



# *SPE News Letter*

October, 2021 Issue: 4/2021



*SILVER JUBILEE YEAR [1996-2021]*



*Happy Diwali*

*A Festival of Light & Colour*

**Society of Power Engineers (India)**

**Vadodara Chapter (Estd. 1996)**

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Near Vidyut Bhavan, Old Padra Road,  
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## OFFICE BEARERS & EXECUTIVE COMMITTEE MEMBERS FOR 2021-22



Er. GV Akre  
Chairman



Er. SM Takalkar  
Vice-Chairman



Er. YV Joshi  
Secretary



Er. NG Yadav  
Treasurer



Er. VB Harani  
Jt. Secretary



Er. NC Solanki  
Jt. Secretary



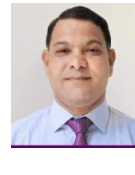
Er. RS Shah  
Member



Er. SM Godkhindi  
Member



Er. SP Trivedi  
Member



Er. MN Pandya  
Member



Er. YD Mehta  
Member



Er. PB Parmar  
Member

### ADVISORY COMMITTEE MEMBERS FOR 2021-22



Er. KN Rathod



Er. PA Shah



Er. JK Surti



Er. DC Mehta



Er. NV Lathia



Er. Umesh Parikh



Er. DV Patel



Er. BN Raval



Er. Hetal Prajapati



Er. MM Pandya



Er. Bharat Dalwadi



Er. Aditya Marathe



Er. MG Mehta



Er. KN Velani



Er. VJ Desai

#### SPECIAL INVITEE TO THE COMMITTEE



Er. N Dinker

#### EDITORIAL BOARD

Er. PH Rana

Er. SM Takalkar

Er. SM Godkhindi

Er. MN Pandya Er. JK Surti

#### PATRONS



Er. PH Rana



Er. HR Karandikar



Er. Nihar Raj



Dr. Shivani Sharma

#### OFFICE ADMINISTRATION COMMITTEE

Er. NC Solanki

Er. NV Lathia

Er. SM Godkhindi

Er. KN Rathod

Er. SP Trivedi

## **FROM THE CHAIRMAN'S DESK**



**Dear Readers,**

I am happy to present this first issue of SPE Newsletter after our AGM and election which have taken place on 26<sup>th</sup> Sep 2021. I take this opportunity to welcome newly elected

members and the members of Executive and Advisory committee for this year. I am pleased to inform you that the new team is represented by the engineers from utilities and industries with youthful energy and innovative ideas having wide experience in their respective fields. We have set up our goal to show SPE(I), Vadodara Chapter as one of the major players in power engineering field on training and skill building through wide range of programs like seminars, webinars, conferences, workshops etc.

We are aware that India is the third largest producer and the second largest consumer of electricity in the world. The Government has planned massive additions in installed capacity in the form of conventional and renewable energy projects. There will be a huge requirement for training and skill building of engineering workforce for successful operation of generation, transmission and distribution sectors. Many of the members of SPE(I) are retired engineers and experts from utilities and manufacturing sector and have immense potential to take part in training activities. These programs will be beneficial to experienced senior engineers as well as students and junior engineers for upgradation of their knowledge. These activities will make our organization more relevant to the changing times.

On the front of activities of sub-committees formed for smooth and efficient working of SPE (I) Vadodara Chapter, we are experiencing substantial progress. Every sub-committee has been assigned responsibilities of different activities like administration, technical, membership enrollment drive, IT & website, silver jubilee programs etc. They will be meeting in person or online for monitoring and discussing the progress of initiatives taken by them.

Website of SPE(I) Vadodara is now fully functional, and members can visit the site to read about our progress and different activities. The engineers can apply online for membership and

make the payment also. Members are requested to send their suggestions to make our website more attractive and useful.

I am happy to inform you that our drive for organizing seminars and webinars in association with other renowned institutions to spread SPE(I)'s reputation, has been a great success on pan India basis. Already two such events have been organised in December-2020 and August this year with CBIP-CIGRE and IEEMA respectively and both were remarkably successful. The upcoming seminar is organized for two days in association with CBIP-CIGRE. It will be held at the Lakshmi Vilas Palace on the sidelines of the celebration of the Silver Jubilee, on 6<sup>th</sup> & 7<sup>th</sup> January-2022. SPE(I) Vadodara will provide all the logistic support to CBIP/CIGRE(I) for this event. The Silver Jubilee Celebration Committee has chalked out an exhaustive programme which includes Silver Jubilee Ceremony, Cultural Programme by the members and their family and performance of professional musical orchestra.

Publishing a Souvenir is also planned to commemorate the event. The members can contribute Articles for this Souvenir and also make their best efforts to rope in Advertisement subscribers and donors. The appeal letter is being mailed separately to all of you, covering these aspects.

I am sure that members will not miss this opportunity to take part in the programs during this grand celebration of our Silver Jubilee.

**I wish you a most joyful Diwali and the New Year to come.**

Thank you,

**Er. GV Akre**



## **EDITORIAL:**



**Dear Readers,**

The Vadodara Chapter of SPE(I) has completed **25** years of its inception on **3<sup>rd</sup> Oct 2021**. Being a founder office bearer as a Secretary, I have a large stock of memories to

share with all the readers.

As known to most of us, the SPE(I) is an extended arm of Central Board of Irrigation and Power (CBIP), New Delhi. The inception of SPE(I) in New Delhi dates back to **1945** (before independence of India). In the post-independence era, SPE(I) established Chapters at many places in the country which included Delhi, Jammu, Jabalpur, Mumbai and Bengaluru. Most of them had a strength ranging from **100** to **250** members. The Mumbai Chapter was then considered to be a leading one.

