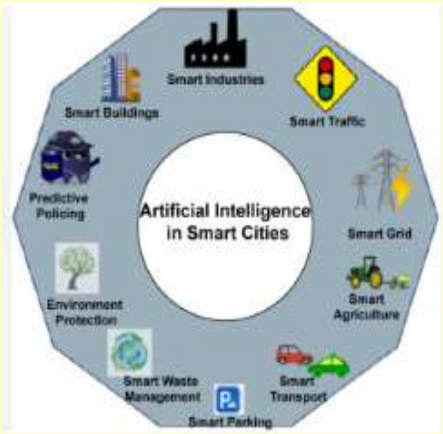
SPE Newsletter

SPE(I), Vadodara Chapter
April, 2025 Issue: 2/2025



TOP 10 SMART CITIES OF INDIA - READ INSIDE

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

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CHAIRMAN'S DESK

Dear all,

Hearty welcome to all the members.

The financial year 2024-2025 is coming to an end. I wish and hope that the New Year will be a leap forward for the SPE and its activities.

The SPE has done remarkably well in the current year, thanks to all the members who have contributed directly or indirectly in carrying out various events, seminars, or by way of donations etc.

The activities carried out by the SPE Vadodara chapter during the last 3 months ending on March 31st, 2025 have been very encouraging to all of us.

We arranged a 1-Day Seminar on renewable energy in the month of February 2025, which was a resounding success. We have learnt many things from the seminar and we would like to improve our performance and hold more such Seminars on different topics in the months ahead. The details will be informed to all the members in due course.

I am happy to inform the members that the SPE has a good addition to its corps. by conducting the 1-Day Seminar. It will help us in repaying the loan taken by the SPE for the new office. If we can continue this trend for the next 4-5 Seminars, we will be able to repay all the loans of all members. I thank all members who have contributed in one way or the other to get the possession of new office.

We have to now focus our attention on getting more members to join the SPE. We need to discuss this in different forums and set targets for the membership drive. I feel that every active member should enrol at least 2 members every year. With this we can enrol and add about 300 new members every year.

I request members of SPE to suggest more topics for the lectures and seminars and I will appreciate if members can be a direct part of lectures and the Seminars.

The SPE Surat Chapter has started under the guidance of SPE Vadodara. Congratulations to the senior members who have taken this initiative. Official announcing will be done soon

I am very happy to inform the members that the monthly committee meetings are being held regularly at the new office in Mona Lisa Business Centre. The March-2025 meeting was attended by a record number of committee members. The new office is good and I hope that all future meetings will be attended by most of the committee members.

All the members were invited with family to attend one event hosted by **Poornawad Institute of Life Engineering (PILE)** last month. The event speaker talked very well about the AI which is the hottest topic in the world.

It is becoming increasingly clear that the AI is poised to play a transformative role in shaping the future of our industry and society.

AI's potential to revolutionize power engineering lies in its ability to analyse vast amount of data, identify patterns, and make predictions. By leveraging machine learning algorithms and deep learning techniques, AI can help optimize power grid operations, predict energy demand and detect potential faults before they occur.

While AI holds tremendous promise for power engineering there are also challenges to be addressed like Data quality and availability, Cyber security, workforce development etc.

It is essential to recognize both the opportunities and challenges that lie ahead.

We have lost many of our senior members in this quarter. I will fail in my duty if I don't mention their contribution to bring the SPE to the present level. On behalf of all members I send our deepest condolences to the bereaved families.

Er. MR Tilwalli

EDITORIAL

Our chapter had organized, much needed **1-Day Conference** exclusively on "**Renewable Energy**" on **08 Jan 2025** @ Vadodara. The conference received over-whelming response from the Industries. The renowned speakers had discussed various topics like present-day solar policy, rules, regulations as well as RE markets in India, Emerging Trends and Potential of wind power, Grant of Connectivity with STU, the Electricity Act-2003 & Open Access, Various cutting-edge Solar PV Technologies and Applicability of various Green Energy Open access charges. Delegates gained much needed exposure to prevailing Wind, Solar and Hybrid technology and clear their views during the interaction with speakers in conference.

Indian Electricity sector is undergoing a remarkable transformation in Generation, Transmission and Distribution as well as Renewable sector. In last decade, considerable milestones have been achieved in generation capacity addition, more specifically in renewable energy, transmission capacity and expanding access to cost effective and reliable electricity by introducing various consumer friendly innovative policies. It is well said that operationally sound and financially viable Electricity sector is needed for economic growth of the Nation. The reforms initiated in this direction is reshaping the landscape of electricity sector in the country. We are moving forward with the specific initiatives such as National Green Hydrogen Mission, PM-KUSUM and PM Surya Ghar Muft Bijli Yojana, Revamped Distribution Sector Scheme. Government is firm in achieving its goal of 500GW Renewable Energy by the year 2030 and thereby also exploring Battery Energy Storage System (BESS) solution so as to integrate more renewable energy in to the grid. Our Electricity demand is increasing at Compounded Average Growth Rate of 5.40% and it is expected that it will touch 703GW by the year 2047.

Electricity (Rights of consumers) Rules,2020 are instrumental in providing rights and expectations of electricity consumers. The rule has set minimum standards of power supply and thereby ensuring reliable and quality power supply, timely grievance redressal and transparency in billing and metering. Consumer's expectations from DISCOMs have increased considerably. With rising living standards in Rural or Urban area, consumer cannot afford to have poor quality of power. Even interruption of transient nature or emergency shut down of shorter duration makes hues and cries among consumers. Consumer service rating is one such initiative of Government in this direction which makes utilities more responsible for quality of service they provide.

