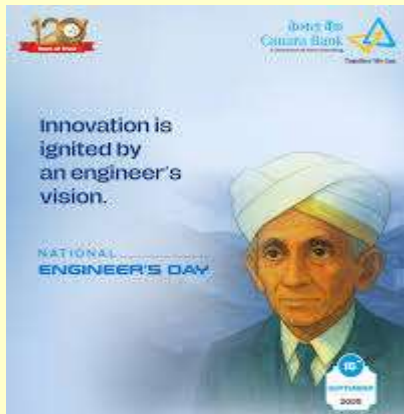




SPE Newsletter

SPE(I), Vadodara Chapter
October, 2025 Issue: 4/2025



Wish you all Happy Engineers' Day 15th September 2025



TUTORIAL & CONFERENCE JOINTLY ON "CONSTRUCTION AND DESIGN OF TRANSMISSION LINE" - 5 to 7 November 2025

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

414-415, Wing-B, Monalisa Business Centre, Near Saptarshi Samanvay
Manjalpur, Vadodara-390 011

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OFFICE BEARERS & EXECUTIVE COMMITTEE MEMBERS FOR 2025-26



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Chairman



Er. YV Joshi
Vice-Chairman



Er. VB Harani
Secretary



Er. SM Baxi
Fin. Secretary



Er. SP Trivedi
Jt. Secretary



Er. PP Shah
Jt. Secretary



Er. Yatin Pathak
Jt. Fin. Secretary



Er. RS Shah
Member



Er. Umesh Parikh
Member



Er. Parag Parmar
Member



Er. NC Solanki
Member



Er. Hemant Nashikkar
Member

ADVISORY COMMITTEE MEMBERS FOR 2025-26



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Er. Keyur Thakkar

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Er. NC Solanki Er. SM Godkhindi Er. Hemant Nashikkar

Er. HD Joshi

CHAIRMAN'S DESK



Dear Readers,

It gives me a great pleasure to be with you all for the quarterly issue of October/ November 2025.

This is the era of AI the

Artificial Intelligence. It is about to revolutionize the whole world.

There are 2 sides of the coin, the positive side and the negative side.

Let us look at the positive side of the AI, especially for the power sector.

Applications of AI in Power Sector:

AI powered predictive maintenance can help reduce down time and increase the efficiency in power systems.

Smart Grids

AI can optimize energy distribution, predict energy demand, and detect faults in smart grids

Renewable Energy Integration

AI can help manage the variability of renewable energy sources, such as solar and wind power.

Future Prospects:

AI can enable real time analysis and decision making in IoT devices and smart sensors.

Cyber Security:

AI powered cyber security solutions can protect critical power infrastructure from cyber threats.

Negative Side of AI

The potential impact of the AI on the workforce and the skills required for power engineers to work with AI systems needs a lot of debate.

As the technology is advancing fewer jobs are being created for the lucky elites but it may lead to unemployment for many. We have to find a solution which is long lasting without losing the advantages of the AI. It appears to be a big challenge.

As you all know the SPE has arranged a 3-Day Conference in November-2025 on Transmission Lines and I am extremely happy to inform you that the response is overwhelming. I will be personally missing the event as I am out of India during that period but I wish all the best to the event.

Happy DEEPAVALI to all of you. Let the **DEEPAVALI** bring cheers in your life. On behalf of the SPE we wish you a happy and a prosperous new year ahead, starting from the mid October-2025.

Er. Mohan R Tilwalli

EDITOR'S DESK



Couple of weeks back, the GST Council has announced reductions in rates for various range of products and services. Coal is one of the few exceptions in the list.

The Council decided to increase the GST rate on coal from 5 per cent to 18 per cent. Further in an attempt neutralize the effect of increase in GST, the compensation cess of ₹400 per tonne of coal is subsumed in new rate. The change has primarily rationalized long-

standing distortions in the coal value chain, but its effect will vary from sector to sectors. Some may gain, at the same time some may not. Coal based Power Generators may face a marginal rise in costs.

For GENCO, the revision merely changes the tax mix without considerably changing the cost equation. The pre-revised system allowed purchase of coal at lucrative 5% GST and but carries ₹400/tonne compensation cess with it. Now under new GST regime, the cess is subsumed with new rate and replaced with an 18% GST on coal. Since electricity is not within the ambit of GST framework,

generating companies cannot claim input tax credit. However, this change may bring nominal rise in the landed cost of coal, which may translate into marginal tariff adjustments so far as power purchase cost is concerned.

Resultantly, GENCOs will pass on marginally elevated tariffs to DISCOMs and DISCOM will put efforts to pass it on to consumers. Now it will have to be checked by Regulators how to allow DISCOMs to recover marginal rise in cost in consumer tariff, considering political sensitivity of the sector.

India is witnessing large scale development in Power Sector, especially Renewable Energy which is known for variable and intermittent generation. It is likely to have significant implications on grid stability.

Besides, the ultra-mega capacity thermal power plants are also being installed in the coal rich states. The capacity addition has to be supported by new and/or upgradation of existing Interstate as well as Intra state Transmission Network for reliable and efficient power transfer.

According to the Government of India's current plan, the target for transmission line capacity by the end of 2030 is for transmission of 500 Gigawatts (GW) of non-fossil fuel-based energy through a dedicated transmission system. 50% of the country's power generation from non-fossil sources can be transmitted. The plan includes building new transmission lines and upgrading existing infrastructure for handling the increased renewable energy generation.



CHAPTER'S ACTIVITIES

On **29 & 30 Jul 2025**, the **Chapter**, jointly with the **Gujarat Energy Development Agency (GEDA)**, organized a **2-Day Conference** on **“Waste to Energy for Clean Environment”** at FGI Auditorium, Sevasi-Vadodara.

With the intention to upgrade the knowledge of the power sector professionals, in the field of design, Engineering, construction, operation and maintenance of EHV / UHV transmission lines, our chapter is organizing, 1-Day Tutorial and 2-Day Conference on “Design and Construction of Transmission Line” on 5th to 7th Nov 2025 @ FGI, Vadodara. This conference will cover important topics of present-day requirements of transmission lines and will also provide common platform to tower and line material manufacturers, consultants and engineers from various transmission utilities for deliberation and discussion on present day issues. This will be the fourth conference of the year 2025, earlier the chapter organized conference on Renewable Energy in January, second in May on the topic LV and MV Distribution System and third one in July on Waste to Energy for Clean Environment.

