

Shri RK Singh, Honourable Minister for Power and New and Renewable Energy delivered a Special Address at India Smart Utility Week 2020 on March 04, 2020



India Smart Utility Week 2020 was held from 03rd- 07th March, 2020 in New Delhi. The event was inaugurated by Shri Sanjiv Nandan Sahay, Secretary, Ministry of Power on March 04, 2020. The main theme of ISUW 2020 was "Towards A Net Zero Energy Power Sector" and "Towards A Carbon Neutral Transport Sector".

India's leading Electricity, Gas and Water Utilities and Experts from around the globe took part in this conference and exhibition which hosted 269+ speakers from 20 countries. ISUW 2020 had 13 Theme Sessions, 4 Special Plenaries, 5 Bilateral workshops, 200+ Delegates in 4 Tracks of Master Classes and 7 Parallel session/ Roundtables.

The key topics discussed during the conference are Roadmap For 450 GW RE by 2030; Electrification of Public Transportation: Experiences and Challenges; EV Policies and Programs in India vis-a-vis International Scenarios; Energy Storage Technologies for Grid Support and EVs; Voice of the Customer in the Digital Era; Regulations Enabling Energy Transition; Forecasting, Scheduling and Dispatching of RE; Power Systems Security in the Era of Cyber Wars; Women in Energy and the Energy Transition; EVs and EV Charging Stations – Technology Trends and Standards; and 250 Million Smart Meters in India by 2024. These are in addition to the full day sessions on Water and Gas Distribution. There were several parallel workshops on variety of topics such as Future Skills for the Jobs in 2030; Blockchain Applications in the Energy Sector; Workshop on Optimizing Electricity Grids by District Energy System Integration; and the Roundtable on Interconnection of Regional Grids in Asia: SAARC Grid - GCC Grid - ASEAN Grid.

Honourable Minister Shri RK Singh inaugurated at the Special Plenary Session on Regulations Enabling Energy Transition on 04 March 2020 at India Smart Utility Week 2020 which had eminent speakers such as i) Barry Gardiner, Member of Parliament for Brent North, House of Commons, London and Shadow Secretary of State for International Trade and Climate Change ii) Mr. Neil Chatterjee, Chairman, Federal Energy Regulatory Commission (FERC), USA, iii) Mr. PK Pujari, Chairman, Central Electricity Regulatory Commission (CERC) (iv) Eija-Riitta Korhola, Former Member, European Parliament.

In addition, five bilateral workshops were organized with Sweden, EU, France, US and Switzerland to facilitate experience sharing, project partnerships, collaboration; knowledge dissemination and Joint R&D projects.

Table of Contents

Page	News topic
1	Cover story: Shri RK Singh, Honourable Minister for Power and New and Renewable Energy delivered a Special Address at India Smart Utility Week 2020 on March 04, 2020
2-3	Stories across the globe on Smart Grids: Special: Germany's dependence on Renewable Energy: A boon or a bane?
4	Member Updates Special: Triple-Bottom-Line benefits through PEER Certification
5-6	GSGF Update Special: Trials and Tribulations of Biomass Energy, Ravi Seethapathy P.Eng., MBA, FCAE "Ambassador for the Americas" Global Smart Grid Federation, USA
7	GSGF at a Glance

Global Stories on Smart Grid

Saft JV pilots EV batteries, Gravity storage demonstrator, Honolulu microgrid Sandbox

Saft, a battery manufacturer and technology company for energy storage systems, has confirmed its participation in a joint venture (JV) for the manufacture of automotive batteries that will hit 48GWh in two European plants. The JV is planning to take action in 2021, including Saft's R&D, and hopes to start mass production by 2023, targeting an initial 8GWh of capacity that Saft said will be up to 24GWh later in Northern France. The pair then want to add another factory in Germany that will take the total capacity to 48GWh. The entire plan, which could meet as much as 15% of EV battery demand in Europe, Saft claims, will require around £5 billion in investment

Germany's dependence on Renewable Energy: A boon or a bane?