Recently, Government of India has published fourth edition of reports titled as 'Consumer Service rating of DISCOM' which provides evaluation of participating DISCOMs on the parameters related to consumer services i.e. (1) Operational reliability (2) Connection and other services (3) Metering billing and collection (4) Fault Rectification and grievance redressal. As per reports, out of four participating state-owned DISCOMs of Gujarat, not a single DISCOM has secured A+ grade.as such only one has secured 'A' grade and rest three have secured 'B+' grade. All four DISCOMs performed poorly in Metering billing and collection parameter. Hope, DISCOMs will take comprehensive insight into the best practices adopted by other utilities and thereby bringing appropriate improvement in consumer services rendered by them.

Lastly, at this juncture, we cannot forget story that has ended happily. Normally, we became uncomfortable and desperate when our train or flight gets rescheduled or cancelled, putting us in stranded position in some unfamiliar place. We lose our patience and make hues and cry with concerned authority. Now think of the pressure and anxiety faced by Sunita Williams and Wilmore in space who had to spend 286 days

(Contd. on page-4)

CHAPTER'S ACTIVITIES

Er. YV Joshi
Secretary

- On **08 Jan 2025,** the **Chapter** jointly with **CBI&P,** New Delhi, organised a **1-Day Conference on "Renewable Energy".** The report of the same is brought out in this issue.
- On **28 Jan 2025**, the **Chapter** jointly with the **IE(I)** Vadodara 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"** at Vasvik Auditorium. The lecture was on **"Robotics Engineering"** The expert speaker and awardee was **Er. Kaustubh D Samak.** The speaker has a distinguished contribution in the field of Robotics Engineering.

Expert Speaker

The **10th "Dr. RP Parnerkar Award for Excellence in Engineering and Technology-2025"** was presented by the **Poornawad Institute of Life Engineering, Sakshep Foundation, Jeevan Kala Mandal**, Gujarat in association with **The Society of Power Engineers (I)**, Vadodara **Chapter** and the **Institute of Engineers (I)** Vadodara Local Chapter on **28 Jan 2025**.

The award was conferred by **Dr. Laxmikant V Parnerkar**, the founder of the award, in presence of **Dr. Arun Patil**, MIT, **Dr. SK Joshi**, Chairman, IEI, **Er. Mohan Tilwalli**, Chairman SPE (I), **Dr. Ameya Munagekar**, Sakshep Foundation and **Er. YV Joshi**, Secretary, SPE(I) & JKM.

Award Presentation

Dr. Karuna Murthy, **Life Member** of SPE(I) Vadodara presenting his book titled **"Mind of Wind"** to **Er. SM Takalkar** on the eve of Conference on **"Renewable Energy"**
L to R **Er. PP Shah**, **Er. PA Shah**, **Dr. Karuna Murthy**, **Er. YV Joshi**, **Er. SM Takalkar**

STUDENT CHAPTER

The Sardar Vallabhbhai Patel Institute of Technology (SVIT), Vasad has opened a **Student Chapter** under The Society of Power Engineers (India), Vadodara **Chapter** from Feb-2025. There are 50 students of Electrical & Mechanical discipline of the SVIT who have enrolled themselves as members. Dr. DP Soni, Principal, Dr. Nilay Rathod, HoD (Electrical) and SPE(I) Vadodara have signed the MoU. Ms. Nirali Rathod is a coordinator of the student chapter. SPE(I) Vadodara Chapter has provided following services to SVIT.

1. Visit to Sardar Sarovar Hydro Power Plant – Dam Power House, River Bed Power House, Ponds, Head Regulators etc. on 11 Feb 2025
2. 1-Day Seminar on Energy Accounting, Energy Management, Energy Audit and Energy Conservation in Academy and Industry on 20 Mar 2025. Er. BN Raval, Er. Bhavesh Vasiyani, Er. PA Shah and Er. (Ms.) Hetal Prajapati delivered the talk.

MoU of Student Chapter
L to R Er. PA Shah, Dr. Nirali Rathod, Dr. DP Soni, Er. BN Raval, Dr. Nilay Shah, Er, Nirav Chauhan

Participants & Faculties of SVIT and Speakers in Energy Audit Workshop

Visit to Sardar Sarovar Narmada Project by Faculties and Members of Student Chapter of SVIT on 11 Feb 2025

Editorial (contd. from page-2)

in space against scheduled stay of eight days. Against all odds, the level of patience and calmness demonstrated by both during their stay in ISS deserves special compliments. It is now time to celebrate the safe return of the duo. The resilience and patience not only of two astronauts but also each one involved in mission who have made the story of happy home coming possible.

Wishing all members, a Happy Summer Vacation with family.

Er. Umesh Parikh

Brief Report of 1-DAY CONFERENCE on

"RENEWABLE ENERGY"

The Vadodara Chapter of SPE (I) organised a **1-Day Conference** on "**RENEWABLE ENERGY**" on **08 Jan 2025** at FGI, Vadodara.

More than 160 delegates from all over the country participated in the Conference. The delegates hailed from GETCO, GSECL, RE Developers including Solar Energy, Academic Institutions, RE Commissioning firms, Individuals, etc.

Further, the participants from various industries like **KPI Green Energy, MEC Power, Opera Energy, Wind Plus, Dmax RE-Infra LLP, Hivoltrans Electrical, Lucrative Energy, Heat Pumps of Lucrative Energy, Gujarat Solar EPC, MBH Power, Indian Wind Power Association and Gujarat Energy Development Agency,** participated in the conference.

The inaugural function was presided over by **Er. Satyandera R Pandey**, Member GERC, **Shri Tejas Parmar**, IAS, MD, MGVCL, **Er. HN Shah**, GM (RE), GUVNL, **Er. KJ Bhuva**, CE(LD), SLDC GETCO and **Er. SB Patil,** Director, KPI Energy. Others on the dais included **Er. Mohan Tilwalli**, Chairman, SPE (I) Vadodara, **Dr. AJ Chavda** Conference Coordinator and former CE, GETCO.