I feel it appropriate to once again reiterate the famous quote of Helen Keller: “Alone we can do so little; together we can do so much”, Team SPE(I), Vadodara is putting wholehearted efforts for all-round success of the conference.

At this juncture, I greet all the members on the occasion of 29th Foundation Day of our society which falls on 3rd Oct 2025 and also acknowledge active support of esteemed members and well-wishers of the SPE(I) during successful journey.

Warm wishes to all members and their families for Navratri and Diwali Festivals.

Er. Umesh Parikh

The report of the same is brought out in this issue elsewhere.

- On **03 Aug 2025**, the **Chapter** organised **29th AGM** at Velchand Benkar Vidhyarthi Ashram Auditorium, Karelibaug, Vadodara. The report of the same is brought out in this issue elsewhere.
- On **26 Aug 2025**, the **Chapter** organised lecture on **“Valuation as Practice Area and Opportunities in Transformation Era”** at Vasvik Auditorium, Vadodara.

The eminent speaker was **Dr. RK Patel**, ME (Mech.), Ph.D. in Estate & Evaluation Management.

He explained how the valuation of Engineering Company and Engineering Plant should be carried out by Chartered Engineer, Cost Accountant, Energy Auditor, and Valuer. He also informed that the Disclaimer is a must to safeguard the Estate Assessor from legal complications.

Er. VB Harani
Secretary

OPENING OF A NEW SPE(I) CHAPTER AT SURAT

SPE(I), Surat Chapter is founded on **12 Jul 2025** with organizing a **Conference** on **"Building India's Smart and Sustainable Grid: Innovations, Challenges & Opportunities"**.

Under the leadership of **Er. Keyur Nanavati** (MD–ETP Earthing), new **Chapter** at **Surat** is founded on **12 Jul 2025**. **Er. Rajeev Singh** (Director Energy–CBIP), **Er. PC Gerg** (Ex–Chief of CTU), **Er. AB Choudhary** (Chief Electrical Inspector) and **Er. SK Negi** were the VIP who graced the occasion. On special invitations **Er. SM Takalkar** and **Er. YV Joshi** remained present and shared the dais. After formal inauguration, there was a panel discussion which was anchored by **Er. BD Gour**. The panelists were **Er. PC Garg** (Ex–Chief of CTU), **Er. SK Negi** (COO – KP Group), **Er. SM Takalkar** (MD – Takalkar Power) and **Er. Anand Singh** (AGM, EHV Torrent Power). Topic of Panel Discussion was **"Building India's Smart & Sustainable Grid: Innovations, Challenges & Opportunities"**.

There were presentations by **Er. Chirag Patel** (Electrical Inspector), **Er. Shailesh B Modi** (ERDA), **Er. JC Marathe** (Director–Excelsource) in the **First Technical Session** which was chaired by **Er. YV Joshi** (Secretary–SPE Vadodara).

In the **Second Technical Session**, **Er. Siddharth R Mistry** (AGM & HoD), **Er. Keyur Nanavati** (Director) and **Er. Jignesh Sailor** (Director) presented papers. This session was chaired by **Er. Samir Desai** (Director – Rem Electromech Pvt. Ltd.).

In addition to **Er. Keyur Nanavati** many other members supported the event. This includes **Er. Anand Upasani** (Vice–Chairman) and **Er. Ratandeep Upadhyay** (Director). From SPE(I), Vadodara, **Er. SM Baxi**, **Er. RM Athawale**, **Er. JK Surti** and **Er. YK Sharma** also attended the event. Inaugural function was a grand success.

Sweet Moments of the event are brought out elsewhere in this issue.

Opening of Society of Power Engineers (I) Students Chapter, PIET

Parul Institute of Engineering & Technology – Diploma Studies organized opening ceremony of **Society of Power Engineers (I) Students Chapter** on **28 Jul 2025**.

The programme was Co-ordinated by **Er. Binal Modi**, Asst. Prof. (EE) & **LM-SPE(I)** Vadodara and **Shri Rishil Bhagat**, Asst. Prof. (EE).

The event was graced by **Er. MR Tilwalli**, Chairman, **Er. RS Shah**, Vice-Chairman and **Er. YV Joshi**, Secretary of SPE(I) Vadodara,

UP-COMING EVENTS

1-Day Tutorial & 2-Day Conference on **"Design and Construction of Transmission Line"** on **5, 6 & 7 Nov 2025** at FGI, Sevasi, Vadodara.

PROCEEDINGS OF 29TH ANNUAL GENERAL MEETING HELD ON 03 AUG 2025

As decided, the 29th AGM of the SPE(I) Vadodara Chapter was organized on 03 Aug 2025 at 10.00 hrs. at Velchand Benkar Vidyarthi Ashram, Karelibaug, Vadodara.

The following business was transacted.

Due to the lack of quorum at the scheduled time, the members present left the venue and reassembled at the same place after half an hour and carried on the AGM business.

The members present in the house observed 1-minute silence to pay their respect to the members who left for their heavenly abode during the year. It is heartrending to note that during this year, SPE (I), Vadodara Chapter has lost 10 members who departed for their heavenly abode. They are:

1. **Er. Vinodray G Dave**
2. **Dr. Bipinbhai G Desai**
3. **Er. Jyotindra R Shah**
4. **Er. Rajanikant V Vibhakar**
5. **Er. Shrimandhar H Yadav**
6. **Er. Mukundbhai P Trivedi**
7. **Er. Vallabhbbhai N Agheda**

We respect their valuable contribution/support and preserve their memories.

Welcome address by the Chairman

The Chairman of the Vadodara Chapter, **Er. MR Tilwalli** welcomed all the members and highlighted the progress of the Chapter during the year. He pointed out that last year was a landmark year for our society. We purchased new office premises of our Chapter at Monalisa Business Centre, Manjalpur, Vadodara. This is the biggest achievement for the entire Society of Power Engineers (I). The new premises is well located with all the amenities like independent washrooms, security, ample parking, lifts and meeting foyer. He informed that the Student Chapter for the benefit of students has been opened in SVIT, Vasad.

