particles without any external instructions.

This structure, which is scalable, was found to provide a significant solar absorption >94% and ideal passive suppression of thermal emissivity <0.2. Tested under natural sunlight, the harvester reached a sustaining open circuit voltage of >20mV/cm² without a heat sink.

Read More: bit.ly/3m5ORSo

Amazon Signs 'Sun, Wind and Cloud' Agreements with Iberdrola

Renewables major Iberdrola has selected Amazon Web Services, Inc. (AWS) as its cloud provider for a digital strategy to support smarter grids, customer engagement and connected clean power. Iberdrola and Amazon.com Inc. have also signed wind and solar power purchase agreements (PPAs) for projects in Europe, the US and Asia-Pacific

Commenting on the announcement was Aitor Moso, director of Iberdrola's retail business, who said: "The agreement today, combining sun, wind and cloud, will enable new renewable generation capacity around the world and accelerate the digital revolution in the energy sector.

"AWS technologies will support our digital strategy to continue increasing quality of supply and provide cleaner and fully-interconnected energy services for our customers."

Through the collaboration, Iberdrola will use the recently launched AWS Europe (Spain) Region and AWS cloud services to drive the energy company's digital transformation plans. This includes collaborating on multiple sustainability-focused projects.

Specifically, the companies are developing an Advanced Smart Assistant application to facilitate connectivity to, and autonomous control over devices such as EV chargers and solar panels.

Other areas of collaboration include partnering on what they call the 'electricity substation of the future', which will make use of IoT and digital twins.

Read More: bit.ly/3U4dMSZ



Member Updates

THE PARTNERSHIP BETWEEN GLOBAL SMART ENERGY FEDERATION AND THE INTERNATIONAL SMART GRID ACTION NETWORK (ISGAN) CELEBRATED AT ISGAN EX CO MEETING IN BERLIN, GERMANY



The 25th meeting of ISGAN took place in Berlin from 20 to 23rd March, 2023

A great opportunity for all its members to network, discuss and learn about the state of the different working groups dedicated to smart grids and their deliverables. Ms. Valerie Anne Lencznar, GSEF Ambassador for Europe and Francophone Africa, represented GSEF at the ISGAN Ex Co meeting.

One focus of the meeting was the Six Working Groups of ISGAN. Their strengths and challenges were focused on and further even stronger cooperation between the Working Groups on an urgent topic is planned.

Further plans were made for ISGAN to contribute with several highly relevant workshops to the upcoming Clean Energy Ministerial (CEM) Events in India later this year.

ISGAN welcomed its new Vice-Chair Ms. Wickie Lassen Agdal, delegate from Denmark. Ms. Wickie has been programme manager with the Danish Energy Agency since 2017 and has been the national delegate for Denmark in ISGAN since 2019.

ISGAN's leadership team currently consists of Chair, Luciano Martini, Italy and two Vice-Chairs Mr. Russell Conklin, USA and Mr. Arun Kumar Mishra, India.

The Working Group communication was chaired by Mr. Daniel Wuebben from Spain. He emphasized the need to communicate on the urgency to react to climate change. Other issues that were discussed during the meeting were the necessity to upscale projects results, increase customer engagement, and improve financing models. The Working Group will work on a video on flexibility and a casebook on micro grid value proposition.

Ms. Simona Ruggieri, from the University of Cagliari, Italy, leading the Working Group on cost-benefit analysis and tool kits presented the works. A dedicated platform on multi-energy planning at local level has been built and is efficient. The tool still needs to be promoted, but also maintained and updated.

The Flexibility Group, led by Ms. Charmalee Jayamaha from UK has been working on End User Flexibility Characterization and Grid Utilization. This task led by Canada has created a taxonomy to capture the real feasible flexibility potential and defined the demand side flexibility (including EV).

The interoperability task led by UK has been working on flexibility market coordination and standardization, trying to set the basis for an interoperable market UK energy digitalization.

The task led by Austria and India has provided key insights on operational and long-term planning. The key takeaways of the group are:

- Flexibility should benefit from a taxonomy
- Digital energy systems are key enablers to unlock value for the consumer
- Need for customer dialog is high

The Executive Committee of ISGAN will reconvene for the 26th meeting from September 25th-29th 2023 in Netherlands.