Er. Mohan Tilwalli presented Welcome Address and highlighted the activities of SPE (I) Vadodara. He informed that at present there are more than **600** Life Members of Vadodara Chapter. He also mentioned about upcoming activities of Vadodara Chapter like Workshop on Smart Meter, Seminar on Circuit Breaker, Seminar on Trans former, Workshop on Transmission System etc. **Dr. AJ Chavda** delivered message for the Success of the Conference. He also, gave a brief about the Conference and basic theme of the Conference. He informed to the participants that there are 160 Delegates in this Conference and about 13 Technical Papers to be presented in this Conference

Er. Patil, Director, KPI gave well wishes to the Conference and expressed his views on the development of **Solar Power in Gujarat**. He shared his experience while working in the GEDA a State Nodal Agency.

Er. KJ Bhuva, CE(LD), SLDC, GETCO expressed his views on the difficulties faced by the State Load Despatch Centre due injection of more **RE Power** in the network. **Er. HN Shah,** GM (Renewable Energy), GUVNL briefed about the State Government's policy for **Solar and Wind Power Plants**. He also informed about up-coming Solar and wind generation in the state and role of GUVNL. **Shri Tejas Parmar**, IAS, MD, MGVCL thanked SPE(I) Vadodara for organizing event on such an important topic which is a must for each **RE** project. He shared his views and experience on the RE development in MGVCL. **Er. SR Pandey,** Member, GERC, Gujarat expressed his happiness over being invited as a Chief Guest for the Conference. He explained State and Central Government's policy applicable in Gujarat as well as in the country. He also informed about the intricacies of the policy.

The un-veiling of the Proceeding was done by dignitaries on the dais. The **Proceedings of Renewable Energy** was compiled by **Er. PA Shah** and **Er. YV Joshi**. Thereafter, the **Platinum Sponsor** (KPI Green Energy) and other were felicitated by presenting memento and bouquet by the dignitaries on the dais.

Er. VB Harani Jt. Secretary, SPE (I) Vadodara presented vote of thanks and thanked Sponsors, Donors, Advertisers, Authors, FGI authorities, Dignitaries on Dais and delegates.

The chronological details of the event with photographs are covered here after.

The inaugural session was anchored by **Er. Saumya Tripathi**, GETCO and **Er. PA Shah,** Advisory Committee Member and an active member of SPE (I) Vadodara. The other members who supported **Er. Shah** were **Er. SM Baxi**, **Er. Shailesh Modi,** ERDA and **Er. Keyur Nanavati**. All audio visuals starting from prayer till Concluding Session were designed by **Er. PA Shah**, Advisory Committee Member. The logistics and other support were provided by **Er. Sanjay Shiledar Baxi** & **Er. VB Harani.**

After the inaugural session and a networking tea break, technical sessions for the Conference were taken up. The technical sessions were conducted by **Er. Shailesh Modi, Er. (Ms.) Hetal Prajapati and Er. (Ms) Binal Modi.** The presentation through electronic media was done by **Er. Keyur Nanavati** for both sessions**.** The various logistic activities involved on the stage were handled by **Er. SM Baxi, Er. Shailesh Modi,**

SESSION-I

Session Chair: Er. PH Rana

Paper-1 Conventional & Non-Conventional Electrical Energy Resources in India
Author: Er. Manoj Mishra,
KPI Green Energy

Paper-2 Overview, trends and potential of Renewable in general and Wind in particular
Author: Dr. Karunamoorthy, Wind Plus

Paper-3 CEA Guidelines about Power Quality Assessment.
Author: Ms. Shefali Talati, ERDA

Paper-4 Understanding of Solar market in India.
Author: Er. Shashank Malpande,
MBH Power

SESSION-II

Session Chair: Er. SK Negi

Paper-5 Development of Wind Energy in the Country and the total RE generation in India, a forecast
Author: Dr. Karunamoorthy
Indian Wind Association

Paper-6 The Power Network of Gujarat as on today and after 5 and 10 years
Author: Er. Deepak Patel, GETCO

Paper-7 Solar PV Technologies in India and abroad.
Author: Er. Ashish Dhaneria, ERDA

Paper-8 Alternate approach for outreach of Government of India RE Schemes
Author: Er. JC Marathe,
Excelsource International

Paper-9 Earthing and Lightning Protection in Solar System
Author: Er. Keyur Nanavati,
ETP Earthing & LPS Solutions

SESSION-III

Session Chair: Er. KJ Bhuva

Paper-10 Applicability of Open Access Charges for Green Energy.
Author: Er. Umesh Parikh, MEC Power

Paper-11 Battery back-up Solar Power Plant for Solarisation of Modhera Sun Temple and Modhera Town.
Author: Er. PH Rana,
Ex. Member(T), GUVNL

Paper-12 Grant of Electrical Connectivity of RE Projects with State Transmission System
Author: Dr. AJ Chavda, Ex. CE, GETCO

Paper-13 Indian Electricity Act, Rules and RE Prices in Gujarat and India
Author: Er. Vasant Patel, GETCO

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

RE NEWS

India added **20GW** of **Solar** and **Wind** **Capacity** in the first nine months of **2024**

From Jan to Sep-2024, India added about 17,444MW of solar and 2,627MW of wind capacity. This represents a significant increase of 105.8% for solar installations and 14.8% for wind installations compared to the same period in 2023. Notably, the total solar capacity added during the first nine months of 2024 is the highest recorded capacity in any previous year.

With these additions, India's total installed renewable energy (RE) capacity reached 201.46GW as of Sep-2024. Solar energy accounts for approximately 45% of the total RE segment, making it the largest contributor among renewable sources.