Due to lot of involvement in the technical activities, I was frequenter in CBIP. I used to meet Er. CVJ Verma (Secretary), Er. Maruti Babu (Director-Energy), Er. VK Tiwari (Dy. Director-Energy) and many more in CBIP. The real closeness came when a Research Project on Tower Foundation was awarded by CBIP to the then GEB (R&D Department). Being in a lead role in Transmission Line Designs, R&D Department of GEB solicited my personal assistance and involvement in this research project. The research work was aimed at deriving most economical designs of Transmission Line tower foundations. About 200 pull out tests were conducted on different soil strata in various parts of the State of Gujarat. About Rs.30 Lakh was spent on the R&D Project. The outcome was fantastic and have paved a way to various recommendations in Transmission Line Manual published by CBIP. The work was initially supported by Gujarat Engineering Research Institute(GERI), Vadodara.

The research work brought me very close to the rank and file of CBIP. I was invited to write and present papers by CBIP for its conferences. After Er. Maruti Babu's retirement, Er. PK Lal took charge of the post of Director(Energy). During one of the meetings with Er. PK Lal & Er. VK Tewari, both from Madhya Pradesh Electricity Board (MPEB) on deputation to CBIP, I was requested by Er. PK Lal & Er. VK Tewari to open a Chapter of SPE(I) in Vadodara. Both talked to

Er. N Dinker, the then Member(Technical) in GEB and requested him to support myself in establishing a Chapter of SPE (I) in Vadodara. Er. N Dinker called me and gave a green signal to start the Vadodara Chapter.

I started enrolling members and within a week's time more than 50 members were registered. After lot of formalities and making arrangements for initial corpus, the Chapter was inaugurated in the evening hours of **3<sup>rd</sup> Oct 1996**. Er. KS Dave had a lion's share in the initial support followed by Er. SM Joshi, Er. HK Shah, Er. GJ Bajaj, Er. PA Shah, Er. MM Nayak and many more. Er. Nanubhai Amin, Chairman of Jyoti Ltd., chaired the opening session. Er. CVJ Verma (CBIP), Er. N Dinker, Member (T), GEB and Er. JS Coelho, Chairman, GEB shared the dais. About **250** members were enrolled by the day of inauguration (**03 Oct 1996**). Er. Nanubhai Amin contributed Rs. **5,000/-** towards the inaugural expenses.

The membership started growing very fast. The working committee comprised Er. N Dinker (Chairman), Er.(Dr.) KK Thakkar (Vice-Chm.), myself (Secretary), Er. MM Nayak(Jt. Secretary & Treasurer), Er. KS Dave and others as Executive Committee Members. Instead of requesting GEB to provide space for running the office activities of the Chapter, it was decided to hire a premises. JP Road Co-operative Society in Avishkar Complex (being run by GEB employees) allowed to use its premises at a monthly rent of Rs. **250/-** After operating from this office for about 2-3 years, it was decided to purchase a premise for the office. Er. SM Joshi who was then very active as Treasurer, used his good offices with his friend and the present premise was acquired at a price of Rs. **6** Lakh with partial payment. The balance payment was made in interest free installments from the earnings of Seminars, Workshops etc.

Er. Nalinbhai Bhatt who was then Chairman of GEB, inaugurated the purchased premises and appreciated the activities of SPE (I) Vadodara Chapter. He was responsible for faster growth of SPE (I) Vadodara Chapter through sanction of grants for various Seminars on Energy Management & Conservation and Power Engineering. The New Office (Present Premise) was

inaugurated by him on **14 Apr 2000**. Er. BN Raval Er. SB Lele, Er. PA Shah, Er. SM Godkhindi, Er. SM Joshi, Er. HK Shah, Er. NV Rede, Er. KS Dave, Er. KN Rathod and many others took the development of the Chapter to their heart and have contributed significantly in the progress of the Chapter. It is very difficult to name each and every one, but it was always a teamwork.

For better accounting, ledger was devised and printed, which is now computerized. Support of CBIP has always been to the core of the Chapter's activities and growth. Er. VK Kanjlia, Er. PP Wahi, Er. Vishan Dutt and Er. Batra patronized the Chapter in a big way for last 14 years. They have always looked to Vadodara Chapter as a role model of the SPE (I). They organized many events in Vadodara and New Delhi under the banner of SPE (I).

I have been an Office Bearer as a Secretary for **13** years and now as a Vice-Chairman for **4** years. After Er. N Dinker expressed his desire to step down, Er. GV Akre took over as a Chairman of the Vadodara Chapter. During my tenure as a Secretary, Prof. AK Singh was Vice-Chairman for many years. Er. SB Lele has also contributed his might in development of the Chapter as a Vice-Chairman. Er. VB Harani, Er. ND Makwana, Er. SM Godkhindi, Er. RS Shah and Er. YV Josh took over charge of Secretary one after the other and

served the Chapter in best possible manner. The Chapter's main strength is derived from the consistency in the activities including family programmes. The Chapter is on a firm footing so far as the immovable property and corpus are concerned. The Chapter has also been responsible for opening a chapter in Vallabh Vidyanagar and Ahmedabad. Er. Nikhi Shah is a fore runner in pushing the activities of the Ahmedabad Chapter.

The journey of Chapter over last **25** Years has been very smooth and steady. The support of members is enormous, I must thank each and every one who have rallied behind me and fulfilled my dream to make this Chapter to cross a mark of 25 Years. There are many NGOs and organization who start sagging after few years but SPE (I) Vadodara Chapter is different. With new generation members supporting the activities of SPE (I) Vadodara, I am sure, the rate of progress will be maintained or enhanced.