Germany now generates over 35 percent of its yearly electricity consumption from wind and solar sources

More than 30 000 wind turbines were completed, with a total installed capacity of almost 60 GW. Germany now has about 1.7 million solar (photovoltaic) installations, with 46 GW of installed capacity. Unfortunately, the actual amount of electricity produced is only a fraction of the installed capacity, most of the time. Worse still, it can fall to almost zero on "bad days." For instance, in 2016 there were 52 nights in the country with virtually no wind blowing. The more wind and solar energy a nation decides to generate, the more backup capacity it will require. Limiting wind and solar to a relative minimum would be much better, and relying instead on controllable, non-fluctuating power sources operating with a high capacity factor, meeting the nation's basic electricity load requirements and adjusting total output to varying demand. This corresponds to worldwide practice before the recent massive renewable-energy build-up.

Read more: <https://bit.ly/31mmCQo>

Gridserve EV Forecourt breaks ground in the UK

Gridserve has announced that the first of a nationwide network of over 100 electric vehicle Forecourts is now under construction and will open in May 2020. UK firm's first solar-powered site in Essex will house 24 rapid chargers, a supermarket and an EV education centre. Gridserve revealed that planning permits had been submitted for the electric vehicle Forecourts that will offer simultaneous rapid charging for fleets, commercial and private vehicles. Now the ground has been broken on the construction site for the first Forecourt near Braintree in Essex where 24 ultra-fast charging bays are supported by batteries to enable the maximum power requirements of all chargers simultaneously. The project has been partly funded by a £4.86m grant from Innovate UK, a government-backed agency that offers financial support to UK-based technology developers. The 2.5-acre electric vehicle motorway service station just off the A131 will be also be home to a small supermarket, coffee shop and lounge area with Wi-fi and meeting rooms.

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

Fermata Energy Receives the First Underwriter Laboratories (UL) Certification for Vehicle-To-Grid Electric Vehicle Charging System

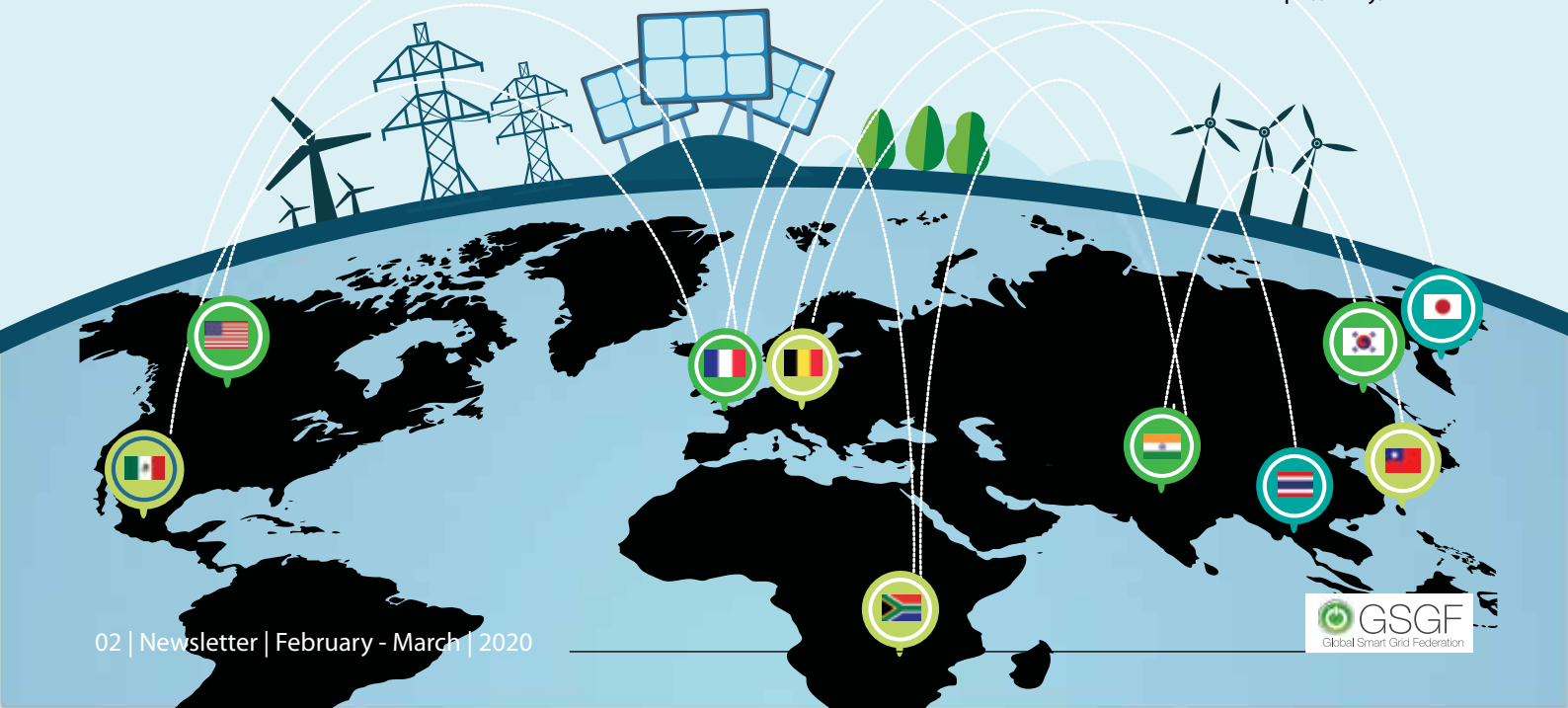
UL, a leading global safety science company, announced that Fermata Energy's bidirectional electric vehicle (EV) charging system is the first to be certified to a new North American safety Standard, UL 9741, the Standard for bidirectional electric vehicle (EV) charging system equipment. Bidirectional chargers are built on the idea that electric vehicle batteries can be valuable resources that hold electricity used to run the vehicle itself, but also provide energy back to the electrical grid, enabling EVs to earn money while they are parked by helping to stabilize the electric power grid. The UL 9741 standard covers bidirectional electric vehicle charging equipment that charges electric vehicles from an electric power system (EPS) and also includes functionality to export power from the electric vehicle to an EPS.