Fig.-1: RE installation trends in India

Utility-Scale Solar: From Jan to Sep-2024, India added about 13.2GW of new utility-scale solar capacity, marking a significant increase of about 160.9% compared to the installations during January to September-2023. This surge can be attributed to the government's initiative to issue bids for 50GW of RE capacity annually over the next five years. This initiative has strengthened the market, providing stability for both public sector undertakings (PSUs) and private companies.

In the first nine months of 2024, Rajasthan leads with 4.96GW capacity, followed by Gujarat with 3.13GW and Tamil Nadu with 1.57GW.

Rooftop Solar: During first nine months of 2024, India added about 3.2GW of new rooftop solar capacity, a 7.3% increase compared to the first nine months of 2023 installations. The increase can be attributed to the launch of the PM Surya Ghar: Muft Bijli Yojana. This initiative encourages the installation of rooftop solar in the C & I segment, as well as Government buildings.

Offgrid Solar: In the offgrid/distributed solar segment, about 1035MW was added in the first nine months of 2024, which is about 2.5 times higher than the installations in the same period last year

Fig.-2: Solar and Wind capacity addition trends in India.

Wind: In the wind sector, about 2.6GW of new capacity was added in the first nine months of 2024, up by 14.8% from the 2.3GW added in the first nine months of 2023. Gujarat (985MW), Karnataka (968MW) and Tamil Nadu (613 MW) accounted for about 97% of the new wind capacity added during this period.

It is expected that India will surpass record solar installation of over 20GW in CY 2024, while wind installations are projected to cross 3GW mark

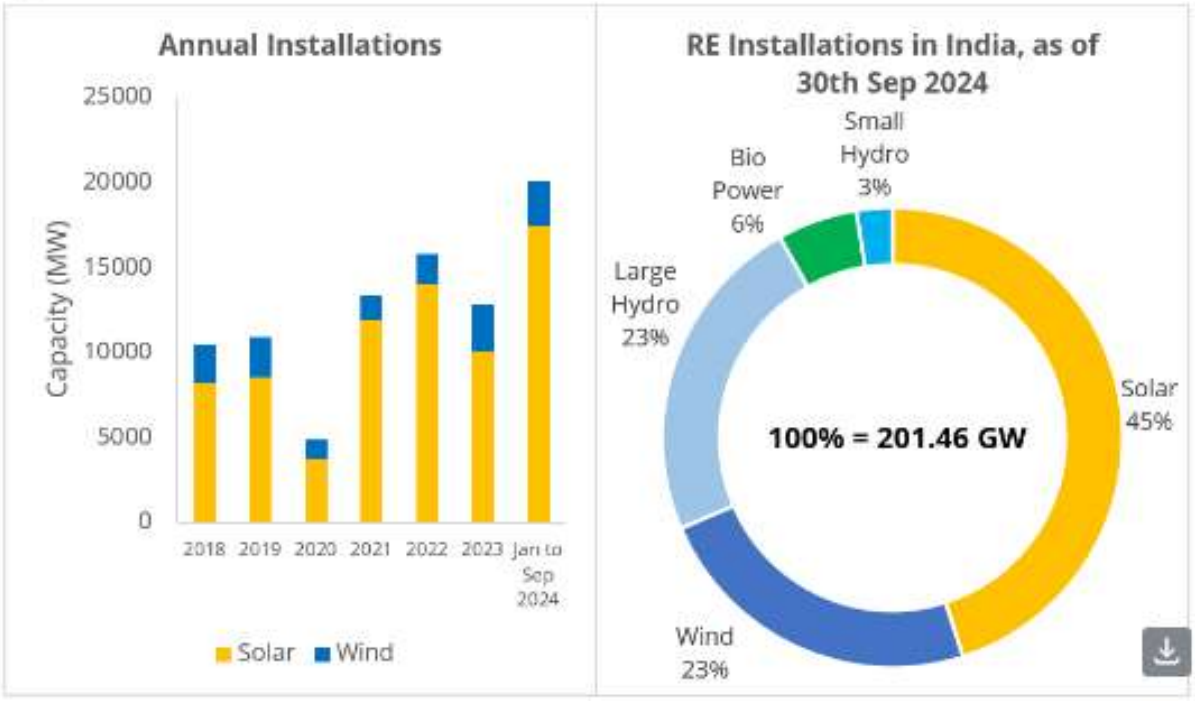
(see Fig.-1 & Fig.-2 on page-7)

MEMBER IN NEWS

Er. Ravindra B Desai, LM-SPE(I) Vadodara (second from left) was invited panelist on **"Harmonization of International Standards for Safer & Secure Smart Grids"** panel by the **US Embassy**, New Delhi.

Congratulations to Er. Desai.