Member Updates

GLOBAL SMART ENERGY FEDERATION AT 48TH MIDDLE EAST ENERGY EXHIBITION, DUBAI WORLD TRADE CENTER.



Reji Kumar Pillai, Chairman, Global Smart Energy Federation (GSEF) represented GSEF, at the 48th Middle East Energy Exhibition that took place from 7 – 9 March 2023 at the Dubai World Trade Center. He presented the Alternative Business Models in the Power Sector.

Mr. Ravi Seethapathy, Ambassador- Americas GSEF also participated in the MEE Dubai. He was in two strategic expert panels, (1) Digitalized Grids and (2) Alternative Business Models in the Power Sector.

The Strategic conference exclusively focused on unpacking the complex opportunities and challenges for senior decision-makers in the energy and utilities sector in the Middle East and Africa.

The objective of this forum was to explore the latest insights and best practices from middle east regions in developing and implementing strategies to successfully facilitate the energy transition, and stewardship of energy efficiency projects, all whilst enabling adequate energy generation to meet future needs.

The conference was attended by governments, utilities and financiers, power developers, technology providers, EPCs and professional services. A few of the themes covered in the conference were:

- Future energy outlook MEA - policy and finance to enable electrification
- Driving digitalization and innovation in the power sector
- Decarbonising the power sector

Next Middle East Energy, Dubai <https://www.middleeast-energy.com/> will be held from 16-18 April 2024 at Dubai World Trade Centre, UAE.



Member Updates

IELECTRIX: SOLUTIONS TO SUPPORT THE DEVELOPMENT OF LOCAL ENERGY COMMUNITIES

The final report of the IElectrix European project was launched in February 2023 in Paris. IElectrix European project is co-funded by the European Union. Which aims to develop innovative technical solutions to facilitate the implementation of local energy communities powered by renewable energies. Five demonstrations in real conditions were set up in Germany, Austria, Hungary and India. IElectrix analyzed the existing regulations in different European countries and proposed essential regulatory changes to enable the development of energy communities. The final objective was to design models based on interoperable, economically viable and replicable technical solutions throughout the world.

The development of local energy communities is one of the European Commission's priorities for the energy transition, but several obstacles still need to be overcome. First, at the regulatory level, few European Union countries have put in place a legal framework favorable to their development. Secondly, the central role of flexibility and digitalization in connecting these energy communities to the distribution network is often insufficiently taken into account, which causes problems of congestion and network stability, and does not allow consumers to economically value the flexibility they can provide in response to the needs of DSOs.

The IElectrix project involved 16 partners from 8 European countries (Austria, Belgium, Finland, France, Germany, Greece, Hungary and Spain) and India in an attempt to provide concrete and replicable solutions to the various problems encountered.

For medium voltage networks, IElectrix tested a mobile battery storage at the distribution substation level in order to allow DSOs to reduce investment uncertainties, to facilitate the integration of renewable energies and to promote the local use of flexibility. For low voltage networks, two use cases were tested in Austria and India with the active participation of consumers.

The project has provided the following solutions to accelerate the energy transition

- a) Maximizing the use of local renewable energy production
- b) Increasing the resilience of the local grid
- c) Increasing the flexibility of demand
- d) Developing standardized solutions at the European level
- e) Accelerating the deployment of local energy communities and giving citizens the keys to control the energy they consume.

The different demo-projects have been successful in terms of technical aspects and consumer involvement in the local energy system, the cost-benefit analysis highlights the importance of developing several uses for the battery to increase its economic value.

The IElectrix results demonstrated the importance of the grid and the key role of the distribution system operator in supporting the development of energy communities. The solutions resulting from the project will accelerate the development of flexible and smart grids integrating a high proportion of renewable energies and capable of adapting to various geographical, legal and technical contexts.

These solutions will contribute to increasing the resilience of the network and strengthening the security of supply.