The Silver Jubilee function, which is put on hold due Covid-19 Pandemic, is due to be organized in **Jan-2022**. I request all the members to be a party to this celebration.

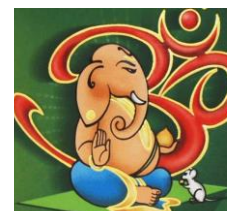
**Er. SM Takalkar**  
Vice-Chairman

**FUTURE EVENTS: see last page**

## DIWALI GREETINGS



**The Executive Committee, the Advisory Committee and Editorial Board (SPE NEWS LETTER) wish all the Members, Readers, Patrons and Well Wishers a very Happy DIWALI and Prosperous NEW YEAR following Diwali**  
**May God shower thousands of Blessings on You and your Family Members in the New Year**





## CHAPTER'S ACTIVITIES

➤ On **14 Aug 2021**, Chapter organized a **Webinar** on **“Understanding Artificial Intelligence of Neural Network”**.



The speaker was **Dr. Kalpesh Chudasama**, Asso. Professor, ADIT, CVM University Vallabh Vidyanagar.

In the beginning, **Er. YV Joshi**, Secretary-SPE(I), Vadodara presented welcome address.

Dr. Chudasama deliberated on the topic, which included Phase Over Current IDMT characteristic and dependency on source Impedance and Line Impedance. The modern generation of Numerical relays have large number of features like mobile phone, but the protection engineers prefer to use selected features only, he stated.

**Er. PA Shah**, Advisory Committee Member-SPE(I) Vadodara, was the **Moderator** of the Webinar.



➤ On **22 Sep 2021**, Chapter organized a **Webinar** on **“Maintenance Management in Nuclear Power Plants”**.

The speaker was **Er. Gajendra Jajpuria**, Retd. Asso. Director, (P-PHWR), Nuclear Power Corporation of India Ltd. (NPCIL) and Life Member-SPE(I), Vadodara.

The theme of the lecture was “Monitoring and carrying out Preventive Maintenance in the Nuclear Power Plant is very sensitive”. Each electrical equipment in the plant has to be maintained meticulously. Besides, proper documentation and training for O&M of auxiliaries is very important. The maintenance Management includes Man-Power planning, maintenance Strategies and Problem solving. Understanding failure mechanism and resource management is also a part of maintenance management.

The speaker was formally introduced by **Er. SM Takalkar**, Vice-Chairman, SPE(I), Vadodara

The lecture was well received. There was a brief spell of question and answer after the lecture.

In the beginning, **Er. YV Joshi**, Secretary, SPE(I), Vadodara presented welcome address.

**Er. DC Mehta**, Advisory Committee Member, SPE(I) Vadodara, was the **Moderator** of the Webinar.

➤ On **26 Sep 2021, 25<sup>th</sup> AGM** of **SPE(I) Vadodara Chapter** was organized at Velchand Benkar Vidyarthi Ashram, Karelibaug, Vadodara. Report on the same is brought out in this issue.

### Other activities by Members



On **06 Aug 2021** Parul Institute of Engineering and Technology-DS Electrical Deptt. organized a **Webinar** on **Capacitor Voltage Transformer**.

Speaker was **Er. VJ Desai**, Invited Member, SPE(I), Vadodara and Head-Technical, Lustre Engineering Corporation.

Er. Desai explained use of CVT in the networks of 132kV and above. CVT is designed to perform the same functions of an electromagnet PT(IVT). Modern CVTs offer less variation of capacitance over operating temperature range of 05° to 105°C.

**Er. YV Joshi**  
Secretary

### ACKNOWLEDGEMENT

Following members have donated towards Silver Jubilee Celebration of SPE(I) Vadodara Chapter (continued from Sr. No. 65)

Sr. No.	Member's name	Donation (Rs.)
65	Er. VB Harani	2,100
66	Er. GM Hingu	1,501
67	Er. SS Sutar	1,501

### NEW LIFE / YEARLY MEMBERS

GR.No.	Member's name	Grade
2356	Patel Chaitanya K	M(21-22)
2357	Gaikwad Sameer S	LF
2358	Gupta Neeraj C	LM

## **PROCEEDINGS OF 25<sup>TH</sup> ANNUAL GENERAL BODY MEETING**



The **25<sup>th</sup> AGM** of the SPE(I) Vadodara Chapter was held on **26 Sep 2021** at **10.00** hrs. onwards at **at Velchand Benkar, Vidyarthi Ashram, Opp: Viroc Hospital Near Sardar Vinay Vidyalaya, Karelibaug, Vadodara-390 018**. The **Election** for the 4 vacant posts **EC Members** also conducted.

The following business was transacted.

- 1. Quorum:** Due to the lack of quorum at the scheduled time, the members present left the meeting and re-assembled at the same venue after half an hour and carried on the following business.
- 2. Prayers:** Prayers viz. Ganesh Vandana and Sarasvati Stuti were performed digitally.
- 3. Welcome address by the Chairman:**  
The Chairman of the Vadodara Chapter, **Er. GV Akre** gave a welcome address. He highlighted the progress of the Chapter during the year. He stressed the need for further efforts to make Vadodara Chapter a Brand in the Power Sector. He thanked all the members of Executive Committee and Advisory Committee as well as Patrons and invited Members for their valuable support. He highlighted the efforts of Office Bearers of Vadodara Chapter in organizing webinars during the pandemic situation by joining hands with CBIP, IEEMA and Parul University.
- 4. Observing 1-minute silence to pay Homage to the departed souls of the Members of SPE(I) Vadodara and well-wishers:**  
The members present in the house stood from the seat and observed 1-minute silence to pay Homage to the members who left for their heavenly abode during the year (between last AGM and this AGM). They are Er. KM Barve, Consultant; Er. SJ Thakkar, Retd.DE, GEB; Er. MC Shukla, Red SE, GSECL; Er. SM Joshi, Retd. EE, GEB; Er. BK Patel, Retd. Member (Tech), GEB; Er. AM Chhipa, Red. EE (Tr.), GEB; Er. RA Janti, Retd, ACE (Tr.), GEB; Er. AT Mistry, Retd. DE, GSECL; and Er. PO Kulshreshtha, Retd. ACE, GETCO.