Read More: <https://bit.ly/3b75phO>

Ameren Missouri Looks to Harness Wind, Solar and Batteries with \$7.6B 'Smart Energy Plan'

Ameren Missouri, the largest investor-owned utility in the Midwestern state, has filed a \$7.6 billion grid modernization plan that includes smart meters for its nearly 1.3 million customers by 2025, adding nearly 700 megawatts of wind power, plus more solar and battery storage systems to boost rural reliability. Ameren's "Smart Energy Plan," filed Wednesday with the Missouri Public Service Commission, will direct most of its spending — \$5.3 billion, on top of \$1 billion spent last year — toward replacing aging poles and wires, undergrounding high-priority circuits, and other infrastructure improvements. A subset of that funding will go toward more advanced grid controls, such as sensors and switches to sectionalize circuits and reduce the scope of power outages.

Read more: <https://bit.ly/33w6tcz>



Global Stories on Smart Grid

Renewables to Rise above Coal and Nuclear Says FERC

Renewables are estimated to add nearly 50,000 MW, being more than a quarter of the total capacity according to a review by the SUN DAY Campaign of data, issued last week by the Federal Energy Regulatory Commission (FERC). According to the report, the mix of renewable energy sources (i.e., biomass, geothermal, hydropower, solar, wind) provided 57.26% of new U.S. electrical generating capacity added in 2019 – swamping that provided by coal, natural gas, oil, and nuclear power combined.

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

980 million euro in EU funding available for clean energy infrastructure

In the, the European Commission has proposed to renew the Connecting Europe Facility, allocating •42.3 billion to support investments in European infrastructure networks

The European Commission has released 980 million euro of funding for key European energy infrastructure projects with major cross-border benefits. The EU funding comes from the Connecting Europe Facility (CEF), the European support programme for trans-European infrastructure. This a crucial instrument to deliver on the Green Deal, given the key enabling role of energy infrastructure in the transition to a climate neutral economy.

Read More: <https://bit.ly/3b1TPo7>

California ports turn to microgrids for energy security, demand flexibility

In response to California's electrification push, the state's largest ports, including San Diego, Los Angeles and Long Beach, are turning to microgrids for energy security and demand flexibility. The \$7.1 million microgrid project (PDF) will include a 300-kilowatt carport solar photovoltaic array, 330 kilowatts of stationary battery storage, and a first-of-its-kind 250-kilowatt mobile battery energy storage system. The project received a \$5 million grant from the California Energy Commission's Electric Program Investment Charge.