He thanked to the members who extended financial help and well-wishers in the form of donation or advances. He further expressed

Gratitude for the efforts and support by EC, AC and Patron members and Life Members.

The agenda of AGM was pursued as follows.

1. Confirmation of Minutes of last AGM held on 30 Jun 2024.

Minutes of last AGM was already circulated through SPE NEWSLETTER Jul-2024 issue. However, Secretary of the Chapter, **Er. YV Joshi** read out the minutes of last AGM held on **30 Jun 2024**. The minutes were approved by the house as presented.

2. Presentation of Secretary's report

A) It gives me great pleasure to welcome you to the **30th AGM of Vadodara Chapter**. During this period, the Chapter has made a reasonable progress evn with difficult situation. During the period from last AGM to this AGM, total **20** new members are registered which includes **1** annual Member and **19** Life Members. Thus, total registered members of SPE(I) Vadodara Chapter as on 30 Jun 2025 are **2466** out of which there are **641 Life Members**.

B) It is my privilege to present before you that our Chapter has organized six monthly lectures, two 2-Day Conference and a 1-Day Conference. The details of events organised are given here under:

- (i) On **26 Jul 2024**, the **Chapter** organised a lecture on **"Decoding Green Energy Regulations"** at Vasvik Auditorium, Vadodara.
- (ii) On **27 Aug 2024**, the **Chapter** organised a lecture on **"Pushing Insulation to its Limits, Investigating the Role of Space Charge"**.
- (iii) On **03 Oct 2024**, the **Chapter** organized **Satya Narayan Pooja** to celebrate the **Foundation Day** of the Chapter. The pooja was performed at the Office of SPE (I), Vadodara Chapter

About 60 Members and their spouse attended Pooja. The members and their family availed Prasad and greeted each other. The Pooja was performed by **Er. Parag Parmar**, EC member and his better half.

- (iv) On **15 & 16 Oct 2024**, the **Chapter**, jointly with **CBI&P**, New Delhi organised a **2-Day Conference** on **“Fire Protection System in Industries, Hospitals, Buildings and Power Sector”**.
- (v) On **09 Nov 2024**, the **Chapter** organised a lecture on **“Modern Earthing Practices for Reliable and Safe Power System”** as a part of celebration of **“Power Day”**.
- (vi) On **17 Dec 2024**, the **Chapter**, jointly with the **IE(I)** Vadodara, organized evening lecture session on **“Energy Audit in Process Industry and Power Station”** as a part of celebration of **“Energy Conservation Day”**.
- (vii) On **08 Jan 2025**, the **Chapter**, jointly with **CBI&P**, New Delhi, organised a **1-Day Conference** on **“Renewable Energy”**.
- (viii) On **28 Jan 2025**, the **Chapter**, jointly with the **IE(I)** Vadodara and in collaboration with **Poornawad Institute of Life Engineering (PILE)** organised a lecture cum award ceremony as a part of the **“10th Dr. RP Parnerkar Poornawad Award for Excellence in Engineering & Technology 2025”**. The lecture was on **“Robotics Engineering”**.
- (ix) On **19 Apr 2025**, the **Chapter** organised lecture on **“Application of Engineering Excellence to overcome Threats due to Technological III Effects and Improving Human Health”**.

- (x) On **30 & 31 May 2025**, the **Chapter** organised a **2-Day Conference** on **“Low Voltage & Medium Voltage Distribution Systems”**.

C) New Proposals

- (i) It was proposed to change the designation of Treasurer to Finance Secretary. This proposal was passed unanimously by all the members present in the House.
- (ii) It was proposed to appoint Election Officer from our Life Members. The proposal was passed unanimously that the Election Officer for conducting the Election of Executive Committee Member can be a Life Member in addition to an Outsider Engineer.

3. Presentation of Accounts of the Chapter for the year 2024-25

Along with 28th AGM Notice, Accounts of the Chapter for the FY 2024-25 was already circulated. However, the Treasurer of the Chapter, **Er. SMS Baxi** presented the same in brief. The accounts were approved by the AGM unanimously.

4. Presentation of Budget of the Chapter for the year 2025-26.

The annual Budget for 2025-26 was circulated along with AGM notice. The Treasurer of the Chapter. However, **Er. SMS Baxi** presented the same. The budget was approved unanimously.

5. Proposal for the approval of the name of Auditor for the year 2025-26.

The Treasurer **Er. SMS Baxi** proposed the name of Chartered Accountant Company as **Mahajan Doshi & Associates**, Old Padra Road, Vadodara as an Auditor for the financial year 2025-26. The house approved the proposal unanimously.

6. Meritorious Awards to Life Members for their Excellence Work in Power Sector if any:

The Chapter has not received any proposal to give meritorious award to our Life

Member. Therefore, no award was presented.

7. Felicitating the Life Members / Fellows who have completed 65 years as on 30 Jun 2025.

Following Life Members were felicitated for completion of 65 years of their life. The felicitation was done by Chairman, Vice-Chairman and Secretary.

- (i) **Er. Apurva A Pandya**
- (ii) **Er. Vijaykumar K Upadhyay**
- (iii) **Er. Pramod Deodhar**
- (iv) **Er. Pareshkumar G Tewar**
- (v) **Er. Ravindra B Desai**
- (vi) **Er. Kamlesh N Parikh**
- (vii) **Er. Pankajkumar R Trivedi**
- (viii) **Er. Arka Chakravarthi**
- (ix) **Er. Mukeshkumar M Acharya**
- (x) **Er. Pandurang M Mohite**
- (xi) **Er. Satishkumar K Joshi**
- (xii) **Er. Dhananjay M Vaidya**
- (xiii) **Er. Girish G Devgirkar**

8. Election of Members of Executive Committee against vacancy due to retirement in rotation of 1/3 members out of 12 as per provisions of constitution / bylaws.

Er. JD Tamhane, who was appointed Polling & Returning officer made all arrangements to conduct the election for 4 post of Executive members for the years 2025-2028. He conducted the election activity with the assistance of **Er. PA Shah, Shri Chauhan, Er. SK Dasani** and **Er. SG Prasad**. He read out the proceedings of the election as under:

Against 4 (four) posts, following 4 (four) nominations were received as candidate for EC member.