Figure 1: RE installation trends in India

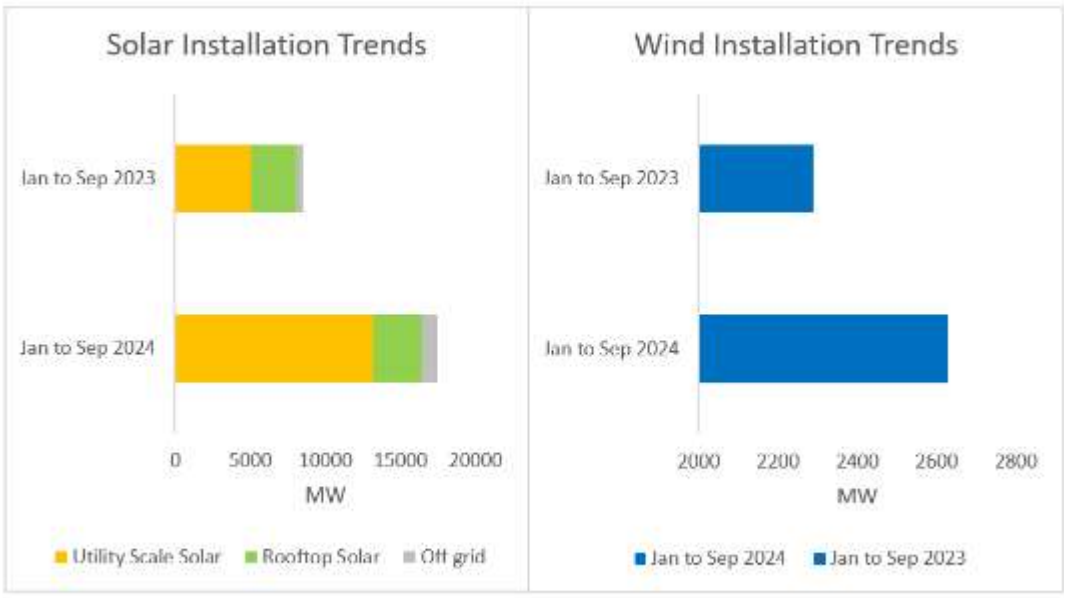


Source: CEA, MNRE, JMK Research

Note: Solar capacity includes utility-scale solar, rooftop solar, and off-grid/distributed solar capacity

Source: CEA, MNRE, JMK Research
Note: Solar capacity includes utility-scale solar, rooftop solar, and off-grid/distributed solar capacity

Figure 2: Solar and Wind capacity addition trends in India



Source: MNRE, JMK Research

Source: MNRE, JMK Research

GLIMPSES OF RE CONFERENCE

Dignitaries on Dais

L to R: **Er. KJ Bhuva**, CE(LD)-SLDC, Er. **SB Patil**, Director-KPI Energy, Er. **HN Shah**, GM(RE)-GUVNL, **Shri Tejas Parmar**, IAS, MD-MGVCL, **Er. SR Pandey**, Member-GERC, **Er. MR Tilwalli**, Chairman-SPE(I), **Dr. AJ Chavda**, Conference Coordinator

Inaugural Session Beginning

Lighting Holy Lamp

L to R: **Shri Tejas Parmar,** Er. **SB Patil, Er. KJ Bhuva, Er. MR Tilwalli, Dr. AJ Chavda,** Er. **HN Shah**

Welcome Address

Er. MR Tilwalli High Lighting activities of SPE(I)

Address by Dignitaries

Er. Patil extending Well Wishes to the Conference expressing views on development of Solar Power in Gujarat

Er. KJ Bhuva expressing views on the difficulties faced by SLDC due to injection of more Solar Power

Er. HN Shah briefing about the State Government's Policy for Solar & Wind Power Plants

Shri Tejas Parmar, IAS thanking SPE(I) Vadodara for organizing event on such an important topic

Er. SR Pandey expressing happiness being invited as a Chief Guest of the event

Dr. AJ Chavda delivering Success Message

Proceedings Unveiling

L to R: **Dr. AJ Chavda, Er. Manoj Mishra, Er. PH Rana, Er. MR Tilwalli**

Session Concluding

Er. VB Harani presenting Vote of Thanks

Technical Sessions
Paper Presentation

Er. Karuna Murthy

Er. Shefali Talati

Er. Dipak Patel

Er. Ashish Dhanaria

Er. Keyur Nanavati

Er. JC Marathe

Er. Umesh Parikh

Er. Shashank Malpande

Er. PH Rana

Er. Vasant Patel

Er. Manoj Mishra

Event Anchoring

Er. PA Shah

Er. Binal Modi

Er. Saumya Tripathi

Er. Hetal Prajapati

Er. Shailesh Modi

August Gathering

NEW LIFE MEMBERS

GR No.	Name	Grade	GR No.	Name	Grade
2463	Er. Keyur M Thakkar	LM	2465	Er. Sumantkumar C Patel	LM
2464	Er. Shailesh B Modi	LM			

POTENTIAL OF SOLAR POWER

Gujarat is India's sixth-largest state by land and ninth-most populous, with a population of more than 60 million people. It is one of India's richest and most well-run states, as well as a leader in the country's energy sector. As of 30 June 2022, Gujarat has an installed capacity of **19,414**MW of renewable energy, and includes **9419.42**MW of wind power, **7806.80** MW of solar power, **1990**MW of large hydro power, **109.26** MW of bio power and **89.39** MW from small hydro power.

With a solar capacity of **16.7GW (as of Dec-2024)**, the state stands tall as a solar powerhouse in India. Gujarat is also home to the country's first-ever **24 x 7** Solar-Powered village.

As Informed by Union Power and New & Renewable Energy Minister, India has a huge potential for Solar Energy, with an estimated **748**GWp (Giga Watt peak) of solar energy capacity. The state wise Solar Energy Potential is kept below:

Sr. No.	State/UT	Potential in kW
1	Andhra Pradesh	38,440
2	Arunachal Pradesh	8,650
3	Assam	13,760
4	Bihar	11,200
5	Chhattisgarh	18,270
6	Goa	880
7	Gujarat	35,770
8	Haryana	4,560
9	Himachal Pradesh	33,840
10	Jammu & Kashmir	1,11,050
11	Jharkhand	18,180
12	Karnataka	24,700
13	Kerala	6,110
14	Madhya Pradesh	61,660
15	Maharashtra	64,320
16	Manipur	10,630
17	Meghalaya	5,860
18	Mizoram	9,090
19	Nagaland	7,290
20	Orissa	25,780
21	Punjab	2,810
22	Rajasthan	1,42,310
23	Sikkim	4,940
24	Tamil Nadu	17,670
25	Telangana	20,410
26	Tripura	2,080
27	Uttar Pradesh	22,830
28	Uttarakhand	16,800
29	West Bengal	6,260
30	Delhi	2,050
31	Others (UTs)	790
	Total	**7,48,990 748 GW_p**

Year wise capacity from the year 2019-20 to 2023-24 (up to Dec-2023) is given below.