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

IFC to assess the potential for private energy storage solutions in Burkina Faso

The assessment will lead to the definition of a storage investment roadmap based on PPP models in Burkina Faso

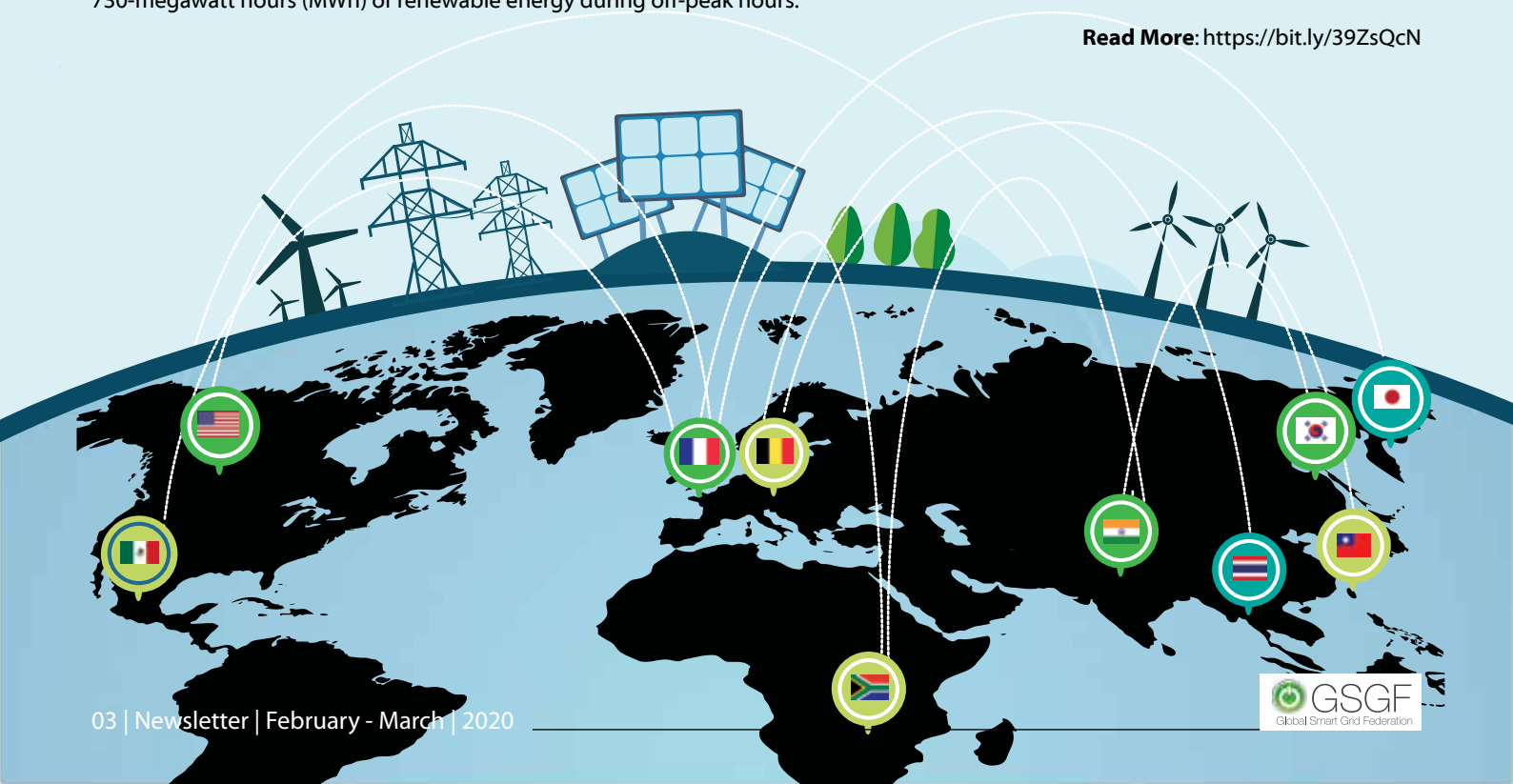
International Finance Corporation (IFC), a member of the World Bank Group, signed an agreement with Burkina Faso's Ministry of Energy to assess contribution of private investment in energy storage to higher levels of solar power production while enhancing grid stability and dispatch issues. Under this agreement, IFC will assess the economic benefits of storage to integrate solar capacities to the grid and decrease the overall generation costs, review the country's legal and regulatory frameworks and compare private and public storage project development and financing models. This assessment is an important step to help successfully integrate a larger amount of solar power into the country's energy mix, as planned by the government.

