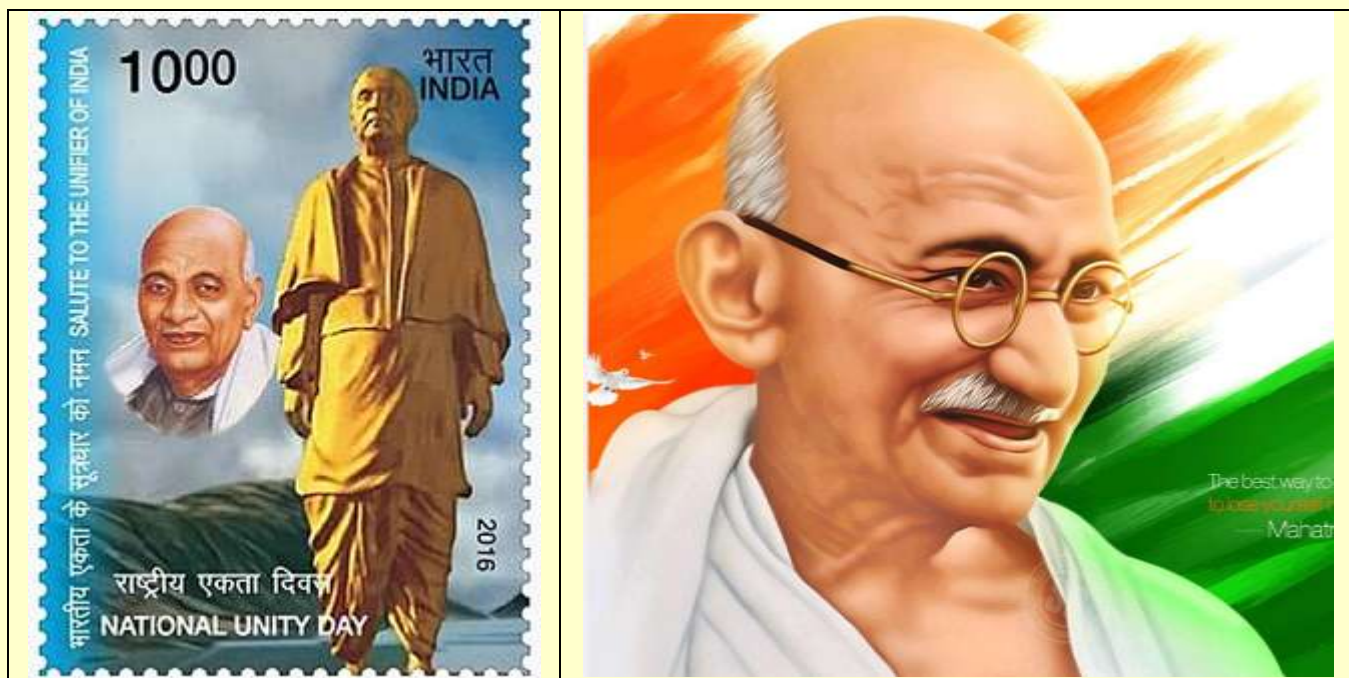




SPE Newsletter

SPE(I), Vadodara Chapter

October 2026 Issue: 4/2026



REMEMBERING NATION BUILDERS

WEL COME TO 2-DAY CONFERENCE ON
**ELECTRICAL DESIGN, ENGINEERING, INSTALLATION &
POWER MANAGEMENT IN INDUSTRIES**

AT FGI, GOTRI - SEVASI ROAD, GOTRI, VADODARA.

30 & 31 (FRIDAY & SATURDAY) OCTOBER 2026



The Society of Power Engineers (India) Vadodara Chapter (Estd. 1996)

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CHAIRMAN'S DESK



Dear Members,

Greetings to my esteemed fellow engineers, industry experts and members.

It is a privilege to address you all as the Chairman of the

Society of Power Engineers(India), Vadodara Chapter. Vadodara has long been recognized as a powerhouse of engineering excellence and industrial innovation. As an organization, we stand at the very heart of this vibrant ecosystem, serving as a vital bridge between evolving technology, academic research, and real-world industrial application.

Our core mission has always been clear: to foster an environment of continuous learning and collaboration. In an era where the global energy landscape is transforming rapidly—driven by the clean energy transition, digital smart grids, and unprecedented technological advancements like AI—our role as power engineers is more critical than ever. We are not just managing power; we are shaping the future of sustainable energy.

To stay ahead of the curve, the Vadodara Chapter remains deeply committed to being a catalyst for knowledge exchange. Through our **regular Seminars, National Conferences, Technical Workshops and Interactive Forums**, we bring together the finest minds from across the country. These platforms provide our members and invited guests with unique opportunities to deliberate on emerging trends, debate challenges, and share cutting-edge solutions.