The departed well-wishers are Er. NP Singh Brar, Chairman, IE Vadodara Local Center and Er. PR Chaudhari, Retd. Joint MD, UGVCL

### **5. Confirmation of Minutes of last AGM held on 17 Jan 2021:**

Minutes of last AGM were already circulated to all members. However, Secretary of the Chapter, **Er. YV Joshi** read out the minutes of last AGM held on 17 Jan 2021. The minutes were approved by the house without any change.

### **6. Presentation of Secretary's report**

Along with 25<sup>th</sup> AGM Notice, Secretary's Report for 2020-21 was already circulated. However, Secretary of the Chapter, **Er. YV Joshi** presented Secretary's Report for the year 2020-21. The report was accepted by the house without any change or observations.

### **7. Presentation of Accounts of the Chapter for the year 2020-21**

Along with 25<sup>th</sup> AGM Notice, Audited Accounts of the Chapter for the Financial Year 2020-21 were already circulated. The Treasurer of the Chapter, **Er. NG Yadav** presented the same. After some discussions and clarifications on the queries raised by the members present in the House, the accounts were approved by the AGM without any change. He informed the House regarding collection of Fund towards Silver Jubilee Celebration and the separate Bank Account is being maintained. He also requested the Members to give more donation for grand celebration of the Silver Jubilee Year.

### **8. Presentation of Budget of the Chapter for the year 2021-22.**

Along with 25<sup>th</sup> AGM Notice, Budget for 2021-22 was already circulated. The Treasurer of the Chapter, **Er. NG Yadav** presented the same. The budget was approved without any change.

### **9. Proposals by Er. YV Joshi:**

- The Secretary **Er. YV Joshi** proposed the name of Shri Niraj Mujmundar & Associates, Chartered Accountants as Auditor of the Chapter for the financial year 2021-22. The house approved the proposal.

2. **Er. YV Joshi**, Secretary informed the House regarding efforts made by Er. DC Mehta for e-voting including two trials performed successfully. Due to one or other technical reason the Chapter could not conduct election through e-voting. Therefore, Er. Joshi informed the House that proposal for making the necessary amendment in the Constitution of SPE (India) is approved by the EC / AC Committee Members. It is proposed to submit the Proposal to SPE(I) Head Quarter which was unanimously approved by the House.

#### 10. Address by Vice-Chairman:

The Vice-Chairman of the Vadodara Chapter, **Er. SM Takalkar** addressed the House. He gave brief account of the journey of SPE (India) in general and Vadodara Chapter in Particular. He mentioned that while SPE (I) was established before Independence of India, the Vadodara Chapter is due to complete 25 years of its inception on **3<sup>rd</sup> October 2021**. He indicated as to how he was requested to open the Chapter in Vadodara by the rank and file of CBIP in 1996. He specifically mentioned the names of Engineers who had played a pivotal role in establishing the Chapter and nurturing it all through the 25 years.

He specifically highlighted the efforts of Er. N Dinkar, Er. AK Singh, Er. SM Joshi and Er. KS Dave in establishing the Chapter on firm footing in the initial years. This included purchase of the Office Premises and furnishing as well as development of Record System. He also specifically named Er. Nalin Bhatt the then Chairman of erstwhile GEB in rendering financial and technical support to the Chapter.

Er. Takalkar gave outline of the Silver Jubilee Celebration which is put on hold due to COVID-19 pandemic and to be organized as soon as possible. He proposed the name of Er. PH Rana a veteran Engineer of Power Sector of Gujarat as Chairman of the Silver Jubilee Celebration Committee. The House unanimously accepted the proposal of Er. Takalkar. Er. PH Rana was kind enough to accept the proposal.

#### 11. Felicitations:

1. **Er. DC Mehta** was felicitated for preparation of e-voting module for the SPE(I), Vadodara Chapter and taking trials twice successfully.

2. **Er. PH Rana** was felicitated for his acceptance of Chairmanship of the proposed Silver Jubilee Celebration Committee and for a lion's share in Silver Jubilee Celebration Fund raising activities of the Chapter.

#### 12. Open House Session:

**Er. GV Akre**, Chairman, **Er. SM Takalkar**, Vice-Chairman and **Er. YV Joshi** Secretary of the Chapter conducted the open house session. The following is the gist.

a. **Er. Baxi** suggested for improvement in the working of the Chapter. His suggestions were accepted by the House.

b. **Er. PH Rana** appreciated the efforts of team SPE(I) in smooth conduct of Election & AGM. He wished grand success of ensuing Silver Jubilee Celebrations. He also offered his services to SPE(I) Vadodara. He was thanked for his gesture by the office bearers and all the attendees.

#### 13. Felicitations of Senior Members:

The Life Members of SPE (I) Vadodara who have completed 65 years of age were Felicitated in rotation by Chairman, Vice-Chairman and Secretary with bouquet and shawl.

#### 14. Vote of Thanks:

**Er. VB Harani**, Joint Secretary presented vote of thanks. In his speech he thanked all Patrons, Executive & Advisory Committee Members for their contribution during the year. He also thanks all the members for remaining present in Large numbers during the AGM and making event successful. He also thanked the Caterer Shri Kirit Desai for excellent arrangement for the AGM and Lunch. He also thanked Er. PA Shah & his team for Anchoring and Er. PN Shah & his team for Election of EC Members.

