केन्द्रीय विद्युत अनुसंधान संस्थान
CENTRAL POWER RESEARCH INSTITUTE
बेंगलूर
BANGALORE
स्थापित 1960 ESTD 1960

ANNUAL REPORT

2024-25

CENTRAL POWER RESEARCH INSTITUTE

GLOBAL PRESENCE OF CPRI

Countries Served

Bangladesh
Bahrain
Canada
China
Egypt
France
Germany
Ghana
Indonesia
Japan
Korea
Kuwait
Malaysia
Myanmar
New Zealand
Oman
Qatar
Russia
Sri Lanka
Singapore
Saudi Arabia
Syria
Spain
Sweden
Thailand
UK
USA, etc.

CENTRAL POWER RESEARCH INSTITUTE

ANNUAL REPORT 2024-25

Prof. Sir. C. V. Raman Road,
Sadashivanagar P.O., P. B. No. 8066,
Bengaluru – 560 080,
Karnataka, India

FOREWORD

It gives me great pleasure to present the Annual Report of the Central Power Research Institute (CPRI) for the financial year 2024–25. This year has been one of steady progress, meaningful achievements, and continued commitment to excellence in the field of power engineering and applied research.

As a leading organization under the Ministry of Power, Government of India, CPRI plays a vital role in ensuring the quality, reliability, and safety of electrical equipment used across the power sector. During the year, we continued to strengthen our technical capabilities and expand our services to meet the growing needs of industry and utilities.

The Institute achieved revenue of Rs. 221.71 crores, the second highest ever since its inception. Our laboratories conducted 1,13,841 evaluations on 29,182 samples, catering to 6,141 clients across the Globe. These accomplishments reflect the trust that industry places in CPRI's expertise and the dedication of our team to deliver high-quality testing and certification services.

During the financial year 2024-25, (i) 40 kA Temperature Rise Test Facility at CPRI, Bengaluru, established to cater to the testing requirements of manufacturers of switchgear and allied equipment, and (ii) Dynamic Laboratory at CPRI, Bengaluru, developed to facilitate seismic, vibration, and shock testing of power equipment, were inaugurated and dedicated to the Nation.

To enhance stakeholder service and expand national reach, CPRI has established a new Regional Test Laboratory at Nashik and is setting up another unit at Raipur to serve the Western and Central regions, respectively. Additionally, a Common Test Facility at Narmadapuram, Madhya Pradesh, is being developed jointly with the Ministry of Power and MNRE to provide faster and more efficient testing access for manufacturers.

At the same time, the High Power Laboratory at Bengaluru is being upgraded to a capacity of 7,500 MVA, which will enable testing of high-capacity circuit breakers, transformers, and other grid equipment, required for modern transmission systems.

During 2024-25, CPRI strengthened its collaborative network through a series of strategic Memorandums of Understanding and agreements. Partnerships were established with MANIT, Bhopal for research and academic collaboration and with KPCL for joint research initiatives. An MoU was also signed with BHEL for collaborative R&D activities of mutual interest. These collaborations reaffirm CPRI's commitment to advancing research, innovation, and industry partnerships.

All CPRI laboratories are accredited under ISO/IEC 17025, and its certification services are recognized under ISO/IEC 17065:2012. These international accreditations help Indian manufacturers to access global markets and to support the national vision of "Make in India – Make for the World."

CPRI is also a member of the Short-Circuit Testing Liaison (STL), ensuring international acceptance of our test reports and certifications. This strengthens India's position as a trusted testing and certification hub in the global power sector.

In India's vision of "Make in India - Make for the World", institutions like CPRI are not merely service providers—they are enablers of quality, innovation, and trust. I extend my deepest gratitude to the Ministry of Power for their guidance and support, to our clients and industry partners for their confidence, and most importantly, to the scientists, engineers, technical and non-technical staff whose efforts drive these successes.

With a strong foundation, dedicated manpower, and continuous upgradation of facilities, CPRI will continue to contribute significantly to India's power sector growth and technological advancement.

Jai Hind!