However, the true strength of our society lies in its members. Your active participation, shared insights and dedication to engineering excellence are what drive this Chapter forward. I encourage each of you to leverage our network, contribute to our technical discussions and mentor the next generation of engineers who will inherit this vital industry.

We have arranged a **2-Day Conference on “Electrical Design, Engineering, Installation and Power Management in Industries”** on **30 & 31 Oct 2026** at FGI, Sevasi, Vadodara. We request you to attend the conference with your engineer friends and colleagues and help us make this conference a grand success.

As we look to the future, we aim to scale new heights by introducing more diverse programs, collaborating with global industry leaders, and tackling the pressing challenges of energy security and sustainability. Let us continue to work together, exchange ideas, and innovate for a brighter, more resilient tomorrow.

Wishing all the members, their family and other readers a **Happy Diwali & Prosperous New Year** following it.

Thank you for your unwavering support and commitment.

Warm regards,

Er. MR Tilwalli

EDITORIAL



Dear Readers,

Renewable energy has long been considered as a backbone of the India's transition to clean electricity, presently constituting significant share of the

cumulative Installed capacity of India. Yet, as the first major generation of utility-scale wind farms reaches the end of its 20-to-25-year lifecycle, the industry faces an uncomfortable, looming paradox. Wind turbine's ultra-durable blades—the prime components built to protect our environment are creating a monumental end-of-life management challenge. By 2050, it is estimated that large quantities of blade material will require decommissioning globally. Wind blades are primarily composed of glass or carbon fiber-reinforced polymers (FRPs) bound together by dense thermosetting resins. They are specifically designed to be lightweight, cross-linked, and virtually indestructible for years in harsh atmospheric conditions. As a consequence, blades do not easily decompose naturally.

Advanced architectural innovations are proving that retired blades are not waste, but premium raw assets. Since the residual mechanical strength of a retired wind turbine blade remains considerably high, certain countries in Europe have started undertaking projects like reusing them into durable pedestrian bridges, highway noise barriers, non-load bearing façade walls in parking space, bike shelters, park benches and playground equipment. Crushed composite aggregates of blades are increasingly finding application in civil engineering also acting as high-performance reinforcements in asphalt pavements and lightweight additives for concrete. Even recycling facilities are beginning to extract raw fibers and resins for reuse in the aerospace and automotive sectors.

The practical reuse of retired wind blades is no longer just a technical curiosity; it is also ethical imperative. By transforming yesterday's clean-

energy hardware into tomorrow's resilient public infrastructure, we can ensure that wind power fulfills its promise—also leaving a legacy of innovation, instead of merely fiberglass waste.

Now turning to our activities, SPE(I), Vadodara is organizing a **2-Day Conference on “Electrical Design, Engineering, Installation & Power Management in Industries”** on **30 - 31 Oct 2026** at FGI, Vadodara, with the objective of upgrading the knowledge of power sector professionals especially working in the Electrical Department of Medium & Large scale Industries. This is the second conference of the current year. It is being jointly organized with the Federation of Gujarat Industries (FGI), ERDA and the Quality Circle Forum of India (QCFI), Ankleshwar Chapter. The Conference is focused on enhancing the knowledge of participants in areas such as Industrial Electrification, Application of Automation, Use of SCADA, Power System Studies, Repair & Maintenance of various Industrial Electrical Equipment, and Electricity Bill Optimization through Open Access Mechanism, among others. The aim of the conference is to provide a platform for sharing practical experiences and insights of experts from various industries and distribution utilities with the participants. Team SPE(I), Vadodara is putting in wholehearted efforts to ensure the all-round success of the conference. We look forward to the active participation and support for the conference from Industries. Members of SPE(I) Vadodara can also rope-in participants from their own circle.

On this occasion of the 30th Foundation Day of our Society on 3rd October, 2026, I extend my heartfelt greetings to all members. I would also like to express my sincere gratitude for the active support and encouragement received from our esteemed members and well-wishers of SPE(I) throughout this successful journey.

I wish all members and their families warm greetings for the Navratri festival and a safe, joyous, and prosperous festive season ahead.

Er. Umesh Parikh



CHAPTER'S ACTIVITIES

- On **10 Jul 2026**, the **Chapter**, jointly with **IE(I)** Vadodara, organised a lecture programme on **"DIGITAL HYGINE"** at Vasvik Auditorium. Members and their Spouse were invited for the event.

The eminent speaker was **Mr. Soumil Khandhadia**, Director, 7 Hills Cyber Wall, Vadodara.



Speaker delivering lecture

The speaker explained the subject in very simple language with examples on ways of Committing Digital Frauds and obvious mistakes done by the victim inadvertently while doing digital transactions. Just by using e-mail Id of one listener among audience, speaker could hatch the related information of that individual including his residential address, Aadhaar Number, Date of Birth etc. He also demonstrated creating a fake photo Id proof of a famous celebrity just by using the related information of that individual including his residential address, Aadhaar Number, Date of Birth etc.