#### 15. National Anthem:

The AGM ended after recitation of National Anthem.



## 16. Election of Executive Committee

### Members:

**Er. PN Shah**, DE, MGVCL, who was Polling & Returning Officer, conducted the Election for four posts of Executive Committee Member for the years 2021-2024 with the assistance of **Er. PA Shah & Er. JD Tamhane**. Against four posts, following Nine nomination forms were received as candidate for EC Member:

- (1) Er. Makwana AN
- (2) Er. Mehta YD
- (3) Er. Pandya MN
- (4) Er. Parikh UB
- (5) Er. Parmar PB
- (6) Er. Patel DV
- (7) Er. Sharma YK
- (8) Er. Velani KN
- (9) Er. Yadav NG

The process of voting for above candidates was conducted smoothly at Venue keeping the provisions of COVID-19 protocol.

After counting, the following four members were declared Elected by election officer Er. PN Shah during Virtual AGM.

- (1) **Er. Mehta YD**
- (2) **Er. Pandya MN**
- (3) **Er. Parmar PB**
- (4) **Er. Yadav NG**

Newly elected four EC Members were felicitated by Chairman Er. GV Akre. **Er. PN Shah** was felicitated with a memento by Chairman **Er. GV Akre** after the counting was over.

### 17. Anchoring:

The entire event was anchored by **Er. PA Shah**, LM & Advisory Committee Member along with **Er. Bhatt Gargey**.

### 18. Highlights:

150 Members of Chapter attended the AGM which is highest so far.

### 19. The event ended with Lunch followed by Counting of Votes.

## FORMATION AND DELEGATION OF POWERS OF COMMITTEES

### ❖ OFFICE ADMINISTRATION COMMITTEE:

Er. NC Solanki (Convener), Er. KN Rathod  
Er. NV Lathia, Er. SM Godkhindi,  
Er. SP Trivedi

### ❖ TECHNICAL COMMITTEE:

Er. GV Akre (Convener), Er. VJ Desai,  
Er. Manish N Pandya, Er. Nihar Raj,  
Er. SM Takalkar, Er. YV Joshi, Er. PA Shah,  
Er. Umesh Parikh

### ❖ PURCHASE COMMITTEE:

Er. NG Yadav (Convener), Er. RS Shah,  
Er. VB Harani, Er. YD Mehta, Er. KN Rathod,  
Er. PB Parmar, Er. DV Patel

### ❖ WEBSITE AND DIGITAL COMMITTEE:

Er. DC Mehta (Convener), Er. YV Joshi,  
Er. Umesh Parikh, Er. PB Parmar,  
Er. (Dr.) Shivani Sharma

### ❖ PROGRAMME IMPLEMENTATION COMMITTEE:

Er. NG Yadav (Convener), Er. NC Solanki,  
Er. VB Harani, Er. YD Mehta, Er. MG Mehta,  
Er. SP Trivedi, Er. BT Dalwadi

### ❖ EDITORIAL BOARD:

Er. PH Rana (Editor), Er. SM Takalkar,  
Er. JK Surti, Er. SM Godkhindi,  
Er. Manish N Pandya

### ❖ MEMBERSHIP SCRUTINY COMMITTEE:

Er. SM Godkhindi (Convener), NC Solanki,  
Er. DC Mehta, Er. RS Shah, Er. KN Rathod

### ❖ MEMBERSHIP DRIVE GROUP:

Er. SM Takalkar (Convener), Er. RS Shah,  
Er. PB Parmar, Er. YD Mehta, Er. BN Raval

### ❖ SILVER JUBILEE COMMITTEE:

#### CORE COMMITTEE:

Er. PH Rana (Chairman), Er. GV Akre,  
Er. SM Takalkar, Er. YV Joshi

#### SUB COMMITTEE:

Er. VB Harani, Er. NG Yadav, Er. MG Mehta,  
Er. DC Mehta, Er. Keval Velani



# Recent Advancements in Micro Grid Technology

By

**Er. Ashish P. Shah**, Assistant. Professor, Parul University, Vadodara  
**Dr. Kalpesh J. Chudasama**, Professor, BVM College, Vallabh Vidyanagar

## Introduction

Micro Grid: A microgrid is a low voltage (LV) power network with distributed energy sources such as photovoltaic (PV) arrays, micro-wind turbines, fuel cell and energy storage devices (e.g. batteries, super capacitor and flywheel), which

offer better control capability over network operation. Microgrid can operate in two modes namely Grid connected mode and Islanded Mode

## Classification of Micro Grid:

Microgrids are classified based on Mode of operation, Types, Source, Scenario and Size.