J. Sreedevi

(Dr. J. Sreedevi)
Director General
Central Power Research Institute

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Governing Council
Central Power Research Institute
(Present Composition)

Shri Pankaj Agarwal, IAS
Secretary, Ministry of Power,
President, Governing Council

Shri Piyush Singh, IAS
Joint Secretary
Ministry of Power
Member, Governing Council

Shri Ghanshyam Prasad
Chairperson, CEA
Vice-President, Governing Council

Shri Mahabir Prasad, IRAS
Joint Secretary & Financial Adviser,
Ministry of Power
Member, Governing Council

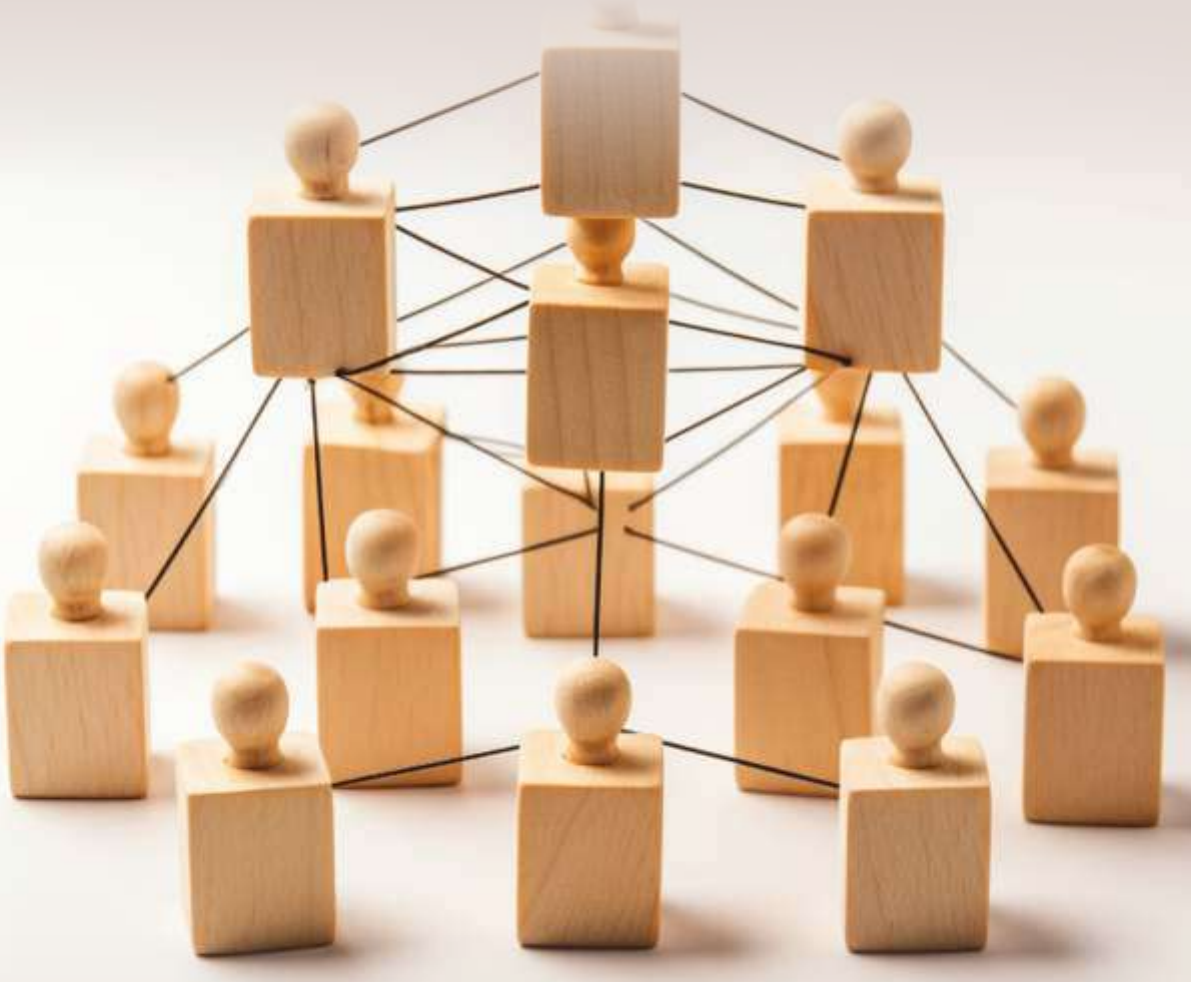
Dr. J. Sreedevi
Director General
Central Power Research Institute
Member Secretary, Governing Council