Chairman SPE(I) Vadodara felicitating the speaker

He stressed on creating strong Password, not to click on unknown links and not to entertain unknown phone calls asking personal information.

Overall the lecture was informative, interesting and useful.

- On **26 Aug 2026**, the **Chapter**, jointly with **IE(I)** Vadodara, organised a lecture programme on **"SARCOPENIA - THE SILENT MUSCLE THIEF"** at Vasvik Auditorium. The eminent speaker was **Dr. Sejal Shah**, MS(Ortho), MBA (Health Care), Nisarg Multi Specialty Hospital, Harni-Warasia Ring Road, Vadodara.

SARCOPENIA is progressive loss of muscle mass. It is relevant to the ageing effect in Senior Citizens and their health problems as said by **Dr. Sejal Shah**.

First of all, he explained the causes of disease. In addition to ageing effect, no/less physical activity, poor protein intake, chronic diseases, hormonal changes, acute illness – these are the factors responsible for **SARCOPENIA**. He described warning signs observed in daily routine of human being such as weight loss, slow movement, stair climbing difficulty, weakened grip, feeling tiredness.

While explaining the prevention to progression of disease, he emphasized on intake of protein through Pulses, Milk, Curd, Eggs, Paneer, Tofu, Soyabin etc. in proper proportion. Vitamin D is also equally important in prevention of disease. Daily Exercise is the Best Medicine for overall health.

In addition to food intake, proper foot wear, regular vision check, adequate lighting inside house are the other important factors. For every movement use of railing on staircase also plays important role as a precautionary measure for 60+ age persons.



Chairman SPE(I) felicitating **Dr. Sejal Shah**



Secretary SPE(I) felicitating **Dr. Sejal Shah**



Dr. Sejal Shah delivering talk

At the end in Q & A session, the speaker solved the queries of listeners satisfactorily.

Overall, lecture was informative and useful to put into practice.

Er. VB Harani
Secretary

ACNOWLEDGEMENT

SPE(I) Vadodara received **Donation** as under:

1. Er. Mohanlal G Pawar, Life Member **Rs. 1,000**

Thanks to above Donor. Similar gestures from other members as well as from Well-Wishers is expected

NEW LIFE MEMBERS

GR No.	Name	Grade	GR No.	Name	Grade
2485	Anilkumar Patel	LM	2487	Robert A Macwan	LM
2486	Sandeep H Trivedi	LM	2488	Dr. Ramanarayan H Kahar	LM

CHALLENGES AND REMEDIAL MEASURES FOR HIGH RENEWABLE ENERGY PENETRATION IN THE FUTURE INDIAN GRID

Er. Shailesh B Modi¹ and Dr. Anil Khopkar¹

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Abstract:

The power demand in India is continuously increasing due to large scale agricultural pump sets, Industrial growth and increased demand of domestic loads, new gadgets in the utilization, usage of Electric Vehicles etc. In present power scenario, the contribution of renewable energy source into the grid is significant i.e. about 30%. The government of India set a target of 500GW Power from non-fossil fuel source (Renewable) like solar, wind etc. by 2030. It means that the renewable energy contribution will be more than 50% of the total generation by 2030. If the power demand continuous to increase and renewable energy, the integration of Renewable Energy (RE) into the grid will be about 80% by 2047. The increasing share of REs connected through power electronics in the electrical grid. There will be huge challenge to accommodate such RE power into the national power system grid. Many of the ancillary parameters like frequency stability, short circuit level contribution, Black start capability etc. are provided by conventional power plant in present power scenario which the renewable sources are unable to provide in so much proportion. In this paper the challenges of the renewable energy integration into the grid with remedial measures are discussed. Further, mitigation of the challenges for the reliable, stable, sustainable and resilient future Indian power system grid is also discussed.

Keywords: Renewable; Short Circuit; Inertia; Intermittent; Stability; Synchronous Generator

1. INTRODUCTION

The air pollutions generated by conventional (fossil fuel) power plants like thermal power plant which generate the gases mainly through the combustion of fossil fuels like

coal, natural gas etc. These process emits both greenhouse gases and harmful air pollutants into the atmosphere. The main gases generated are Carbon Dioxide (CO₂), Sulphur Dioxide (SO₂), Nitrogen Oxide (NO), Nitrogen Dioxide (NO₂) etc. cause serious environmental issues. Also the power requirement is increasing day by day due to the industrial growth and increased power demand in the country. The World is moving towards zero emissions and also there is a need to meet the ever-increasing national power demands. For the requirement of additional energy and to mitigate the issues of the pollutions in the environment; the Governments of India, utilities, stake holders and other agencies encourage the renewable energy plant developer to establish the renewable power plant and set the targets of increasing the electrical power generation from Renewable Energy sources. Renewable Energy generators are very important in order to address the huge increase in electricity demand year to year while simultaneously reducing the amount of pollutions. The Government of India encourages the Renewable Energy Developers through various government scheme and financially supporting the renewable power generators. The renewable energy integration is possible with the power electronics interface through the active control and grid-forming capabilities. In the modern power system grid, it is also possible to combine different energy sources like solar, storage system, wind, and hydro and integrate them into the grid with various control algorithm for bulk electricity generation. In the present scenario, the more attention has been shifted from conventional