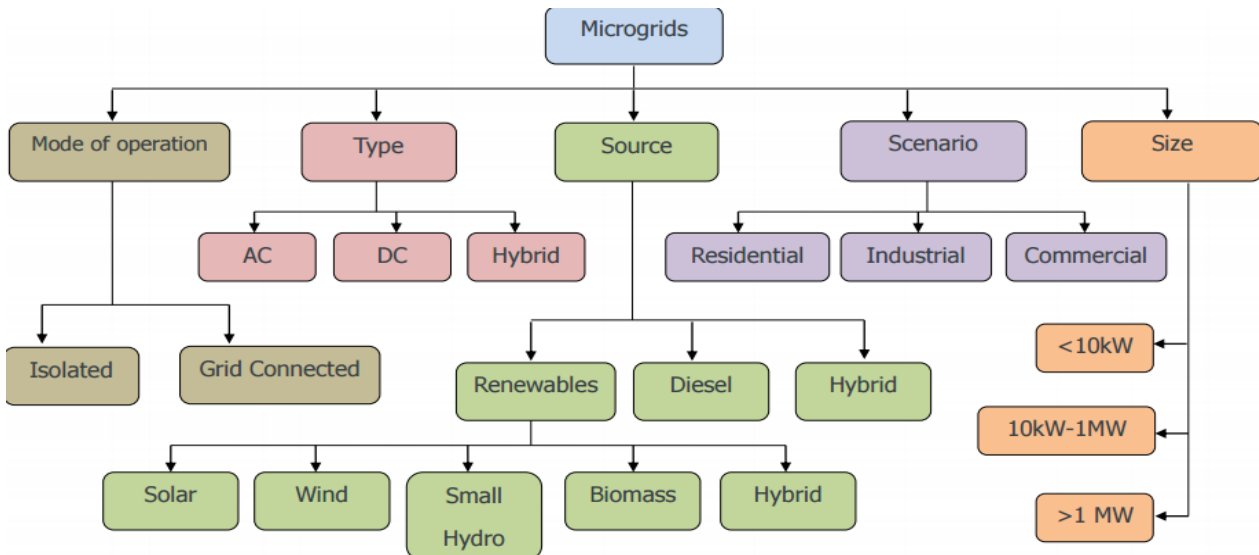


Figure 1: Classification of microgrid

## DC Microgrid:

An electrical system that can efficiently distribute, consume and potentially create and store, Direct Current (DC) electricity to power a wide variety of electrical devices in and around buildings when connected to a utility grid or as an island.

## Advantages of DC Microgrid:

➤ Higher efficiency and reduced losses (up to 34%) due to the reduction of multiple converters used for dc loads.

- Easy integration of various dc DERs, such as energy storage, solar photovoltaic (PV), and fuel cells, to the common bus with simplified interfaces.
- More efficient supply of dc loads, such as electric vehicles and LED lights.
- Eliminating the need for synchronizing generators, which enables rotary generating units to operate at their own optimum speed.
- Enabling bus ties to be operated without the need for synchronizing the buses.



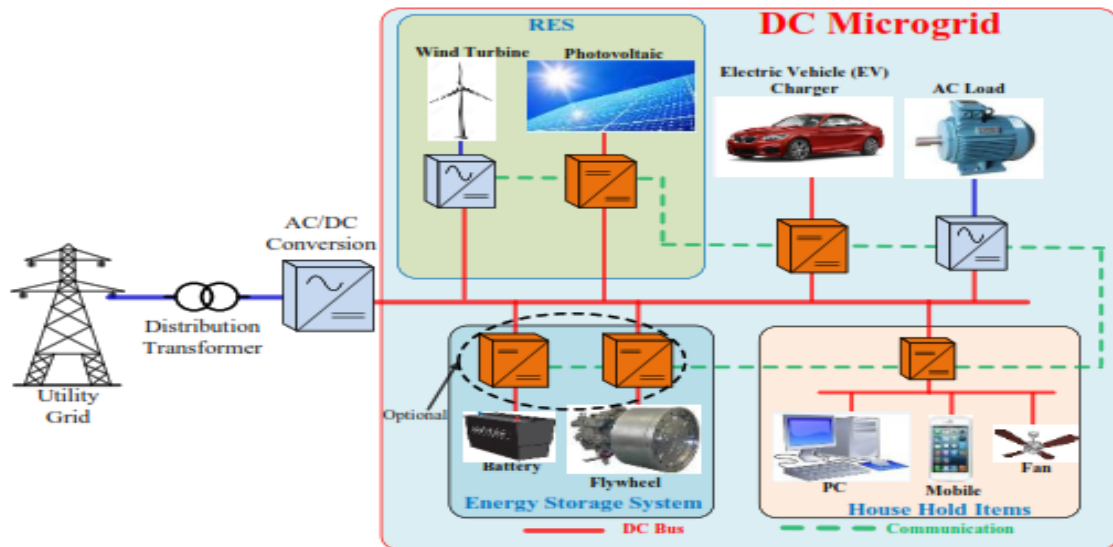


Figure 2: Building block of a DC Microgrid Layout

### Energy Saving with to DC Microgrid:

Energy Use	Loss with AC	Loss with DC	Average Net Savings with DC
Lighting	12%-20% (Average 16%)	3%-6% (Average 4.5%)	<b>11.5%</b>
Computers	15% -20% (Average 17.5%)	3%-6% (Average 4.5%)	<b>13.0%</b>
Air Conditioning	2%-10% (Average 6%)	0% (Average 0%)	<b>6.0%</b>
Elec. Vehicle Charge	3%-10% (Average 6.5%)	1%-5% (Average 3%)	<b>3.5%</b>
<b>TOTAL</b>			<b>34%</b>

### DC Microgrid Architecture:

- Radial Configuration
- Ring Configuration
- Interconnected Configuration
- Mesh Type DC Microgrid System
- Zonal Type DC Microgrid System

### Grounding Schemes in DC Micro grid:

- The DC microgrid system is normally interfaced with AC grid through AC-DC power converters. On the AC side of the system, there is a stepdown distribution transformer connecting the system to a medium voltage (MV) AC network.
- AC Grid Grounding Arrangements as per IEC 60364 standard:
  - TN grounding system
  - TT grounding system
  - IT grounding system
  - High resistance grounding system (HRG)

### Types of DC micro grid Faults:

- Short circuit fault
- Line to Line Fault
- Line to Ground Fault
- Arc Fault
- Series Arc Fault
- Parallel Arc Fault