- **Er. SMS Baxi**
- **Er. SP Trivedi**
- **Er. Umesh Parikh**
- **Er. Yatin Pathak**

Er. JD Tamhane and team nicely conducted the election process. Due to lack of competition, following 4(four) members declared as elected as Executive member for the period of 2025-2028 by election officer.

- **Er. SMS Baxi**
- **Er. SP Trivedi**
- **Er. Umesh Parikh**
- **Er. Yatin Pathak**

Newly elected four EC members as above were felicitated by the Chairman **Er. MR Tilwalli**. He also expressed gratitude toward efforts by **Er. JD Tamhane, Er. PA Shah, Er. SG Prasad, Er. SK Dasani** and **Shri Chauhan** for their services in the process of election.

9. Open House Session

With the permission of Chairman, an Open House Session was conducted in which following suggestions / opinions received.

- a. **Er. (Dr.) Namra Joshi** proposed to have publication of our SPE Newsletter on U tube as well as in Technical Journals.
- b. **Er. JD Tamhane** suggested that SPE should have presence in industry and new young engineers invited to become members of SPE.
- c. **Er. Himanshu Hathi** suggested that students from engineering to be updated for the programmes of SPE.

10. Vote of Thanks

On behalf of SPE (I), **Er. VB Harani, Jt. Secretary** offered a **Vote of Thanks** to all members, volunteers, and persons who have worked / assisted directly and indirectly for great success of the AGM. He thanked the donors, speakers, all EC and AC and patron members for their valuable support in the activities of SPE (I) Vadodara. He also thanked IE(I) Vadodara Local Centre officers, Caterers, Media, CBIP, GETCO, GSECL, DISCOMs of Gujarat, other organizations who extended their assistance for conducting Seminar,

Workshop and Conference.

The AGM ended after recitation of the National Anthem.

11. Anchoring

The entire event was anchored by **Er. PA Shah**, LM & ACM and **Er. Yatin Pathak**, LM & newly elected ECM

SWEET MOMENTS OF 29TH AGM



BEGINNING OF THE EVENT OFFICE BEARERS ON DAIS

L to R

Er. Sanjay Baxi-Treasurer
Er. YV Joshi-Secretary
Er. MR Tilwalli-Chairman
Er. RS Shah-Vice-Chairman
Er. SP Trivedi-Jt. Secretary

WELCOME ADDRESS



Er. RS Shah, Vice-Chairman

CHAIRMAN'S ADDRESS



Er. MR Tilwalli, Chairman

SECRETARY'S REPORT



Er. YV Joshi, Secretary

ANNUAL ACCOUNTS & BUDGET



Er. SMS Baxi, Treasurer

EXECUTIVE COMMITTEE MEMBERS FOR 2025-26



L to R

**Er. Umesh Parikh, Er. Yatin Pathak, Er. Parag Parmar, Er. Hemant Nashikkar
Er. VB Harani, Er. SMS Baxi, Er. YV Joshi, Er. MR Tilwalli,
Er. RS Shah, Er. NC Solanki, Er. SP Trivedi, Er. PP Shah**

Brief Report of 2-DAY CONFERENCE on

“WASTE TO ENERGY FOR CLEAN ENVIRONMENT”

The Vadodara **Chapter** of SPE (I) jointly with Gujarat Energy Development Agency, Gandhinagar organized a **2-Day Conference on “Waste to Energy for Clean Environment”** on **29, 30 Jul 2025** at FGI, Vadodara.

More than **70** delegates from all over the country participated in the Conference. The delegates hailed from GETCO, GSECL, Experts from Waste Plants, Academic Institutions and Climate Change related Equipment Manufacturers & Commissioning firms, Individuals etc.

The event was sponsored by GEDA, NTPC, Gujarat Power Corporation, Teras, Atmos Power and BAprerna.

The inaugural function was presided over by **Er. DH Vasava**, ED, GSECL. Others on the dais included **Er. Mohan Tilwalli**, Chairman, SPE (I) Vadodara, **Er. PH Rana**, **Er. YV Joshi**, Secretary & **Er. SM Takalkar**, Conference Coordinator.

The event began with lighting of Holy Lamp by **Er. DH Vasava**

Er. Mohan Tilwalli presented Welcome address and highlighted the activities of SPE (I) Vadodara. **Er. PH Rana** delivered message for the Success of the Conference. Further, he gave the day to day development for making the event a success. **Er. DH Vasava** informed about the development of Waste to Energy Plants in Gujarat as well as in India. He added the role of GSECL, GEDA and Government of Gujarat to have more power from various waste available. **Er. SM Takalkar** gave a brief about the Conference and basic theme of the Conference.

Proceedings was released by dignitaries on dais.

Er. UK Pandya, Life Member was felicitated for his initiation of Conference theme and his best efforts for success of the Conference

All audio visuals starting from prayer till Concluding Session were designed by Er. PA Shah & Er. Gargey Bhatt. The logistics and other support were provided by **Er. Sanjay Shiledar Baxi Er. PP Shah, Er. Keyur Nanavati** and **Er. VB Harani**. The proceedings was compiled by **Er. NV Rede, Er PA Shah** and **Er. YV Joshi**.

Er. YV Joshi presented Vote of Thanks and thanked Sponsors, Donors, Advertisers, Authors, FGI authorities, Dignitaries on Dais and delegates.

After the inaugural session and a networking tea break, technical sessions for the Conference were taken up. The technical sessions were conducted by **Er. PA Shah** and **Er. Yatin Pathak** active members of SPE(I) Vadodara Chapter.

Session - I

Session Chair: Er. YV Joshi

Paper - 1 Waste to Energy a Circular Economy

Author: Er. RN Kansara, GEDA

Paper - 2 Electricity Generation and Biogas Production Using Waste of Green Vegetables

Author: Dr. Hetal Vala, Ms. Hetal Prajapati – Parul Uni. Er. PA Shah

Paper - 3 Biomass and Waste Gasification Technologies

Author: Er. Gaurav Patel
Ankur Scientifics

Paper - 4 Transforming E-Waste in to Energy: A Sustainable Path to a Cleaner Environment

Author: Ms. Sonal Pujara Dr. (Ms) Ruchi Shrivastava
Parul Uni.