(fossil fuel) to renewable energy sources (Non fossil fuel)

The power systems in India as well as around the world incorporate renewable sources to support ever-increasing high power and energy demand and sustain a green environment. Apart from the addition of the power and energy into the grid by renewable energy source; there are certain issues which are required to identify and the effect of the same on the operation of the power system and to maintain the Grid compliance is be analyzed and studied. This is imperative because of the effect of certain characteristics and power system parameters associated with large-scale penetration of renewable energy schemes. These characteristics and parameters will be the essential input and insight for power grid operators, Engineers, Policymakers, and R & D personnel working towards a sustainable and resilient energy future. Thus some characteristics and parameters due to renewable energy source has awakened the consideration of replacing the synchronous generator used by fossil fuel with an inverter-based generator for higher power demand.

2. REQUIREMENT OF POWER SYSTEM

2.1 Voltage Profile & Short Circuit Capacity

The short circuit level of the system is very important for the power system grid and it is the strength of the system. The voltage profile depends on the fault level of the system. The system having the higher fault level will have better voltage profile. The short Circuit level or fault level in MVA will be different at different voltage level. Short Circuit level depends on the system voltage, source impedance and total impedance of the network. The higher fault level is the indication of low impedance value and lower voltage drop will be there. Figure 1 shows the relation between the reactive power and voltage. From the below equation; it is clear that there will be better voltage as the short circuit level of the system increases. Thus it is better for the power system having the higher fault level of the system. Fig.-1 shows the relation between the reactive power and voltage.