MEMBERS OF CPRI GOVERNING COUNCIL

01	The Secretary to the Govt. of India, Ministry of Power	President
02	The Chairperson, Central Electricity Authority	Vice-President
03	The Additional Secretary, Ministry of Power	Member
04	The Joint Secretary & Financial Adviser, Ministry of Power	Member
05	The Joint Director, Ministry of Power	Member
06	The Member (Power System), Central Electricity Authority	Member
07	The Member (Planning), Central Electricity Authority	Member
08	The Secretary, DSIR, Ministry of Science & Technology	Member
09	The Secretary, Ministry of Commerce & Industry, Dept. of Industrial Policy & Promotion	Member
10	The Secretary, Ministry of New & Renewable Energy	Member
11	The Chairman & Managing Director, Bharat Heavy Electricals Ltd.	Member
12	The Chairman & Managing Director, NTPC Ltd.	Member
13	The Chairman & Managing Director, Power Grid Corporation of India Ltd.	Member
14	The President-IEEMA	Member
15	The Secretary, Central Board of Irrigation & Power	Member
16	The Managing Director, Bangalore Electricity Supply Company Limited (BESCOM)	Member
17	The Managing Director, Dakshin Haryana Bijli Vitran Nigam Ltd. (DHBVN)	Member
18	The Director, Indian Institute of Technology, New Delhi	Member
19	The Director, Indian Institute of Technology, Madras, Chennai	Member
20	The Director, Indian Institute of Technology, Guwahati	Member
21	The Director General, Bureau of Energy Efficiency	Member
22	The Director General, Central Power Research Institute	Member - Secretary

MEMBERS OF CPRI STANDING COMMITTEE

01	The Additional Secretary, Ministry of Power	Chairman
02	The Member (Power System), Central Electricity Authority	Member
03	The Joint Secretary & Financial Adviser, Ministry of Power	Member
04	The Joint Director, Ministry of Power	Member
05	The Director General, Central Power Research Institute	Member-Convener



SECTION - 1

ORGANIZATIONAL SET-UP

1. ORGANIZATIONAL SET-UP

1.1 CPRI – AN OVERVIEW

Central Power Research Institute (CPRI) was established by the Government of India in 1960 at Bengaluru and Bhopal, with its Headquarters in Bengaluru. The Institute was re-organised into an autonomous society in the year 1978 under the aegis of the Dept. of Power, Ministry of Energy, Government of India. The main objectives of setting up the Institute were for it to function as a National Power Research Organization for undertaking applied research in electrical power engineering, to innovate and develop new products, besides functioning as an independent national testing and certification authority for electrical equipment and components to ensure reliability in the power system.