Read the full article: <https://www.thinksmartgrids.fr/en/actualites/ielectrix-solutions-to-support-the-development-of-local-energy-communities>

Article Contributed by Think Smart Grids, France



FAST ON GREEN - SLOW ON CLEAN

In the October 2020 GSEF Newsletter, I briefly touched on the recycling issues associated with PV panels and concluded that rapid strides need to be undertaken before we pile up even more landfill. This aspect is being revisited now in its entirety, to examine the progress we have made so far.

The COP27 meeting in Egypt last year ended in an intense debate about the asymmetrical cause-and-effect of climate change and its impact on poorer nations that did not contribute to this in the first place. A second debate was about notional “reparation payments” to help such nations to remediate. My earlier two articles (GSEF Newsletters) elaborate why the technical and process discussions, thus far, are missing the woods for the trees. Many of the same discussions of the initial Rio Summit of 1992 still persists.

The push for “Green” without “Clean” is setting the stage for another problem i.e. land and water contamination. The global waste management theme is fast adding newer items to its list, while the old ones are yet to be resolved. For example, the single-use plastic waste issue is still being addressed (40 years now) as they continue to accumulate in landfills, river bodies and vast “swirling islands” in the Pacific Ocean. An OECD June 2022 study predicts that by 2060 the world would have 1 billion metric tons of plastic waste. Another big unresolved issue is e-waste from consumer electronics, PC boards and mobile phones (20 years now). A UNEP/UNU 2019 Report estimates that global consumer e-waste will reach 110 million metric tons by 2050.

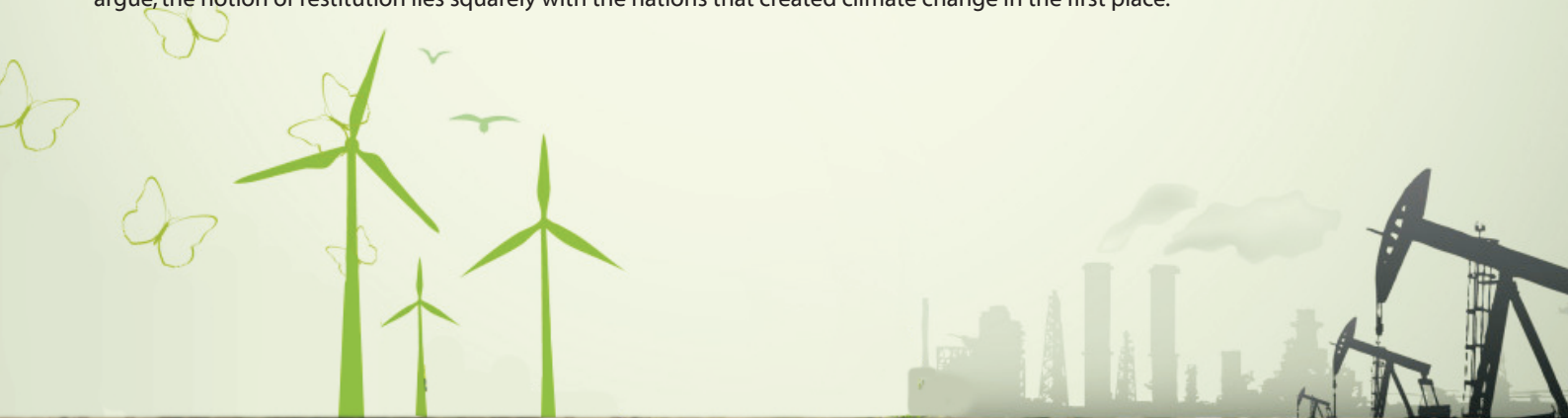
New additions to the above list (past 10 years) now include (a) automotive plastics and fiberglass (bumpers, side panels, front consoles, others); (b) EV sub-systems (lithium batteries and plastics); and (c) green energy sources (PV panels, wind turbine blades and stationary lithium batteries). The International Renewable Energy Agency (IRENA) projects that by 2050, about 78 million metric tons of PV panels will see their end of useful life with an additional 6 million tons accumulating annually. The University of Cambridge estimates that over 43 million metric tons of wind turbine blades will make it to landfills by 2050. An IEA 2022 outlook report estimates that about 1.3 GWh or 5.4 million metric tons (at 4kg/kwh average) of spent EV/Stationary batteries will need recycling or disposal.