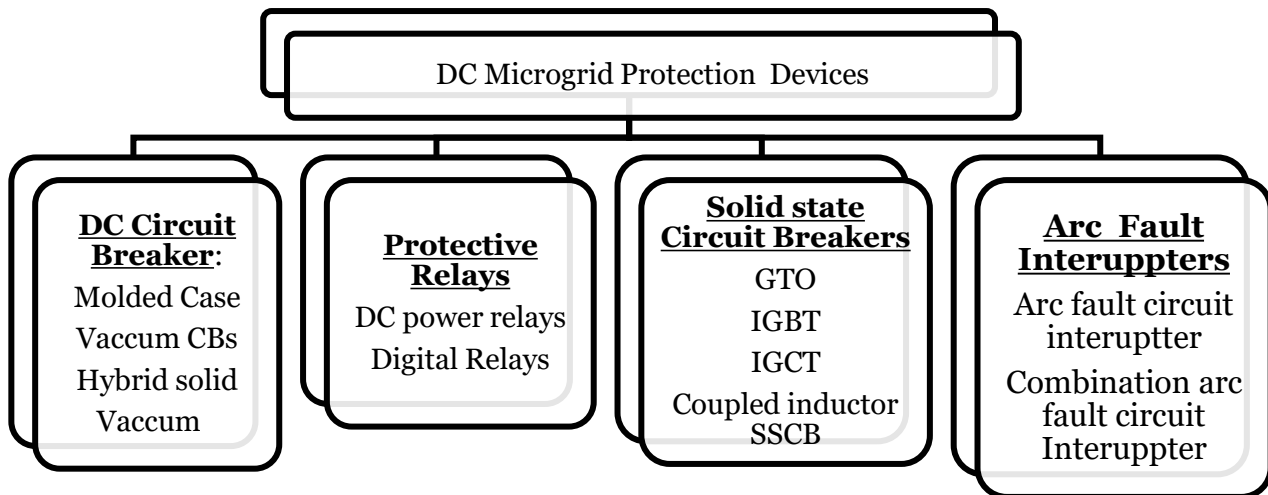
### Fault Characteristics in DC Microgrid:

Fault	Feature
Pole to Pole	Low impedance, detectable, dangerous for system
Pole to Ground	Occur because of insulation degradation, High impedance fault
Transient part of fault	DC capacitor, Cable discharge, Slow, Medium and Fast front discharge
Steady state part of fault	Fault current is calculated by adding the SC current of other phases

### Protection Schemes for DC micro grid:

- Unit Protection
- Differential
- Event Based
- Non-Unit protection
- Current Based
- Voltage Based
- Hybrid Electrical quantity based

### Protection Devices for DC microgrid protection:



### Indian LVDC standards:

- Bureau of Indian Standards (BIS) is driving the work relating to formulation of Indian Standards on Low Voltage Direct Current (LVDC) Power Distribution Systems and its promotion.
- BIS is also in field of grid integration of renewable energy. The process of formulating National Standards in the BIS has published the standard for "Guidelines for 48V ELVDC (Extra low voltage) distribution system IS 16711: 2017". This standard covers the essential requirement for distribution of power from an extra low voltage 48 V DC power source. This standard is also applicable to locations where electricity utility services are not available, and power is derived from single or multiple renewable energy sources. It also provides precautions to be taken during wiring installations.

### LVDC Projects in India:

- First DC microgrid Project of 5kW was commissioned 30 years back in Uttar Pradesh.
- After more than 25 years, Mera Gaon Power piloted the DC microgrid technology in village Swanusi, Kerala.
- UPNEDA developed a 1.2kW dc micro grid in 2011-12 in Mathia village, Gonda District designed to serve 200 households.

- LVDC grid is designed for Sunderbans, Westbangel to serve 500 households and 130 shops. Each grid has 10 households of 220Wp power.



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## SWEET MEMORIES OF 25<sup>TH</sup> AGM



### PRAYER

**Beginning of  
25<sup>th</sup> AGM  
with Prayer  
(Digital)  
Sarasvati  
Vandana**

Sitting on dais  
from L to R

**Er. GV Akre**  
Chairman

**Er. SM Takalkar**  
Vice-Chairman

**Er. YV Joshi**  
Secretary

### WELCOME

**Er. GV Akre**  
Chairman  
delivering  
**Welcome  
Address**

Sitting on dais  
to his left

**Er. SM Takalkar**  
Vice-Chairman

**Er. YV Joshi**  
Secretary





## **AUGUST GATHERING**

Sitting on chair  
first row  
from L to R

**Er. SM Takalkar**  
Vice-Chairman

**Er. DC Mehta**  
AC Member

**Er. PH Rana**  
Patron

**Er. GV Akre**  
Chairman

## **ANCHORING THE EVENT**

**Er. PA Shah**  
AC Member  
& Anchor of  
the event

Reading  
the **Agenda**  
of the event





**SECRETARY'S REPORT**  
**Er. YV Joshi, Secretary**  
presenting **Annual Report** of the Chapter for **FY 2020-21**



**PRESENTIN  
G ANNUAL  
ACCOUNTS**

**Er. NG Yadav**  
Treasurer

presenting  
**Annual  
Accounts**  
of the Chapter  
for **FY 2020-21**

to his left  
**Er. GP Shulka**  
Jt. Secretary

**JOURNEY OF  
25 YEARS OF  
SPE(I) VADODARA**

**Er. SM Takalkar**  
Vice-Chairman

Speaking on  
25 Years' journey of  
SPE(I) Vadodara  
Chapter



**FELICITATION OF MEMBERS FOR THEIR RECOGNISED SERVICES**



**Er. DC Mehta** felicitated by **Er. YV Joshi**-  
Secretary, for preparation of e-voting module  
for the SPE(I), Vadodara Chapter and taking  
trials twice successfully.