Session - II

Session Chair: Dr. Ruchi Shrivastava

Paper - 1 Biogas Purification and Bottling Plant for Green and Low Cost Fuel

Author: Dr. SS Kapdi,
Ex. GEDA, Consultant

Paper - 2 Ongoing Initiatives and Innovations in The Waste-to-Fuel Domain

Author: Mr. Niraj Mithani
Director, BAPrerna Clean Earth Pvt. Ltd., Surat

Paper - 3 Waste-To-Energy in India: Trends, Technologies and Way Forward

Author: Dr Nirali Rathod,
Asst. Prof., SVIT-Vasad
Er. PA Shah

Paper - 4 Anaerobic Digestion: Harnessing Biogas from Organic Waste

Author: Ms Seema Abhale
Prakruti Environmental Engg.

Paper - 5 Waste to Energy (Electrical)

Author: Er. Ram Prasad Sharma
Practicing Engineer.

Session - III

Session Chair: Er. PH Rana

Paper - 1 A Decentralized, Green, Patented Waste Water Treatment Technology Developed in India

Author: Er. Bhavar Upadhyay
TransChem Pvt. Ltd.

Paper - 2 Waste to Energy (Bio CNG)

Author: Er. Ajit Kude, Avni Enterprise

Paper - 3 Waste to Power- A Step towards Swachchh Bharat

Author: Er. Shubhank S Takalkar Er. SM Takalkar, TPEC

Session - IV

Session Chair: Er. MR Tilwalli

Paper - 1 Algal Bacterial Symbiosis for Waste-to-Energy Conversion

Author: Dr. Dewang Shah
Dr. Jivraj Mehta Institute of Technology, Mogar

Paper - 2 Introduction to Waste to Energy (WTE): A Sustainable Approach to Waste Management and Energy Generation

Author: Er. UK Pandya

Ex. GEDA, Practicing Chemical Engineer

Paper - 3 Model-Based Optimization of Energy Use in Wastewater Reuse Systems

Author: Dr. Komal Mehta, Parul Uni.

Paper - 4 Waste to Energy Policy and its Important Clauses

Author: Er. BN Raval
Soham Technologies, Vadodara

Session - V

Session Chair: Er. Niraj Mithani

Paper - 1 Innovation in Gasification & BTG Solutions for converting Biomass/Waste to Energy

Author: Er. Bhavar Upadhyay

TransChem Pvt. Ltd

Paper - 2 Ongoing Initiatives and Innovations in the Waste-to-Fuel Domain

Author: Er. Ishan Shinde

BA Prerna Clean Earth Pvt. Ltd.
Surat

Paper - 3 Innovation in Gasification & Bottling Solutions for converting Biomass and Waste to Energy

Author: Dr. Brijraj Sing

Ankur Scientific

The Conference was concluded with **Vote of Thanks** by **Er. VB Harani**, Jt. Secretary and National Anthem

2-DAY CONFERENCE AT A GLANCE

BEGINNING OF THE EVENT



Dignitaries on Dias

L to R **Er. YV Joshi**, **Er. PH Rana**, **Er. DH Vasava**,
Er. MR Tilwalli, **Er. SM Takalkar**



Lighting Holy Lamp by **Er. DH Vasava**



Welcome Address
Er. MR Tilwalli



About the Conference
Er. PH Rana



Address by
Er. DH Vasava



Theme of Conference
Er. SM Takalkar



Releasing of Conference Proceedings



Felicitation of **Er. UK Pandya**
by **Er. SM Takalkar**



Vote of Thanks
Er. YV Joshi



Anchoring
Er. PA Shah



Anchoring
Er. SMS Baxi



Anchoring
Er. VB Harani



Anchoring
Er. PP Shah

MEMBER IN NEWS

Er. Keyur Thakkar, Life Member of **SPE(I)** Vadodara has been elected as **Chairman** of the **Institution of Engineers (I)** Vadodara Local Centre.

Congratulations to Er. Thakkar!!

POWER FAMILIES

Power system family has many members like generators, transformers, transmission lines, statcom, svc, tcsc, busbars, inductors, capacitors bank, feeders, motors, heaters, lamps, apfc, etc.

Amongst all family members, only generator is injecting sufficient active power in the system to meet all requirements. All other members do not inject active power in the system but use active power for their requirement from active power injected by generator in the system.

This seems like upper class family. The head of the family is earning sufficient from his job or business to fulfil requirements of family. His income is used for requirements of parents, wife, siblings and children.

But thing is different in case of lower class family. More family members are earning as possible as per their capacity. Most of the one's earning is spent for own needs and something for nonearning members.

Similarly required reactive power is feasible from more members of power system including generator. Generators, transmission lines, synchronous motors, capacitor banks, statcom, svc, tcsc are source and sink of reactive power.

Grid operation of power system is similar to joint family concept of society. Earnings of families is common for requirements of all in the group. Generators (power plants) are at strategic locations away from power users.

Active power is delivered from these power plants to all users. Supply of active power has to be adjusted as per variations in users' requirement. Adjustment of active power supply is not feasible locally as sources are away from loads. Local adjustment of active power is not mandatory but have flexibility that variations in requirement of active power at any location anywhere in the grid can be adjusted at any generator anywhere in the grid.

Supply of reactive power has also to be adjusted as per variations of user's requirement. Variation of reactive power requirement at any location in power system needs local adjustment of reactive power supply.

Provision of reactive power adjustment at generator is not effective for load because of distance between generator and the load. Provision of reactive power adjustment at generator is for local requirement and regulated by AVR. Therefore, role of generator in grid is to supply only active power. The reactive power support is provided by capacitor banks at the load centers and providing APFC panels at large industrial units.



Er. ND Makwana
former **Secretary**,
SPE(I) Vadodara

INTELLIGENT LOAD MANAGEMENT SYSTEM (ILMS) IN INDUSTRY

IEC 61850 Based Communication Network to Achieve Resilience and Efficiency

Rohan K. Mehta
Elcon Engineers Private Limited

Abstract:

The Intelligent Load Management System (ILMS) with IEC 61850 offers a modern and reliable solution for industrial power systems. Leveraging logical nodes, GOOSE messaging, and MMS communication, ILMS enables seamless interoperability, rapid load shedding, and advanced generation control for stable and efficient operations. Through IEC-61850 enabled relays, the system ensures real-time response without additional wiring, enhancing reliability and safeguarding critical processes. Case studies from tire and paper industries demonstrate how this approach improved load sharing, strengthened load shedding, minimized blackouts, and secured uninterrupted productivity-establishing ILMS with IEC 61850 as a robust and future-ready solution.