Read More: <https://bit.ly/38ZNckK>

Tesla has Received the Approval from the Local Authorities to Build its Massive 1.1 GWh Megapack Battery Energy Storage System Facility in California

Monterey County Planning Commission unanimously approved the Pacific Gas and Electric-backed project, which will be known as the Elkhorn Battery Storage Facility and will involve both solar and wind energy. The project's unanimous approval will allow Tesla and PG&E to work together to build a system capable of storing wind and solar power that will, in turn, be used during periods of high-energy usage. The storage facility will consist of approximately 270 manufactured battery storage units with a capacity of up to 730-megawatt hours (MWh) and associated improvements for connection to existing power transmission facilities on 4.5 acres of land at the PG&E substation in Moss Landing. The project also has the potential to become one of the largest battery storage facilities in the world as it can give 730-megawatt hours (MWh) of renewable energy during off-peak hours.

Read More: <https://bit.ly/39ZsQcN>



Member Updates

Triple-Bottom-Line benefits through PEER Certification

By

Author: Sanjay Kumar

Green Business Certification Inc.



Electricity has become a necessity in our lives. Whether in our homes, schools, grocery stores, or workplaces, our daily routines rely almost completely on the use of electricity. As such, accessibility to reliable, clean and affordable power is an essential component of our quality of life. When power systems fail, lives are immediately interrupted and put at risk.

This heavy electricity usage has also impacted our environment and communities. With greenhouse gas emissions from fossil fuel-based energy sources on the rise, and as climate change continues to result in more severe weather episodes, economic and environmental damages increase as well. Globally, our electrical infrastructure is aging, and we're feeling the effects of a less resilient system.

Both public and private entities are realizing they need to start planning for crisis and address the reliability of our aging grid. A growing movement has risen to make structures more resilient through improved preventive action. The ability of a city or business to bounce back ultimately benefits everyone, providing evidence that bringing this concept to fruition is key to solving problems now and preventing hardship in the future.

The way that we design, build, and operate our electrical infrastructure is key to the triple bottom line: people, planet, and profit.

Major electricity consumers like cities, transit systems, and campuses all over the world are working to address the reliability and sustainability of our power systems: to modernize and improve electricity infrastructure, to adapt to an ever-changing energy market and the growth of renewables, to improve electricity resiliency and to mitigate climate risk by reducing carbon emissions.

USGBC and GBCI, believes that thoughtful investment in our power systems can ensure a safer and healthier future for all who use them. That's why the PEER (Performance Excellence in Electricity Renewal) certification program supports global grid modernization efforts by providing building operators with a framework for continuous improvement and performance assessment.

PEER is a metrics-based certification program that measures power system performance on a 110-point scale, divided across 6 credit categories, including:

1. Reliability & Resiliency
2. Energy Efficiency & Environment
3. Operations, Management & Safety
4. Grid Services
5. Regional Priority
6. Innovation & Exemplary Performance

These categories provide a structured approach to assess and implement strategies to improve power system performance, which can be analyzed based on the triple-bottom-line benefits that a project can achieve.

Several Smart Grid events scheduled from March 2020-July 2020 have been rescheduled due to the spread of Corona virus. The changes will be uploaded soon.



Trials and Tribulations of Biomass Energy

By

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In the May 2019 GSGF Newsletter article “Waste to Energy, Slips, Trips and Falls”, I wrote about the investment risks in WTE plants and their Achilles heel in operations (waste stream sorting, moisture reduction, combustion process and thermal cycling). In this article, I present biomass energy (not as a part of a WTE stream mix), but as a sustainable fuel source (wood feedstock) for power generation/energy production and examine its current status.