$$V \approx E / (1 + Ql / SSC) \approx E (1 - Ql / SSC) \text{ -- (1)}$$

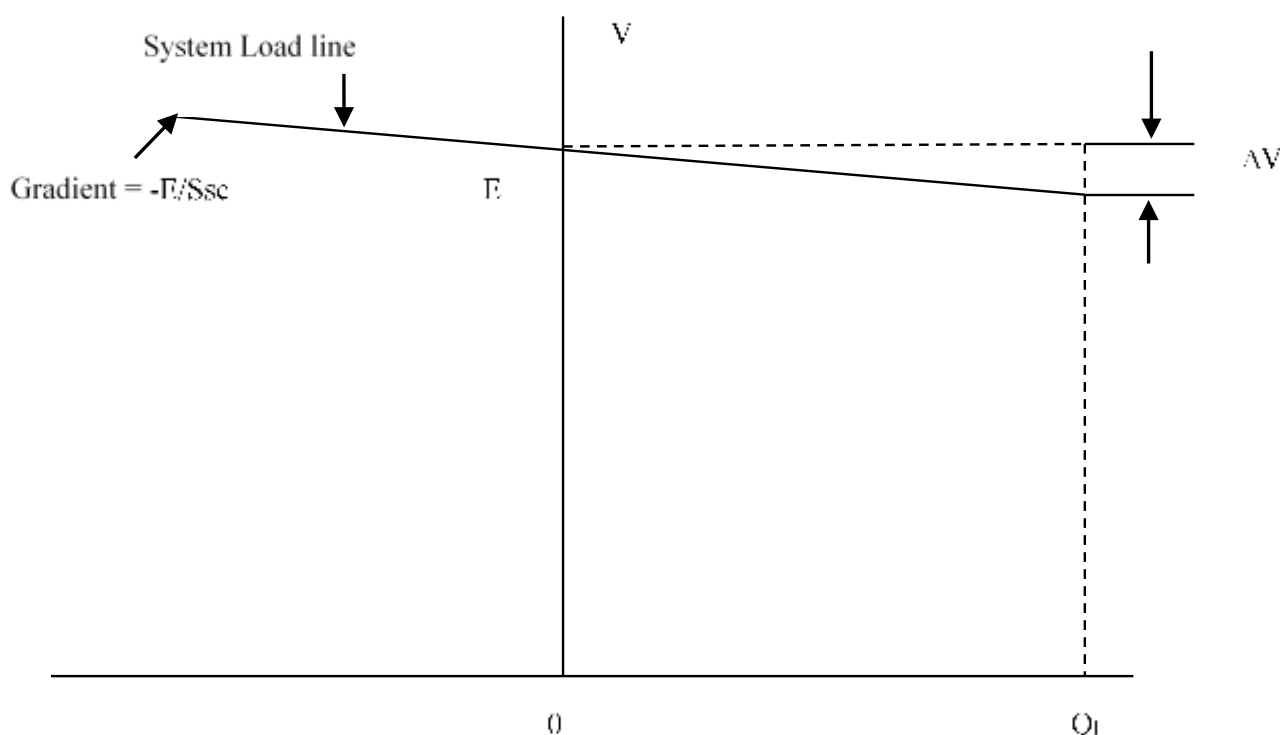


Fig.-1 Shows the relation between the reactive Power and the Voltage

3.1 Frequency Stability

In power system network; there is relation between the active power generation and the supply frequency. If the active power demand increase; the supply frequency decrease and so on. In conventional power plant; the automatic generation control (AGC) take action for the any variation in the demand and supply frequency. If frequency decrease due to increase in the power demand; more mechanical energy input from prime mover will be supplied in order to increase the speed of prime mover to bring back the original frequency and so on. But in case of immediate or sudden or instantaneous variation in the system load (demand) or fault in the system or any other disturbance, it is being balanced by the system inertia of rotating machine i.e. kinetic energy stored in the rotating machine. The swing equation is given as;

$$H/\pi f \, d^2\delta/dt^2 = P_m - P_e \dots\dots\dots (2)$$

2.3 Adequate Protection System

The power demand is continuously increasing. The reduction of the losses is equivalent to the generation of the electricity. It is better to have minimum losses in the power system to increase the efficiency of the power system network. The utilities (Transmission and Distribution companies) are making lot of effort for the reduction of the line losses as well as the total system losses. Some kind of the devices like capacitor or other FACT devices

are installed in the system to reduce the losses in the system.

3. CHALLENGES OF RENEWABLE ENERGY INTEGRATION

The Power System in India and the world continuously making effort for transition towards cleaner energy by encouraging the renewable energy sources. But the challenges of integrating renewable energy sources will remain a key focus for the renewable energy project developer.

Some of the major challenges are as below:

3.1 Reduction in Short Circuit Capacity of System

Fault level is one of the key parameters of the power systems. Normally higher fault level is better for the power system to have better voltage profile. The fault level has been normally recognized as the strength of the power systems. The increased penetration of renewable energy sources (RESs) in power systems is usually accompanied with a displacement of large synchronous generators (SGs). The conventional system with synchronous generators in the system are considered the main source for fault currents in the power systems. Power electronic (PE) interfaced (Fig. 2) renewable generators (RESs) which provide clean energy at a lower cost, but have limited fault contribution compared to the conventional synchronous generator (SGs) [1]. Thus high penetration of RESs will not only change the dynamics of the

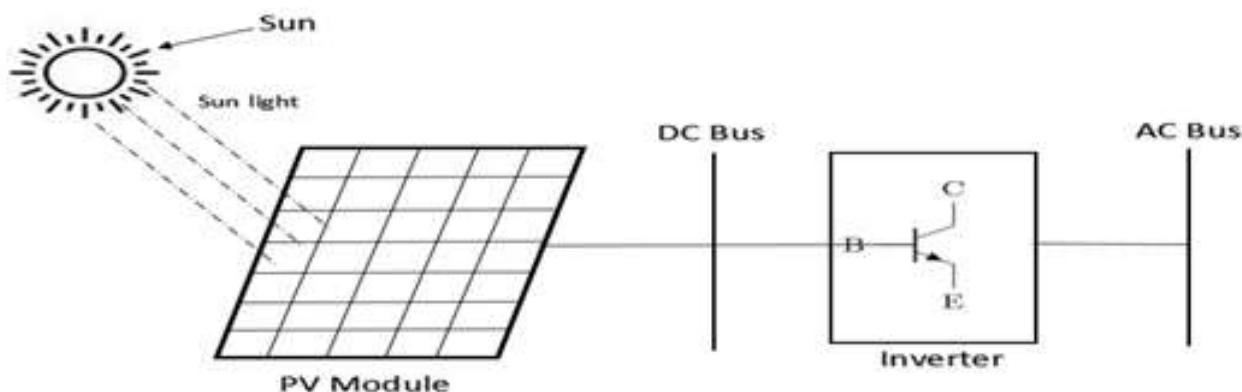


Fig. 2 Shows arrangement of electricity generation through Solar PV System

short circuit (SC) currents, but also result in operation of power systems with lower fault levels. Looking to the present renewable energy scenario and future growth in the RE generation; the future power systems may operate with large-scale penetration of converter-interfaced RESs into the transmission and distribution system instead of using conventional thermal-based SGs. They may likely to face a severe shortfall in the fault level. Such low fault level may impact the system strength especially in areas where the demand is mainly met by high penetration of RESs such as wind and Photovoltaic (PV).

3.2 Impact on Frequency Stability

The growing penetration of renewable energy sources which are connected to the utility grid through power electronics have impacts on the frequency stability of the power system because of reduction in the system inertia [1]. The renewable energy sources like Solar and Wind power generators replace the synchronous generation in the system. These sources are inverter based and they do not naturally contribute to the inertia. This transition from synchronous generators to inverter based renewable energy sources introduces unique challenges in maintaining the grid frequency stability due to the reduced inertia in the power systems. Due to more & more RE integration into the grid; the frequency variation and Rate of change of frequency (ROCOF) will increase. Thus with increase in the penetration of the converter dominated renewables sources, the overall inertial response and frequency stability performance of the power grid will be poor. Low inertia in the system contributes to maximum frequency deviations and higher rate of change of frequency that undermines the reliability of the power system.