1. Introduction:

The Intelligent Load Management System (ILMS) is a modern approach to industrial power management, designed to keep operations running without disruption. By intelligently generation control, balancing demand, and shedding non-essential loads when required, ILMS ensures continuous supply to critical facilities and stable plant operations.

What distinguishes the ILMS is its foundation on the IEC 61850 communication standard, enabling seamless integration with Intelligent Electronic Devices (IEDs). This architecture ensures true interoperability, real-time monitoring, and effortless scalability—positioning ILMS not merely as a power management solution, but as a forward-compatible energy platform for industrial applications

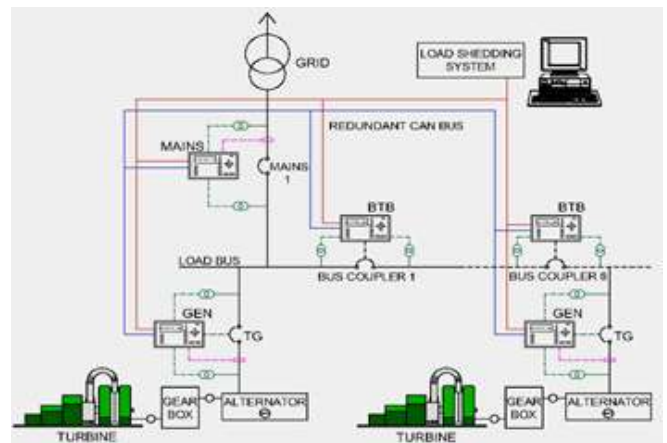


Figure-1. ILMS Architecture: Powering Intelligent Industrial Operations

Fig.-1 illustrates the ILMS, where turbine generators, the grid, and the bus coupler operate in coordination—synchronizing power, optimizing load sharing, and ensuring system reliability through fast and intelligent load shedding.

2. ILMS with IEC 61850: Adaptive Control in Next-Gen Power Systems

The evolving power landscape, characterized by increasing demand and complex networks, demands advanced, adaptive control strategies. Traditional systems relying on manual interventions or proprietary protocols lack the responsiveness and interoperability required by modern substations and industrial facilities. Integrated with IEC 61850, ILMS delivers the intelligence and standardization essential for reliable, scalable energy management.

A) IEC 61850, as the standard for ILMS communication

IEC 61850 is not limited to substations—it has become a universal standard for industrial power system automation. In ILMS, it acts as the digital backbone that enables fast, secure, and standardized communication across different IEDs within plants, factories and critical industrial facilities. Its role ensures

ensures coordinated operation of distributed energy sources, process equipment, and protection systems.

B) Driving Functions of IEC 61850

In ILMS, IEC 61850 serves as the digital backbone that revolutionizes industrial power automation. It provides standardized logical nodes for consistent data representation, GOOSE messaging for high-speed communication during critical events, and MMS for reliable system monitoring and control. By enabling seamless interoperability across Intelligent Electronic Devices (IEDs) and simplifying infrastructure through reduced wiring, IEC 61850 streamlines system design and deployment. With these capabilities integrated into ILMS, the system delivers high-speed automation, vendor-independent interoperability, enhanced reliability through rapid fault isolation and recovery, and optimized load distribution ensuring continuous power supply to critical equipment.

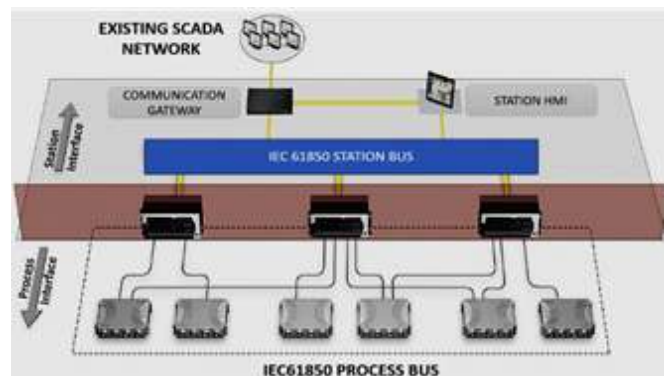


Figure-2 IEC 61850 Communication Framework

Fig. 2 depicts the IEC 61850 communication framework within ILMS, illustrating the integration of SCADA systems, HMIs, IEDs, and process-level devices across station and process buses, all functioning within a secure communication boundary

Case-1

A paper manufacturing plant operating with four STGs connected to a 66kV grid faced frequent power interruptions and unexpected blackouts. The root cause was an unreliable automatic load-shedding system, which lacked speed and consistency. The plant required a more reliable, relay-based communication load-shedding solution that could eliminate additional control wiring while ensuring fast, fully automated response during power disturbances.