Biomass (biomass/biogas) electricity generation in the USA began with gusto 15 years ago and was termed as a “near carbon-neutral source” with a stabilizing, dispatchable sustainable power, to the otherwise intermittent wind/solar power. However, its take-up has been paltry, compared to the progress of solar/wind power, despite good sustainable availability of biomass. The USA Energy Information Admin. (EIA) notes the following statistic for 2018¹

Type	No. of Plants (Utility scale)	Nameplate (MW)	Fuel Source	Percent
Total (all sources)	22,118	1,196,488	All incl. fossil, nuclear, hydro and Renewable	100%
Wind	1,316	94,971		7.94%
Solar PV + Thermal	3,388	32,239		2.69%
Wood/Wood Derived	346	9,849	Wood, wood wastes, black liquor	0.82%
Other Biomass	1,959	5,714	MSW, landfill gas, sludge, agro/agro-waste	0.48%

Per the EIA, only about 50% of biomass plants are in operation as of 2018.

I think the biomass energy demise in the USA is due to a combination of several factors, i.e. (1) low natural gas prices and gas plant O&M costs; (2) removal of biomass subsidies and minimum quota; (3) recent policy debate on the net benefits of biomass emissions relative to natural gas; and (4) falling wind/solar prices (and now battery energy storage prices). All this taken together, makes biomass energy industry, not be seen in a favorable light by the regulatory/policy makers to promote it. In a recent (“Power Magazine”) article by Jim Romeo (Writer/Contributor), he captures it well in a statement, “biomass power is simply not, what it was hoped to be.”

This is however, not the case elsewhere in the world (developed and the developing countries). Countries that import fossil fuels at a high cost burden (or with hard currencies) or have a high carbon tax, can hedge their intermittent wind/solar plants (particularly seasonal variations) with distributed biomass/biogas CHP plants.

For example, in the Nordic countries, biomass energy has been nurtured and is now a viable industry (sustainable wood harvest, efficient combustion technologies and much cleaner particulate emissions). China too has successfully implemented MW scale biomass (waste and municipal waste) plants in its cities. Canada converted its 230 MW Atikokan coal plant into a wood-pellet fired plant to become the largest biomass power plant globally, but is currently under reduced generation due to lack of power demand in NW Ontario.

In my opinion, small distributed biomass energy (both heat and power), offers a good value and domestic fuel flexibility in developing countries, particularly in Asia, Latin America and Southern Africa, where fossil fuel is imported in hard currency and sustainable forest harvest can be developed. In other larger countries such as Australia and Canada, annual forest fires render hundreds of acres of such partially damaged wood as local biomass resource. In a recent study undertaken in Yukon (northern Canada), it was estimated that local biomass was a cheaper fuel to heat large buildings than transporting oil from far away.

In establishing such distributed and small biomass CHP plants, a few considerations provide much better financial and operational leverage. These views are entirely mine (from examining these) and are outlined below:

https://www.eia.gov/electricity/annual/html/epa_04_03.html

1. *Smaller capacities (10– 200KW). are best for biomass power and most appropriate in energy access applications (rural and remote areas where distribution wires are expensive or unavailable). They also are viable where intermittent solar PV needs to be stabilized. The closer such plants are to both the wood supply and the point of consumption, the better the value.*
2. *Small power generation is best done with biogas production (from the biomass) at the point of generation, using gasifiers (cleaner burn, better efficiency and better part-load control). Excess gas can be stored locally and used for other distributed uses. Also, the biochar produced offers excellent soil nutrition value. In many such cases, these smaller units are mobile and can be moved around.*
3. *Chipped biomass feed is problematic in steam boilers (size and moisture content). In such cases wood pellets (albeit higher cost), is preferable. In steam systems, it is better to pre-mix biomass varieties (average calorific value), than to keep varying the boiler controls to match feedlots (bad for the boiler).*
4. *Combined Heat and Power (CHP) or simply just heat energy is best use of such sources and should be leveraged for other community necessities (boiled water for drinking, hot water for cooking/bathing, sanitation, economic development, etc.). Its higher capital cost needs to be offset with local (otherwise unavailable benefits).*
5. *Biomass energy policy directions should not be halted or reversed. It plays a vital role in the natural CO2 cycle neutralization and are almost GHG neutral (traditional fossil fuels are net GHG emitters).*

Simply put, let us not bundle biomass energy along with other traditional fuels and simply look at economics. It needs tender-care just as solar and wind energy do. Investor confidence will come if built on the above principles.

GSGF at a glance

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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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