3.3 Protection System

The electrical power system reliability and security depends on the adequate protection scheme. The proper functioning of the electrical power system protection must ensure safety of the persons and equipment in the system as well as continuity of the electricity supply. This protection system limit the load shedding and avoiding a black-out. This protection system was initially designed to work in a grid with a major share of synchronous machines. The growing share of renewable energy sources connected through power electronics devices in the electrical grid may have impacts on the protection system mainly because of (a) Decrease of the global system inertia [1]. (b) Decrease of the short circuit current injection. (c) Modification in the electricity flows into the grid. The major issue related to the decrease of the global system inertia seems to be the risk of black-out or frequency collapse.

3.4 Intermittency and Variability

The intermittent and variable nature of renewable energy sources is one of the major challenge because solar and wind power generation depends on weather conditions i.e higher the sunlight higher will be the energy generated from PV solar system and higher the wind speed higher will be the power generation from wind power generators. Thus there will be the fluctuations in power and energy generation from renewable generators. This variability can affect the stability and reliability of the power systems.

3.5 Grid Compatibility

Traditional power grids are designed for centralized, dis-patchable power generation. But in case of the renewable power generation source; there is uncertainty of the power generation due to the dependency on the whether condition.

3.6 Transmission and Distribution Challenges

Many renewable energy generating sources are located in remote areas (may not be in the load centre). This requires the development of robust transmission and distribution networks to transmit the generated power from the renewable energy sources to the load centres. The Transmission or Distribution utilities need to invest in upgrading and expanding the transmission and distribution infrastructure to connect renewable energy projects to the load centre. This may include the construction and development of new transmission lines and grid interconnections. Sometimes the length of the transmission and distribution line is long. This can lead to higher transmission losses and issue of voltage profile.

4. REMEDIAL MEASURES TO THE CHALLENGES OF RENEWABLE ENERGY INTEGRATION

Even though there are lot of challenges in renewable energy integration into the utility Grid system; Engineers, researchers, Project developer and utilities are making lot of effort for mitigation of the challenges of the RE integration. Some of the remedial measures are as below:

4.1 Enhancement of Short Circuit Capacity of System

Fault level is one of the key parameters of the power system that should be monitored all the time. The integration of the renewable energy sources into the power system grid with a displacement of large synchronous generators (SGs), which are considered the main source for fault currents in conventional power systems. Power electronic (PE) interfaced RESs have limited fault contribution compared to the SGs. Some of the technologies can be used to enhance the short circuit strength (in the area of higher penetration RE sources).

These technologies are: (a) **Synchronous Condensers:** This is the most direct way to increase the short-circuit current. They work as synchronous motors and provide fault-current contributions and dynamic reactive power support during the faults condition. (b) **Grid-Forming Inverters (GFM):** The traditional grid-following inverters that strictly follow the grid parameters. The GFMs has capability to establish their own voltage and frequency references similar to the synchronous machines. They provide active and reactive current injection during the voltage sags to support system strength. (c) **Fault-Ride-Through (FRT) Controls:** During the fault condition (voltage may decrease), the Grid requires renewable generators to stay connected and provide dynamic voltage support. The K factor (gain) in the inverter control algorithm is used to respond the change in the voltage. When the grid voltage drops, the control algorithm calculates the amount of reactive current required to inject and it is given as $I_q = K \times \Delta V$. Optimizing the K factor in inverter control algorithm forces the solar and wind generators to inject required reactive current into the grid during faults. (d) **Battery Energy Storage Systems (BESS):** When paired with **grid-forming** control algorithm, the modern Battery Energy Storage Systems (BESS) emulate the behaviour of conventional rotating synchro-nous machines. They act as voltage sources that instantaneously inject **fault current** and **reactive power** to stabilize the network during disturbances.

4.2 Mitigation of the frequency variation issues

The growing share of renewable energy source connected through power electronics in the electrical power grid have impacts on the frequency stability because of reduction in the system inertia. There will be the variation in frequency and

ROCOF due to lack of the inertia in the system during the change in the system load or disturbance in the system. (a) A synchronous condenser is one of the options with no mechanical load. It provides the inertia into the system. The kinetic energy stored in its heavy rotating rotor buffers the grid against sudden frequency drops. (b) The use of inverters with virtual inertia control algorithms so that they appear as synchronous generators to the grid, maintaining and enhancing

frequency stability. Modern RE inverters can be programmed to emulate inertia and actively form grid frequency rather than just following it. (c) Fast-responding Battery Energy Storage Systems (BESS) can inject active power within very short time to arrest frequency drops. Sometimes the Virtual inertia may be the combination of control algorithms of RESs, ESSs, and power electronics that emulates the inertia of a conventional power system [2], [3], [4] as shown in fig 3.