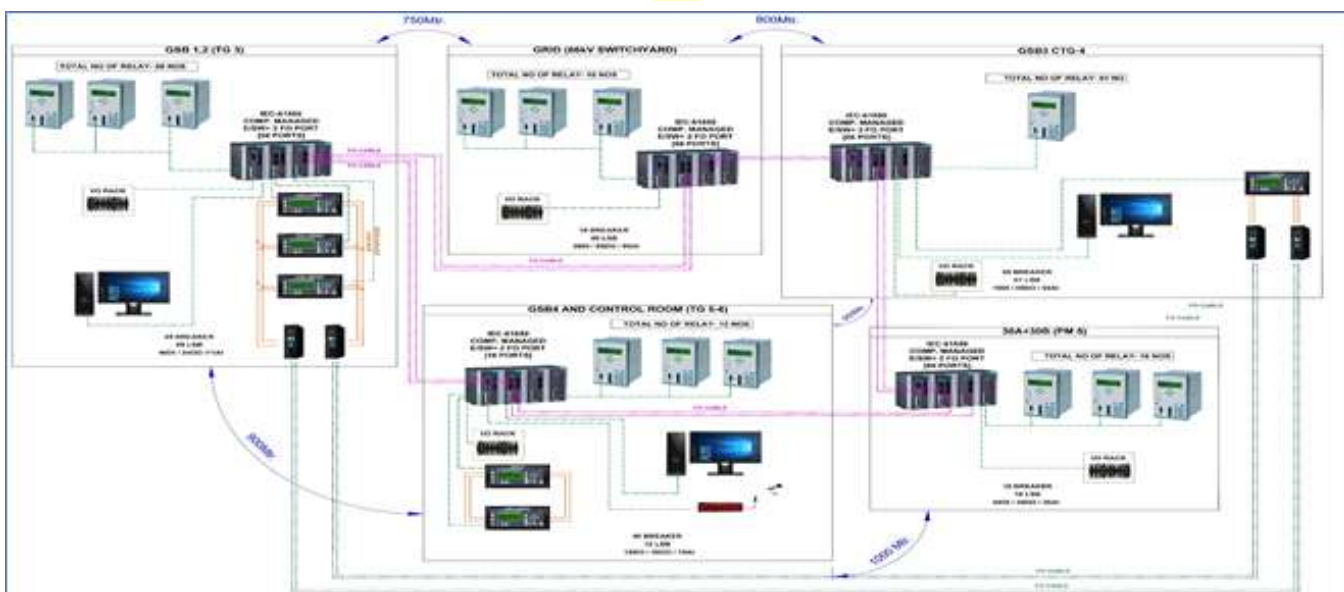


Figure-3 IEC 61850 Based Load Management System Architecture

Proposed Solution:

As shown in Fig. 3, a fully IEC 61850-native Intelligent Load Shedding (ILS) scheme was implemented end-to-end, eliminating the need for additional control wiring. Breaker statuses and analog measurements including kW, kVAr, voltage, current, power factor, and frequency—are acquired from both existing relays and newly installed IEC 61850-enabled controllers. The ILS logic, hosted within these controllers, prioritizes loads, enforces maximum demand limits, and provides under-frequency load shedding as a backup. Shedding and restoration commands are transmitted to designated feeder breakers via peer-to-peer IEC 61850 communication, enabling fast, deterministic responses and

enhancing system reliability with minimal downtime. The system has proven its reliability and effectiveness through sustained field operation in demanding conditions.

Case-2

A leading tire manufacturing plant, which operated with three steam turbine generators (STGs) and a 66kV grid connection, faced critical operational challenges. These included difficulties in synchronizing power sources, unequal load sharing between turbine generators during islanded operation, and inconsistent automatic load shedding. As a result, the plant frequently experienced power interruptions and blackouts, which significantly affected production and system reliability.

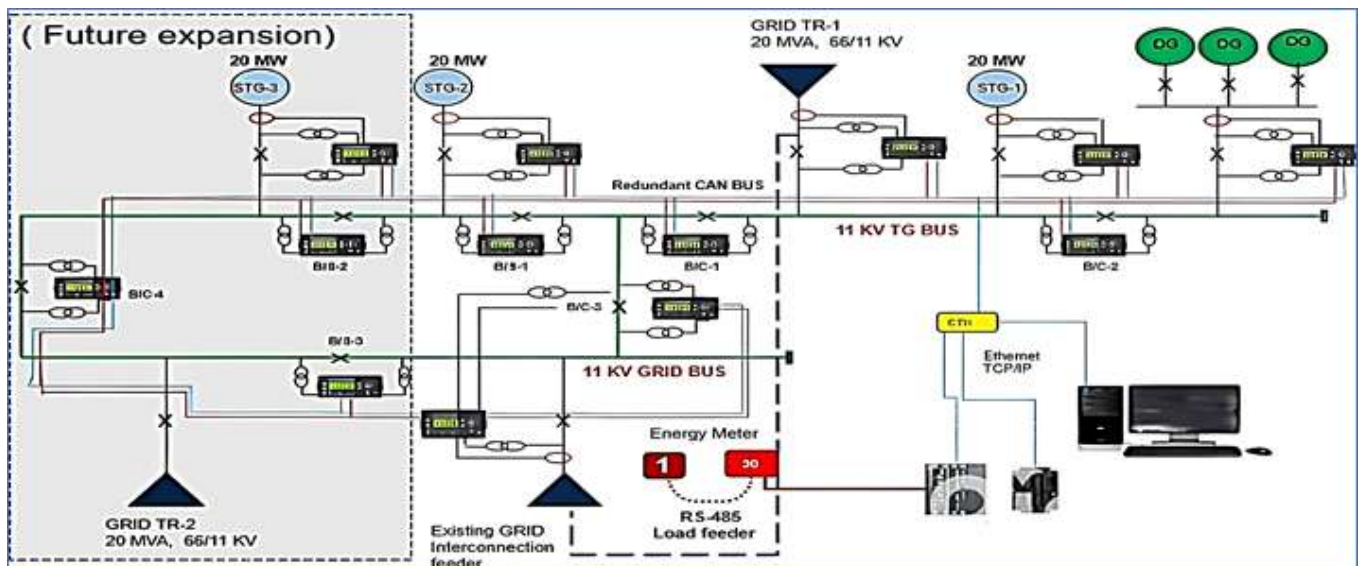


Figure-4 Smart and Intelligent Load Management with Synchronization Architecture

Proposed Solution:

As illustrated in Fig.-4, a load sharing and generation control system was implemented for a double-bus, ring-type 11kV distribution network. The system employs a redundant CAN bus-based communication architecture and controls 14 circuit breakers, including the STG and grid incomers, as well as the bus-tie and bus-coupler breakers. The system integrates intelligent source controllers on each STG and the Grid, enabling seamless

Synchronization, stable load sharing and reliable power flow. In addition, an automatic load-shedding scheme was deployed, based on load priority, contingencies, frequency thresholds, and steam pressure levels, to safeguard critical operations during disturbances. The system has demonstrated satisfactory performance in field operation over a significant duration.

4. Conclusion

The adoption of ILMS built on the IEC 61850

provides a modern and reliable solution for industrial power management. By leveraging logical nodes, GOOSE messaging, and MMS communication, it enables fast decision-making, seamless interoperability, and advanced generation control. With IEC 61850 enabled relays ensuring real-time response without additional wiring, ILMS enhances reliability and safeguards critical operations. Case studies from tire and paper industries demonstrate its ability to improve load sharing, optimize shedding, minimize blackouts, and maintain uninterrupted productivity. Ultimately, ILMS with IEC 61850 establishes a smarter, faster, and proven platform for managing complex industrial power system

About the Author



Rohan K. Mehta received the B. Tech degree in Electrical Engineering from Nirma University, Ahmedabad, India in 2008. He is Director-Engineering at Elcon

Engineers Pvt. Ltd., with over 17 years of experience in power system simulation and solutions alongside power automation solution.