**Er. PH Rana** felicitated by **Er. GV Akre**-  
Chairman, for his acceptance of Chairmanship of  
the proposed Silver Jubilee Celebration  
Committee and for a lion's share in Silver Jubilee  
Celebration Fund raising activities of the Chapter.



## FELICITATION OF MEMBERS ON COMPLETION OF 65 YEARS



**Er. LN Pandya** felicitated with Shawl by **Er. GV Akre-Chairman**



**Er. DR Gupte** felicitated with Shawl by **Er. SM Takalkar, Vice-Chairman**



**Er. Narendraprasad Pandya** felicitated with Shawl by **Er. GV Akre-Chairman**



**Er. JB Sheth** felicitated with Shawl by **Er. GV Akre-Chairman**



**Er. Nimil Baxi** felicitated with Shawl by **Er. SM Takalkar, Vice-Chairman**



**Er. NC Shah** felicitated with Shawl by **Er. YV Joshi - Secretary**

## FELICITATION OF MEMBERS ON COMPLETION OF 65 YEARS



**Er. DJ Mehta** felicitated with Shawl by **Er. GV Akre-Chairman**



**Er. SM Godkhindi** felicitated with Shawl by **Er. GV Akre-Chairman**



**Er. KG Shah** felicitated with Shawl by **Er. SM Takalkar, Vice-Chairman**



**Er. MK Mahida** felicitated with Shawl by **Er. GV Akre - Chairman**



**Er. PB Patel** felicitated with Shawl by **Er. YV Joshi - Secretary**



EC Members watching proceedings of the event. Sitting on dais from L to R **Er. GP Shukla – Jt. Secretary**, **Er. VB Harani - EC Member** and **Er. NG Yadav - Treasurer**

## OPEN HOUSE SESSION



**Er. YV Joshi**, Secretary listening to **Open House** queries. Sitting on dais to his right  
**Er. SM Takalkar**, Vice-Chairman & **Er. GV Akre**, Chairman



**Er. SM Takalkar**, Vice Chairman replying to queries. Sitting on dais to his right  
**Er. GV Akre**, Chairman and left **Er. YV Joshi**, Secretary

## INTRODUCTION OF CANDIDATES CONTESTING ELECTION



**Er. AN Makwana**, former Treasurer introducing as a candidate for election. **Er. VB Harani**, EC Member looking on



**Er. Keval Velani**, EC Member introducing as a candidate for election. **Er. SM Takalkar** Vice-Chairman looking on



**Er. YK Sharma**, Jt. Secretary introducing as a candidate for election. **Er. VB Harani**, EC Member looking on



**Er. DV Patel**, AC Member introducing as a candidate for election. **Er. NG Yadav**, Treasurer looking on



**Er. Umesh Parikh**, AC Member introducing as a candidate for election. **Er. GP Shukla**, Jt. Secretary looking on



**Er. Parag Parmar**, AC Member introducing as candidate for election. **Er. NG Yadav**, Treasurer looking on

## INTRODUCTION OF CANDIDATES CONTESTING ELECTION



**Er. YD Mehta**, AC Member introducing as a candidate for election.



**Er. Manish N Pandya** introducing as a candidate for election. **Er. VB Harani**, EC Member looking on

**Er. NG Yadav**,  
Treasurer  
introducing  
as a candidate  
for election.



### ELECTION PROCESS

Issuing  
Ballot paper.

**Er. BT Dalwadi,**  
& **Er. SK Dasani**  
having a word with  
**Er. SP Trivedi**  
EC Member



## REGISTRATION

Registration of members attending AGM.

**Prof. AK Singh**  
former  
Vice-Chairman  
&

**Er. ND Makwana**  
former Secretary

seeking information  
from Er. NV Rede

## RELISHING LUNCH

Before counting of votes & declaration of results, members relish Lunch on Lush green Lawn





## **ELECTION PROCESS**

Issuing Ballot  
paper.

**Er. RN Purohit,  
Er. Nihar Raj**

### **Tentative Programme for Silver Jubilee Celebration of SPE (I) Vadodara Chapter**

1. Conference on “**Power Reforms Process, Expectation and Achievement**” on **6 & 7 Jan 2022** at Laxmi Vilas Palace, Pandit Jawaharlal Nehru Marg, Vadodara. The conference will be conducted by CBIP, New Delhi with assistance of SPE (I), Vadodara Chapter. The delegates and papers will be arranged by CBIP, New Delhi. However, full assistance will be provided by SPE (I) Vadodara Chapter. There will be a discount in Delegate Fees for SPE(I) Members.
2. It is planned to publish a Souvenir to commemorate the event. Members are requested to rope in prospective business houses for subscribing advertisement in the Souvenir as well as donating appropriate sum. Appeal letter is attached herewith for your further needful please.
3. Professional Musical Night - Melodies program will be free of charge for Members and their spouse.
4. In house cultural program (by amateur artist members/ spouse) will be arranged by SPE (I) Vadodara Chapter. This will be free of charge to Members and their spouse. The program will be followed by dinner.
5. Felicitating members, well-wishers, sponsors, advertisers in Souvenir and dignitaries in & around Vadodara who have contributed their might in development of SPE (I) Vadodara Chapter. This will be free of charge to Members and their spouse followed by Lunch/ Dinner.

#### **Note:**

1. Detailed program will be intimated to the Members on finalization of event and venue.
2. Above program is subject to COVID-19 situation and protocol. In case of change the members will be informed suitably.

**THE END**