Sr. No.	State	No. of parks	Sanc. Capa. MW	Proj. commi. MW
1	Andhra Pradesh	5	4,200	3,050
2	Chhattisgarh	1	100	28
3	Gujarat	7	12,150	900
4	Jharkhand	3	1,089	0
5	Karnataka	2	2,500	2,000
5	Kerala	2	155	100
7	Madhya Pradesh	8	4,180	1,000
8	Maharashtra	3	1,000	0
9	Mizoram	1	20	20
10	Odisha	3	340	0
11	Rajasthan	9	8,276	3,065
12	Uttar Pradesh	7	3,730	341
	Total	**51**	**3,7740**	**10,504**

Sr. No.	Year	Added capacity (MW)	Cumu. Solar capacity installed (MW)
1	2019-20	6,510	35,607
2	2020-21	5,629	41,236
3	2021-22	12,761	53,997
4	2022-23	12,784	66,781
5	2023-24	6,538	73,319

RE PROGRESS OF INDIA

Sector	As on 31-03-2014	Addition during the Year & Cumulative at the end of the Year					
		2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2019-20**
Wind Power	21,042.58	2311.77	3423.05	5502.37	1865.23	1480.97	2117.79
Cumulative		23,354.35	26,777.40	32,279.77	34,145.00	35,625.97	37,743.76
Solar Power	2,821.91	1,171.62	3,130.36	5,658.63	9,563.69	6,750.97	6,510.06
Cumulative		3,993.53	7,123.89	12,782.52	22,346.21	29,097.18	35,607.24
Small Hydro Power	3803.68	251.68	218.11	106.38	105.95	107.34	90.01
Cumulative		4,055.36	4,273.47	4,379.85	4,485.80	4,593.14	4,683.15
Biomass(Bagasse) Cogeneration	7419.23	295.67	304.85	161.95	519.10	402.70	97.00
Cumulative		7,714.90	8,019.75	8,181.70	8,700.80	9,103.50	9,200.50
Biomass (Non-bagasse) Cogeneration	531.82	60.05	59.24	2.20	9.50	12.00	0.0
Cumulative		591.87	651.11	653.31	662.81	674.81	674.81
Waste to Power	90.58	0.0	0.0	23.50	24.22	0.0	9.34
Cumulative		90.58	90.58	114.08	138.30	138.30	147.64
Waste to Energy (Off-grid)	139.79	9.71	5.69	11.77	5.55	6.58	19.11
Cumulative		149.50	155.19	166.96	172.51	179.09	198.20
Total	**35,849.59**	**4,100.50**	**7,141.30**	**11,466.81**	**12,093.24**	**8,760.56**	**8,843.31**
Cumulative		39,950.09	47,091.39	58,558.20	70,651.44	79,412.00	88,255.31

Sector	Addition during the Year & Cumulative at the end of the Year					
	2020-21	**2021-22**	**2022-23**	**2023-24**	**2024-25 Up to Jan-2025**	As on 31-01-2025
Wind Power	1,503.3	1,110.53	2,275.55	3,253.38	2,478.75	48,365.26
Cumulative	39,247.06	40,357.59	42,633.14	45,886.52	48,365.27	
Solar Power	5,628.80	12,760.5	12,783.8	15,033.24	18,516.22	1,00, 329.83
Cumulative	41,236.04	53,996.54	66,780.34	81,813.58	1,00,329.83	
Small Hydro Power	103.65	62.09	95.40	58.95	97.30	5,100.55
Cumulative	4,786.80	4,848.89	4,944.29	5,003.24	5,100.54	
Biomass(Bagasse) Cogeneration	173.37	59.69	0.00	0.00	387.76	9,821.32
Cumulative	9,373.87	9,433.56	9,433.56	9,433.56	9,821.32	
Biomass (Non-bagasse) Cogeneration	97.24	0.00	42.40	107.34	0.00	921.79
Cumulative	772.05	772.05	814.45	921.79	921.79	
Waste to Power	21.00	54.50	25.00	1.60	29.80	279.54
Cumulative	168.64	223.14	248.14	249.74	279.54	
Waste to Energy (Off-grid)	20.75	34.66	52.28	30.17	47.84	383.92
Cumulative	218.95	253.61	305.89	336.06	383.90	
Total	7,548.11	14,081.97	15,274.43	18,484.68	21,557.67	1,65,202.21
Cumulative	95,803.42	1,09,885.39	1,25,159.82	1,43,644.50	1,65,202.17	

ENTERTAINMENT

Entertainment is the fundamental right of all living creatures on the earth. Everyone has its own way to recreate and entertain. In case of human being's entertainment comes through music, dance, drama, games and sports. Entertainment affords an individual to come out of the routine. Music is considered to be one of the best entertainer and a mind freshner for humans. As the mythology goes, Lord Brahma was the originator of all the performing arts with spiritual ascent. Lord Brahma passed on the skills of music and dance to Lord Shiva. In turn Lord Shiva passed on the music art to Lord Narada muni (saint). Thus for all of us the reference to music is Lord Narada (as per the Hindu mythology). The saptasur (7 Swaras) were replica of the voices of animals. The frequency of Sa in middle octave is 240Hz and that of Sa in top octave is 480Hz. Other swaras have their frequencies in between 240 & 480Hz.