September 15th observed as Engineers Day in India Sir M Visvesvaraya (A Century Engineer)



Sir Mokshagundam Visvesvaraya was a renowned Indian Civil Engineer, Statesman, and the 19th Diwan of Mysore. 15th September, his anniversary is celebrated as **Engineers Day** for

his visionary contributions to nation-building, water management, and industrial development. He was honored with the **Bharat Ratna** in 1955. He engineered significant projects like the Krishna Raja Sagar Dam and devised flood control systems. His birth anniversary, September 15th, is observed as **Engineers Day** in India to commemorate his legacy.

❖ **Life Tenure:** **Sir M Visvesvaraya; Born on 15 Sep 1861 and left for his heavenly abode on 12/14 April 1962).**

❖ **Visionary Engineer:**

Sir Visvesvaraya was a pioneer in engineering and is known for his precision and genius, particularly in water management and large scale dam construction.

- ❖ **Career Timeline:**
1. Assistant Engineer in Mumbai, 1885; served in Nashik, Khandesh (mainly in Dhule) and Pune. Services lent to Municipality of Sukkur, Sind, 1894; designed and carried out waterworks for the municipality.
 2. Executive Engineer, Surat, 1896.
 3. Assistant Superintending Engineer, Pune, 1897–1899; visited China and Japan, 1898.
 4. Executive Engineer for Irrigation, Pune, 1899.
 5. Sanitary Engineer, Mumbai, and member, Sanitary Board, 1901; gave evidence before Indian Irrigation Commission.
 6. Designed and constructed automatic gates patented by him at Lake Fife Storage Reservoir; introduced a new system of irrigation known as "Block System", 1903; represented the Bombay Government at Simla Irrigation Commission, 1904; on special duty, 1905.

7. Superintending Engineer, 1907; visited Egypt, Canada, United States and Russia, 1908.

8. Consulting Engineer to Hyderabad / Nizam State; supervised and carried out engineering works on Musi River, Hyderabad floods of 1909.

9. Retired from British Service, 1909.

10. Chief Engineer and Secretary to Government of Mysore, 1909.

11. Dewan of Mysore, Public Works Department and Railway, 1913.

12. Board of Directors of Tata Steel, 1927–1955.

❖ **Major Projects:** The Krishna Raja Sagara Dam: The Hyderabad town flood control scheme: A system to protect the Vishakhapatnam port from sea erosion: Statesman and Administrator:

❖ **Special Services:** He served as the Diwan of Mysore from 1912 to 1918, earning the title "Father of Modern Mysore". He also contributed to economic planning with his Visvesvaraya Plan and promoted industrial growth.

❖ **Champion of Self-Reliance:** He advocated for innovation, self-reliance, and discipline, principles that continue to inspire engineers and leaders in India.

❖ **Honors & Awards:** **Sir Visvesvaraya** was appointed a Companion of the Order of the Indian Empire (CIE) in 1911 by King Edward VII, when he was the Chief Engineer to the Government of Mysore. In

1915, while he was Dewan of Mysore, **Sir Visvesvaraya** was knighted as a **Knight Commander** of the order of Indian Empire (KCIE) by **King George V** for his contributions to the public good. After India attained independence, **Sir Visvesvaraya** received the Bharat Ratna, India's highest civilian honour, in 1955. He received an honorary membership from the Institution of Civil Engineers, London, a fellowship from the Indian Institute of Science, Bangalore, and several honorary degrees including D.Sc., L.L.D., D.Litt. from eight universities in India. He was the president of the 1923 session of the Indian Science Congress

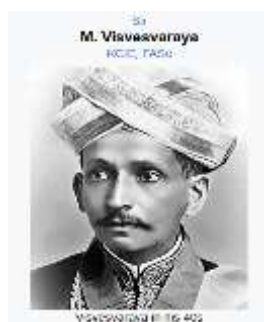
❖ **Knighted by the British:** The British government knighted him in recognition of his services to the public.

❖ **Engineers Day:** India celebrates Engineer's Day on his birthday, September 15th, to honor his indelible impact on the Nation's development and Engineering Prowess.

❖ **Death:** **Sir Visvesvaraya** breathed his last on 12/14 April 1962, aged 100.

Specialities: **Sir Visvesvaraya** was known for his sincerity, time management and dedication to his cause. He was a strict lacto-vegetarian who never ate meat or eggs. He was also a non-smoker and a tea totaller. A very important part of his nature was his love for Kannada language. He set up Kannada Parishat for the improvement of Kannada. He wanted seminars for Kannada supporters to be instituted and conducted right in Kannada.

Sir M Visvesvaraya: at 40's: Indian Postage Stamp: Samadhi



At 40's



Samadhi

OPENING OF A NEW SPE(I) CHAPTER AT SURAT



Chapter's Founder Members



Beginning of the Event with Lighting Holy Lamp

Dignitaries & August Gathering



Panel of Technical Discussion
L to R: **Er. SM Takalkar**, **Er. SK Negi**,
Mr. Anand Singh, **Er. PC Garg**

NEW LIFE MEMBERS

GR No.	Name	Grade	GR No.	Name	Grade
2471	Milankumar R Dave	LM	2474	Rakeshkumar D Chandel	LM
2472	Vinaychandra N Brahmbhatt	LM	2475	Er.(Ms.) Yutiben B Mehta	LM
2473	Vijayprasad K Amirneni	LM	2476	Er.(Ms.) Hetal Z Bhaidasna	LM

OBITUARY



Er. Jagdishbhai C Shah, Retd. SE (Gen./P&P), GEB, HO and **Life Member** of **SPE(I)** Vadodara left for his heavenly abode on **28 Sep 2025**.

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

Disclaimer

The views expressed in this newsletter are solely of the author and do not necessarily reflect the views of the editorial committee and Society of Power Engineers (I), Vadodara