The push towards green energy and net-zero (since COP21) is much needed to limit GHG emissions, but such singular focus may be lopsided. In a recent executive roundtable, a comparison was made that oil and gas exploration was equivalent to extraction of rare earth materials for batteries. Both exploits underground natural resources with the former contributing to air pollution/climate change and the latter contributing to land and water pollution. In a Wall Street Journal Sept 21, 2022 article, “Electric-Car Demand Pushes Lithium Prices to Records,” it states that “.... surging prices for lithium are intensifying a race between auto makers to lock up supplies and that lithium carbonate prices stand at about \$71,000 a metric ton (almost four times as high as a year ago)”. In order not to slow down EV sales momentum, OEMs may indeed be encouraging accelerated efforts at lithium mining to hold prices down.

The “Breakthrough Agenda” of COP26 (Glasgow 2021) was endorsed by 45 countries to work together to hold the temperature rise below 2 deg C, by working to bring breakthrough solutions by 2050 in 4 thematic areas (clean power, zero emission vehicles, near-zero emission steel and green hydrogen). Surprisingly, the announcement did not emphasize such solutions to adopt a “near-zero” waste contamination (air, land and water). Many argue that the main problem is not just carbon dioxide but pollution from toxic chemicals, plastic and partially combusted carbon-based chemicals.

The Aug 10, 2022 Report of the Global Oceanic Environmental Survey (GOES), Roslin Innovation Center (Edinburgh, Scotland), titled “Save our Oceans,” notes that (a) it is impossible to stop climate change by carbon mitigation alone; (b) a net zero 2050, poses an oceanic pH below 7.95 resulting in loss of most carbonate-based life in the oceans and further resulting in loss of most seabirds and marine life (a food supply for 3 billion people); (c) the Ocean SML layer that controls water-vapor gas diffusion across the air/seawater interface (which accounts for over 75% of all greenhouse gas protection), will be lost resulting in uncontrollable climate disruption, strong winds, torrential rain storms; and (d) the IPCC work does factor this SML layer and oceans impact which account for 80% of climate change.

Another impasse factor is the North-South divide. Most of the devastating climate change impact (floods, hurricanes, sea-level rise, higher ambient temperatures, droughts) is being felt by developing nations that contribute very little to climate change today. So, they argue, the notion of restitution lies squarely with the nations that created climate change in the first place.



Missed in all this din, is the global NGO and youth's collective stand for drastic reduction of all pollution (air, land and water), rather than just carbon mitigation alone. Their slogans such as (a) "humanity has destroyed more than 50% of all life over 50 years and the next 25 years will complete the task"; (b) "we might achieve net zero for carbon, but will have wiped out life support for the planet"; (c) "stop deluding that carbon is 100% of the problem"; or (d) "a non-toxic planet by the end of this decade is the best chance of survival". Their message and protests appear very consistent but seem to be getting lost in the global scientific and business debate and not taken seriously by governments. Perhaps, they do not constitute a coherent and politically savvy voting population.

So, this begs the question whether policy makers are fast on Green, but slow on Clean. There is truth to this. One would think, if the above statistics are so overwhelming on the pollution aspects, then why are nations, big and small, poor and rich, ignoring the vast accumulated and growing waste problem? The principal rationale for governments to ignore the pollution aspect appears to be (a) a quick green start is better than waiting for a clean-waste consensus; (b) the optics of green energy production potentially diverts a more difficult waste disposal debate; and (c) a true clean-net-zero requires a very frugal consumption life-style, which is an anathema to modern capitalistic and national economics. So, the best thing is to kick the "clean" down the road and just focus on the "green".

Waste recycling and reduction policies should drive market innovation, but the global needle has not moved much in addressing waste issues. The single biggest reason is the high costs associated with waste collection and recycling (breaking into individual elements for re-use). It is far cheaper to landfill. Even developed nations are dragging their feet. Only in Sept 2022, the US Senate passed the "Strategic EV Management" Bill, which seeks to maximize EV battery recycling for their own federal fleet (awaiting passing by the House). Similarly, EU has sought to ban the landfilling of wind turbine blades by 2035.