In the known history of India (6th Century BC to 18th Century AD), music was a captive art with patronage from princely states and very rich individuals. The general population would have access to the performances only during festivals. Dance also used to be the royal subject of entertainment. The music in India only meant classical music. Learning music was only through Guru-Shishya parampara. There was no written notes of music for anyone to pursue classical music in his/her own way. It is Sir Sayajirao Gaikwad-3 who called for a weeklong conference-cum-workshop in Vadodara in the year 1916 and invited stalwarts in classical music in the country. Shri VN Bhatkhande was assigned to prepare notations for each raga. Thus came in to existence the notations of the classical music. The western music used different notations based on the piano keys. The spread of classical music in common man became very quick. Even before this happened Ustads were performing for their masters only. Dance & Drama also included music in their presentation. Thus entertainment became available to everyone. The rural sports and competition are prevailing from the time immemorial. Classical music in the beginning only meant singing using Tanpura. Later on the performance on instruments became part of classical music renderings. Light music and sangeet drama made music most popular with the general public who never had an access to the music.

In the state of Gujarat and elsewhere in India, Folk music and Dance were considered to be an attraction. Bhavai, Dyro, mythological dramas were performed everywhere and provided source of entertainment. Puppet shows and rural/urban street games were part of the entertainment for children. The games like cricket, football, baseball were the prime sports entertainer. In India, Gymnasium (Kusti, Malkhambh, Kho-kho, Kabaddi) etc. also found their way in entertainment. Horse and animal races were also part of entertainments.

The world of entertainment has taken a commercial turn in the first half of 20th Century and till date with the advent of cinemas. The entertainment has become multi-dimensional with the advent of computers and mobiles.

In the childhood, I used to travel miles to see a Bhavai or Dama and thereafter for seeing cinemas. The recorded moving discs (Gramophone), Audio cassettes, video cassettes, compact discs (CDs) periodically became popular and are on the verge of extinction. Now all you need is a pen drive, smart mobiles and television to provide you all sort of entertainment just on a voice call or on pressing keys. The social media has a killer instinct in providing entertainment. The information technology has brought entertainment to your fingertips. The single screen cinema theatres have almost vanished and multiplexes are also on the same path.

The irony is that despite all the sources of entertainment being available on asking, people have very little time to entertain themselves due to changing socio-economic structure of the society. The entertainment will have to be redefined in the years to come.

Er. SM Takalkar
Patron Member and a Classical Musician

MEMBER'S GALLERY

SPE(I) Vadodara office has received following Membership Certificates of Life Members/ Fellows from HQ Office, New Delhi. Members are requested to collect the same from SPE(I) Office between **16.30 & 18.30** hrs. on working days except Sunday & Public holidays.

Vadodara GR No.	Surname	First name	Second name	Type of Membership
2320	Mehta	Maulin	A	LM
2321	Prajapati	Hetalkumari(Ms)	B	LM
2322	Badheka	Jatan	S	LM
2323	Suthar	Nilesh	K	LM
2324	Panchal	Ghanshyam	C	LM
2327	Sharma	Shivani(Ms)(Dr.)	P	LM
2331	Kumar	Anil		LM
2332	Ranade	Manasi(Ms)	M	LM
2333	Nanoty	Archana(Dr.)(Ms)	S	LM
2334	Murthy	N. Karuna(Dr.)		LF
2335	Trivedi	Shailesh	P	LM
2336	BVM College			Institutional LM
2339	Iyer	Subramaniam	S	LM
2340	Modi	Binal(Ms)	H	LM
2341	Panchal	Arunkumar	B	LM
2342	Gupte	Dipak	R	LM
2343	Hathi	Himanshu	M	LM
2344	Choudhary	Ravindra	R	LM
2345	Parmar	Sudhirbhai	D	LM
2347	Thorat	Vaibhav	A	LM
2358	Gupta	Neeraj	C	LM
2361	Yash Highvoltage Ltd.	Abhijit Ballawar		Institutional LM
2364	Kamble	Pramod	M	LM
2365	Hindia	Vaibhav	T	LM
2377	Kothari	Devendra	D	LM

Identity Cards of following LM/LF are ready with SPE(I) Vadodara office. Members are requested to collect the same from SPE(I) Office between **16.30 & 18.30** hrs. on working days except Sunday & Public holidays.

GR No.	Surname	First name	Second name	Grade
243	Brahmbhatt	Rameshbhai	B	LM
350	Patel	Pankajkumar	K	LM
403	Lakhani	Ashvinkumar	I	LM
747	Suthar	Paresh	V	LM
836	Rana	Jitendrakumar	R	LM
941	Bhuva	Vijay	G	LM
1113	Desai	Nilesh	D	LM
1144	Gandhi	Ambrish	R	LM
1146	Patalia	Bhavesh	V	LM
1151	Dalvi	Mohan	S	LM
1152	Trivedi	Mayur	V	LM
1181	Nankani	Haresh	S	LM
1267	Vora	Deepak	J	LM
1291	Shah	Devesh	N	LM
1371	Ravi	Kumar		LM
1444	Shah	Navinchandra	T	LM
1541	Solanki	Pragnesh	G	LM
1578	Umrawala	Ritesh	R	LM
1582	Shewalkar	Shailendra	N	LM
1620	Iyer	Subbarayan		LM
1676	Sheth	Manoj	D	LM
1688	Shah	Neha(Ms)	S	LM
1770	Parmar	Kaushik	S	LM
1779	Raval	Pritesh	M	LM
1842	Vora	Bhavin	M	LM
1843	Sinha	Debal		LM
1876	Shah	Satishkumar	V	LM
1890	Agheda	Vallabh	N	LM
1923	Valera	Rajnikant	C	LM
1925	Ganatra	Dharmendra	M	LM
2019	Gour	Babusingh	D	LM
2055	Patel	Mukesh	A	LM
2060	Suthar	Vishnu	D	LM
2061	Suthar	Bela(Ms)	V	LM