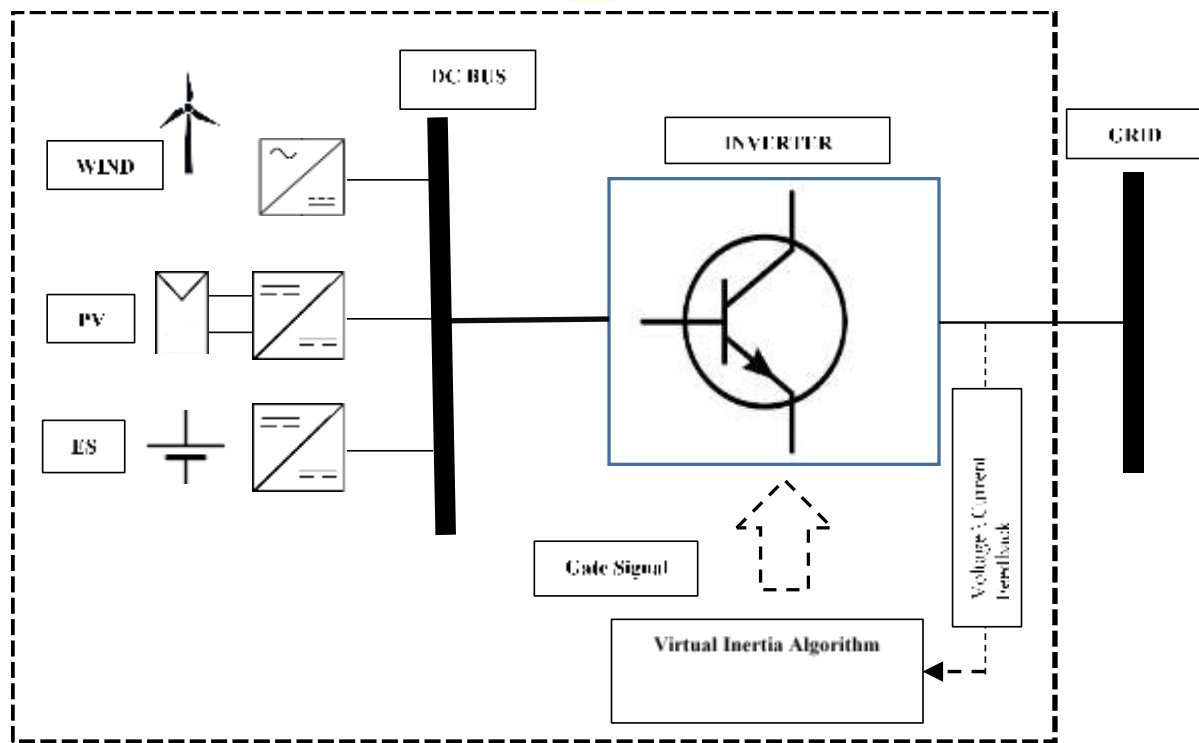


Fig.-3 Shows the arrangement for virtual Inertia in Renewable Systems

4.3 Adequate Protection System

The growing share of renewable energy sources connected through power electronic devices in the electrical grid system might have strong impacts on the protection system. To prevent a frequency collapse, the power system should be equipped with Under Frequency Load Shedding (UFLS) relays that restore the production/consumption balance by shedding a portion of load when the frequency goes below certain thresholds. The majority of UFLS relays activates by reaching frequency thresholds only, but some of them are based on an additional

ROCOF measurement and installed in some regions, particularly in grids facing high ROCOF and frequency variability. The identification of a high ROCOF allows shedding more load preventively, before the frequency passes below the thresholds. The aim of all these emergency relays is to prevent the system from a frequency collapse. Apart from the above frequency and ROCOF protection; it is also required to verify the protection setting of the over current, earth fault protection in the system. It is better to carry out the protection system assessment study at

regular interval of time as the power system parameters like fault level of the system are continuously changes. These are required to protect the system from nuisance tripping.

4.4 Hybrid System

The Solar and wind power generation depends on weather conditions, leading to fluctuations in energy production. Integration of the different renewable energy sources in hybrid systems like solar and wind can enhance overall system reliability up to certain level. This can provide a more consistent and reliable power output.

4.5 Advanced Forecasting

Also the advanced forecasting techniques and predictive tool can help grid operators anticipate the weather condition and hence fluctuations in renewable energy generation. The accurate predictions can help in better grid management and facilitate the integration of renewable energy into the existing power system.