So, while global policy makers continue their debates at the various COP meetings and the global NGO/Youth continue their street protest, the waste tally increases unabated. Here are the waste projections for 2050 (from above references):

- 1,000 million (1 billion) metric tons of plastic waste (2060)
- 110 million metric tons of electronic waste
- 78 million metric tons of PV panel waste
- 43 million metric tons of wind turbine blades waste
- 5.4 million metric tons of spent lithium battery waste
- Unquantified - untreated municipal solid/liquid waste and mining leachates

In closing, it appears that as mankind innovates to improve its lot, the waste tally keeps piling up, endangering the very air, land and water required to survive. A very impressive record for economic development but a very poor record for our own future life on the planet.

We are for sure fast on Green, but very slow on Clean!

Article contributed by Ravi Seethapathy, GSEF Ambassador for Americas



The poster is for the 9th ISGAN Award of Excellence. It features a dark blue background with a glowing 'AI' logo and a globe icon. The text is white and light blue. The ISGAN logo is on the left. The main title is '9th ISGAN AWARD OF EXCELLENCE'. Below it, the theme is 'Excellence in Artificial Intelligence for Smart Grid'. The 'IMPORTANT DATES' section lists submission and notification dates, award ceremony details, and publication information.

International Smart Grid Action Network

ISGAN Award of Excellence 2023

9th ISGAN AWARD OF EXCELLENCE

THEME | Excellence in Artificial Intelligence for Smart Grid

IMPORTANT DATES

- SUBMISSION OF APPLICATIONS
~ April 28, 2023 Deadline Extended!
- NOTIFICATION OF ASSESSMENT RESULT
June 2, 2023
- AWARD CEREMONY
14th Clean Energy Ministerial (CEM14), India, July 2023
- PUBLICATION
Immediately following the award ceremony and thereafter

Smart Grid Events

8th -10th May, 2023

World Utilities Congress

Abu Dhabi, UAE

<https://www.worldutilitiescongress.com/>

12th -15th June, 2023

CIRE2023

International Conference & Exhibition on
Electricity Distribution, Rome, Italy

<https://www.cired2023.org/>

20th -22nd July, 2023

Clean Energy Ministerial

Goa, India

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

14th-16th November 2023

Enlit Asia

ICE, BSD City, Jakarta, Indonesia

<https://www.enlit-asia.com/visit>

4th - 7th December, 2023

26th World Energy Congress

The Netherlands

<https://bit.ly/3VSCndm>

12th-16th March, 2024

India Smart Utility Week (ISUW) 2024

Delhi, India

<http://www.isuw.in/>

17th - 19th May 2023

Future Energy Asia 2023

Bangkok, Thailand

<https://bit.ly/3X9xHkC>

13th-16th June 2023

Asia Clean Energy Forum 2023

Manila, Philippines

<https://asiacleanenergyforum.adb.org/>

11th -13th October, 2023

4th SEERC Conference

ISTANBUL

<http://www.seercturkiye2023.com/>

28th- 30th November 2023

Enlit Europe

Paris, France

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

27th-29th February 2024

DISTRIBUTECH International

Florida, Orlando

<https://www.distributech.com/>



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



Japan Smart Community Alliance



Smart Grid Ireland

Utility Members



Electricity Generating Authority of Thailand (EGAT)



Electricity Supply Commission of South Africa (ESKOM)



EDM Mozambique



Tenaga Nasional Berhad (TNB) Malaysia



European Distribution System Operators (E.DSO)



Botswana Power Corporation

Associate Members



Green Business Certification Inc.



Florence School of Regulation (FSR)



Energy BlockChain Consortium



Caribbean Electric Utility Services Corporation



Electric Power Research Institute



Texas State University

Current Working Groups

- Blockchain for Utilities
- Regulatory Changes or Regulatory Reforms for the post Covid Digital Utility
- AI and Analytics for Utilities
- Grid Integrated Buildings

Working Groups in Pipeline

- Green Recovery Playbook for Utilities

Contact us for more information.

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