2085	Makhijani	Prakash	K	LM
2100	Patel	Tejas	H	LM
2126	Joshi	Suresh	P	LM
2140	Jadhav	Girish	V	LM
2141	Dhruv	Dilipkumar	T	LM
2151	Nayak	Sanjaykumar	S	LM
2152	Parikh	Ajaykumar	J	LM
2154	Parmar	Hitesh	K	LM
2159	Agravatt	Asha(Ms)	M	LM
2160	Patel	Sanjaykumar	R	LM
2161	Mistry	Bhupendrakumar	L	LM
2162	Naik	Jignesh	H	LM
2164	Bhoomkar	Sujit	S	LM
2166	Doshi	Paresh	N	LM
2167	Prajapati	Dilip	K	LM
2168	Parikh	Deep	H	LM
2186	Mohite	Sangram	R	LM
2197	Patel	Chandrakant	D	LM
2219	Bhatt	Lakulish	C	LM
2226	Thakkar	Jagdishchandra	K	LM
2243	Joshi	Varsha(Ms)	R	LM
2245	Rathod	Nitinbhai	J	LM
2246	Patel	Ramesh	C	LM
2251	Chauhan	Bhadresh	B	LM
2277	Manoj	Kumar		LM
2283	Dabla	Harshad	M	LM
2299	Panchal	Niraj	R	LM
2302	Jani	Kirit	R	LM
2313	Joshi	Siddharth	D	LM
2314	Desai	Ishan	M	LM
2316	Panchal	Bhikhabhai	R	LM
2320	Mehta	Maulin	A	LM

TOP 10 SMART CITIES OF INDIA

1. **Bhubaneshwar, Odisha** 2. **Indore, Madhya Pradesh** 3. **Pune, Maharashtra**
4. **Ahmedabad, Gujarat** 5. **Coimbatore, Tamil Nadu** 6. **Kochi, Kerala**
7. **Hyderabad, Telangana** 8. **Jaipur, Rajasthan** 9. **Surat, Gujarat**
10. **Lucknow, Uttar Pradesh**

Solarisation of Modhera Sun Temple and Modhera Town

Er. PH Rana
Ex. Member(Tech), GUVNL

About the Project:

Modhera in the state of Gujarat has become the first Solar Powered village in India. It is a reconciliation between humankind and planet. The solar project has provided Modhera's residents with a surplus of Renewable Energy at an approximately cost of Rs. 80.66 Cr. The share for the solar project was split between the Indian government and the Government of Gujarat. The residents can save from 60 to 100% of their power bills. Earlier, when Solar Power Plant was not there, the resident had to pay huge amount for the electricity bill — close to Rs. 2,000 bi-monthly. However, with the installation of the Solar Power Plant the electricity bill is now zero.

Government of India and Government of Gujarat initiated the 'Solarisation of Modhera Sun Temple and Town' to provide 24 x 7 solar energy to Modhera through Solar Power project integrated with Battery Energy Storage System (BESS) at Sujjanpura in Mehsana, approx. 6kMs away from the Sun Temple, Modhera. The heritage lightings and 3-D projection at the Sun Temple will operate on solar energy. The 3-D projection will educate visitors with the history of Modhera. This projection will operate for 15-18 minutes during evening. Heritage lightings have been installed on the temple premises. Now, people can visit the temple from 6 pm to 10 pm to witness the lightings. The 3-D projection will operate from 7:00 to 7:30 pm every evening.

Government of Gujarat allotted 12 ha of land for development of this project. An amount of Rs.80.66 crore has been spent on a 50:50 basis by GOI and GOG in two phases, comprising Rs.69 crore and Rs.11.66 crore, respectively.

Everything from the refrigerator to washing machine now runs on solar at each residence. Nearly 30 acres of Modhera now have solar and rooftop panels that provide more kilowatts of energy than the village's residents use each day. There are three major components to this entire project. One is ground mounted 6MW (Megawatt) project. The second is the 15MWh (Megawatt hour) battery storage system and the third is the one-kilowatt rooftops installed on 1,300 houses. The solar project is not only helps with the villagers' bills, it's also becoming a source of income, as any surplus power they have can be sold back to the electric grid.

Major Components

- 6MW Grid Connected Ground Mounted Solar PV Power Plant at Village Sujanpura.
- 15MWh, 6MW, Battery Energy Storage System (BESS) at Village Sujjanpura
- 100kW Rooftop Solar PV Systems on Govt. buildings at Modhera town.
- About 1300 Nos. of Rooftop Solar Systems on Residential buildings at Modhera town.
- Electric Vehicle Charging Station.
- Vehicle Parking Structure of Solar Rooftop.
- Electrification of Modhera Sun Temple including 3-D Projections during evening.
- Few photographs are exhibited below.

15MWh Battery Energy Storage System at Village Sujjanpura


100kW Roof Top Systems on Government Buildings at Modhera


Solar Roof Top Systems on Residential Buildings at Modhera

6MW Ground Mounted Solar PV Plant at village Sujjanpura

Interpretation cum Museum at Modhera

50kV Solar Parking Structure near Modhers

Smart Meter installed at consumer end in entire Modhera

5 Nos. Electric Vehicle charging stations at Modhers

OBITUARY

Er. Rajnikant V Vibhakar, retired Executive Engineer (RE), MGVCL, Corporate Office and **Life Member** of **SPE(I)** Vadodara left for his heavenly abode on **09 Feb 2025**.

A sincere, polite and straight forward engineer, he used to attend monthly lectures arranged by SPE(I).

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

Er. Shrimandhar H Yadav, retired Superintending Engineer (Hydro), P & P Deptt., GEB, Head Office and **Life Member** of **SPE(I)** Vadodara left for his heavenly abode on **06 Mar 2025**.

A simple and low profile engineer, he used to crack jokes frequently making surrounding lighter.

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