4.6 Energy Storage System

Traditional power grids are designed for centralized, dis-patchable power generation. The renewable power depends on the weather condition. Developing cost-effective and scalable energy storage systems can help for storing the excess energy during periods of high generation and releasing it during low generation periods. Developments in energy storage technologies, including batteries, pumped hydro storage, and thermal storage, play a crucial role in mitigating the intermittency of renewable energy. These technologies can store excess energy when generation is high and release it when needed. A synthetic inertia control can also be implemented using the Battery Energy Storage System (BESS). A battery Energy Storage System with RE source can provide better inertia response in power systems. The implementation of synthetic inertia

with BESS and control topologies helps in improving the frequency response.

4.8 Use of FACT Devices

If the renewable power source is located at far end and long transmission line is required to transmit the electrical power at load centre; there may be issues of poor voltage profile during the high RE generation and there will be the problem of over voltage during the night hours (in case of PV Solar system). This situation can be mitigated by using the appropriate FACT devices like SVC or STATCOM in the power system. The devices like Static Var Compensator (SVC) and Static Synchronous Compensator (STATCOM) dynamically inject or absorb reactive power in to the system to keep the voltage profile stable.

6. CONCLUSION

- (1) It is required to give the encouragement to renewable energy developers in order to meet the present and future demand requirement as well as for the reduction of the carbon emission into the environment.
- (2) There are certain challenges for the renewable energy integration into the utility grid. These challenges are reduction in the inertia in the system, decrease in the fault level of the power system, intermittence supply of energy by renewable power sources etc.
- (3) In order to have resilient and reliable power system network; these challenges are to be mitigated by adequate solutions like incorporation of mechanism for inertia into the system, battery energy storage system etc.
- (4) It is desire that project developer and utilities get the detailed power system studies like power flow analysis, fault level study etc. at regular interval of time period as the power system parameters are changing continuously.

- (5) The future penetration of RE into the power system will be more and more. Hence the researcher, utilities, RE power developers need to obtain the appropriate upgrades in the solution for highly RE penetrated grid to have reliable power system.

About Authors



Er. Shailesh B. Modi is ME (Electrical Power Engineering) from MS University of Baroda, Vadodara and **Life Member** of **SPE(I)** Vadodara, presently

working with Electrical Research and Development Association (ERDA), Vadodara. He is working at ERDA as Senior Manager in R&D Division. He has worked at ERDA for various power system studies (Simulation & Analysis) like transmission planning study, FACT Solutions, Protection system audit of electrical network, Insulation Coordination study, Ferro Resonance Study etc. He also worked at ERDA for various distribution system projects like Design of HVDS system, Energy audit of the distribution network, R-APDRP project for verification of AT & C losses, Consultancy for electrification works (Project Management Agency), Preparation of detailed Project report (DPR) for electrification works under various government scheme, etc. He has also completed the assignments on Lightning Protection system study, Earthing Audit study, Third Party Inspection/Verification of Grid connected Solar PV system installed on the roof top of government building/offices etc. He has also worked in the field service division of ERDA for site testing & site calibration of electrical equipment, Third Party Inspection work etc.



Dr. Anil S. Khopkar is Ph.D. in Electrical Engineering and **Life Member** of **SPE(I)** Vadodara, working as “Asst. Director & Head of Division – R&D and Expert Services at

Electrical Research and Development Association (ERDA), Vadodara. He is responsible for various research activities and technology development in areas of Power Systems, Renewable Energy, Product Development and Advanced Materials in field of electrical engineering. He also headed, High voltage Impulse laboratory, Extra High Voltage Partial Discharge laboratory, Cable laboratory, Instrument Transformer Laboratory, Transformer Laboratory as well as calibration laboratory. He has established various test laboratory like, HV Impulse, HV PD lab, Transformer test laboratory etc. He is Member of BIS technical committee of India for High Voltage Testing techniques (ETD 19) and chairman of BIS technical committee of India for Surge Arrester (ETD 30). He is also a member of IEC Technical committee “TC 99/JWG 13 – Insulation co-ordination for HVDC System”. He has published 45 research papers in national and international conferences and journals.

OBITUARY



Er. Prafulchandra B Oza, Retd. Chief Engineer, Ukai TPS, GEB and **Life Member** of SPE(I), Vadodara left for his heavenly abode on **11 Aug 2026**.

Prior to elevating as Chief Engineer, Ukai TPS, he served as SE (Commerce)-HO, ACE (Zone)- Bhavnagar and ACE, Kutchh Lignite TPS, Panandhro.

May God give peace to the departed soul and strength to his family members to bear the impact.



Shri Jagannath S Aiyyer Sir, Retd. Executive Director, erstwhile Gujarat Electricity Board left for his heavenly abode on **01 Sep 2026** at USA.

He was astute, intelligent and honest to the core. His engineering skill was excellent. His contribution to power generation in the trying period of GEB was immense. His simplicity and generosity will ever be remembered. There is a big section of SPE(I)Vadodara's senior members who had a privilege to work under his able leadership.

May God give peace to the departed soul and strength to his family members to bear the impact.

Disclaimer

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