A. Objectives of CPRI

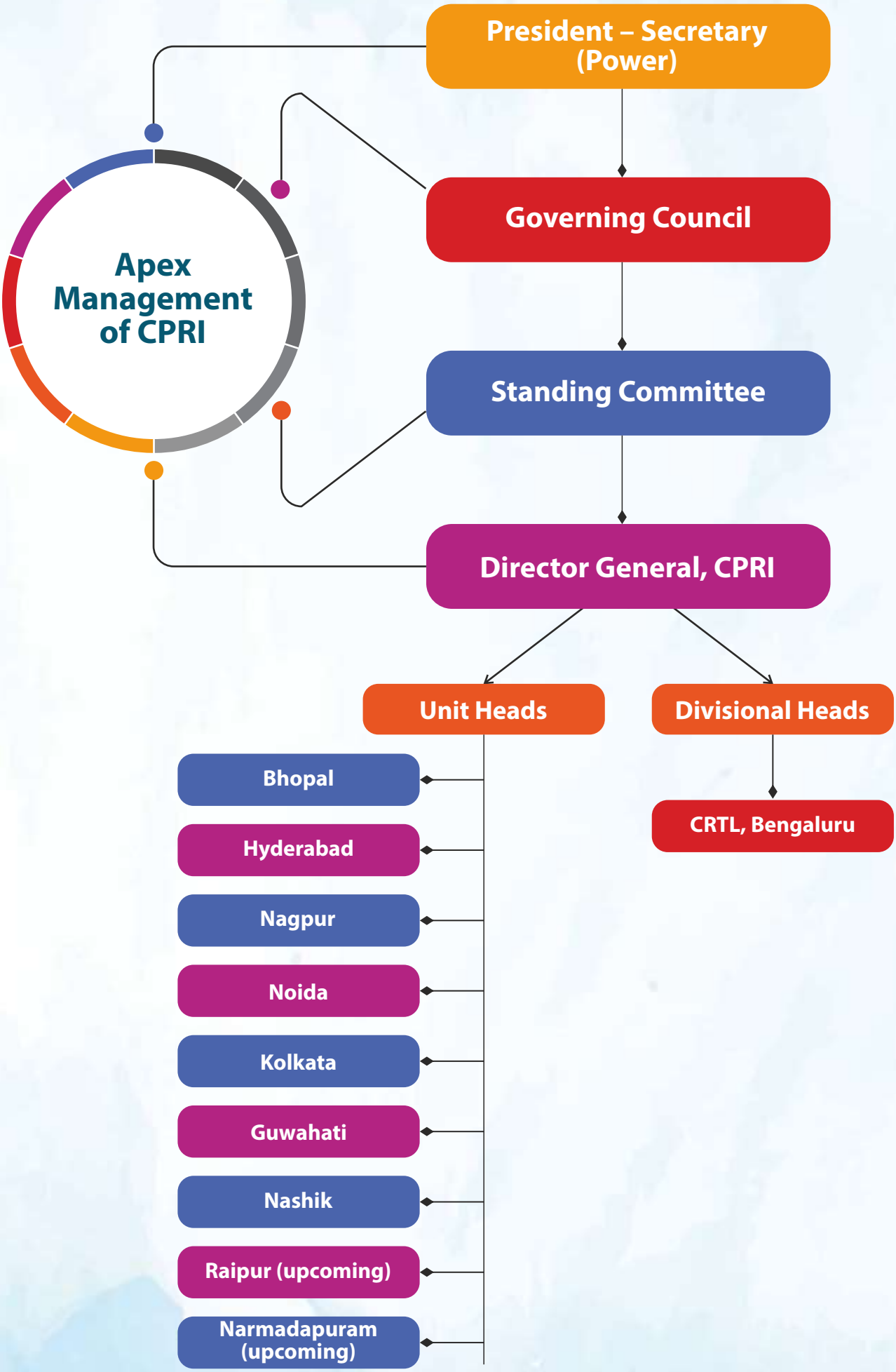
1. Function as a National Power Research Organization for undertaking and / or sponsoring research and development projects in the fields of generation, transmission, distribution and operation of electricity supply systems.
2. Provide necessary centralized research and testing facilities for evaluation of electrical materials and performance of power equipment.
3. Serve as a National Testing and Certification Authority for the purpose of certification of rating and performance to ensure availability of equipment of adequate quality for use under conditions prevalent in Indian Power Systems.
4. Act as an apex body for initiating and co-ordinating the R&D in the field of electric power.
5. Evolve criteria for standards of various equipment for operation under Indian conditions and effectively participate in formulation of national standard specifications.
6. Identify problems in the areas of basic and oriented basic research and arrange such studies in national academic Institutions.
7. Co-ordinate R&D activities in the various State Electricity Boards and maintain liaison with other Institutions engaged in research connected with power systems and / or power equipment.
8. Collect information and maintain documentation in the field of power engineering and prepare, print and publish technical paper, periodical or report in furtherance of the objects of the Society.
9. Establish, maintain and manage laboratories, workshops and other facilities for furthering scientific and technological research and conduct experiments for exploiting the invention or discoveries to the cause of power development in the country.
10. Enter into agreement with any enterprise or institutions or person or persons and provide funds to them to carry out research and development programme of the Society.

B. Management

The management of the institute vests in its Governing Council comprising members representing different Utilities, Ministries of the Government of India, Central Electricity Authority, State Electricity Boards, Power Supply Utilities, Indian Electrical & Electronics Manufacturers' Association, and various other academic and R&D organizations of National importance in the field of electric power engineering. The Secretary, Ministry of Power & Chairman, Central Electricity Authority are the President and Vice-President of the Governing Council respectively, while the Director General of the institute is the Member-Secretary of the Governing Council.

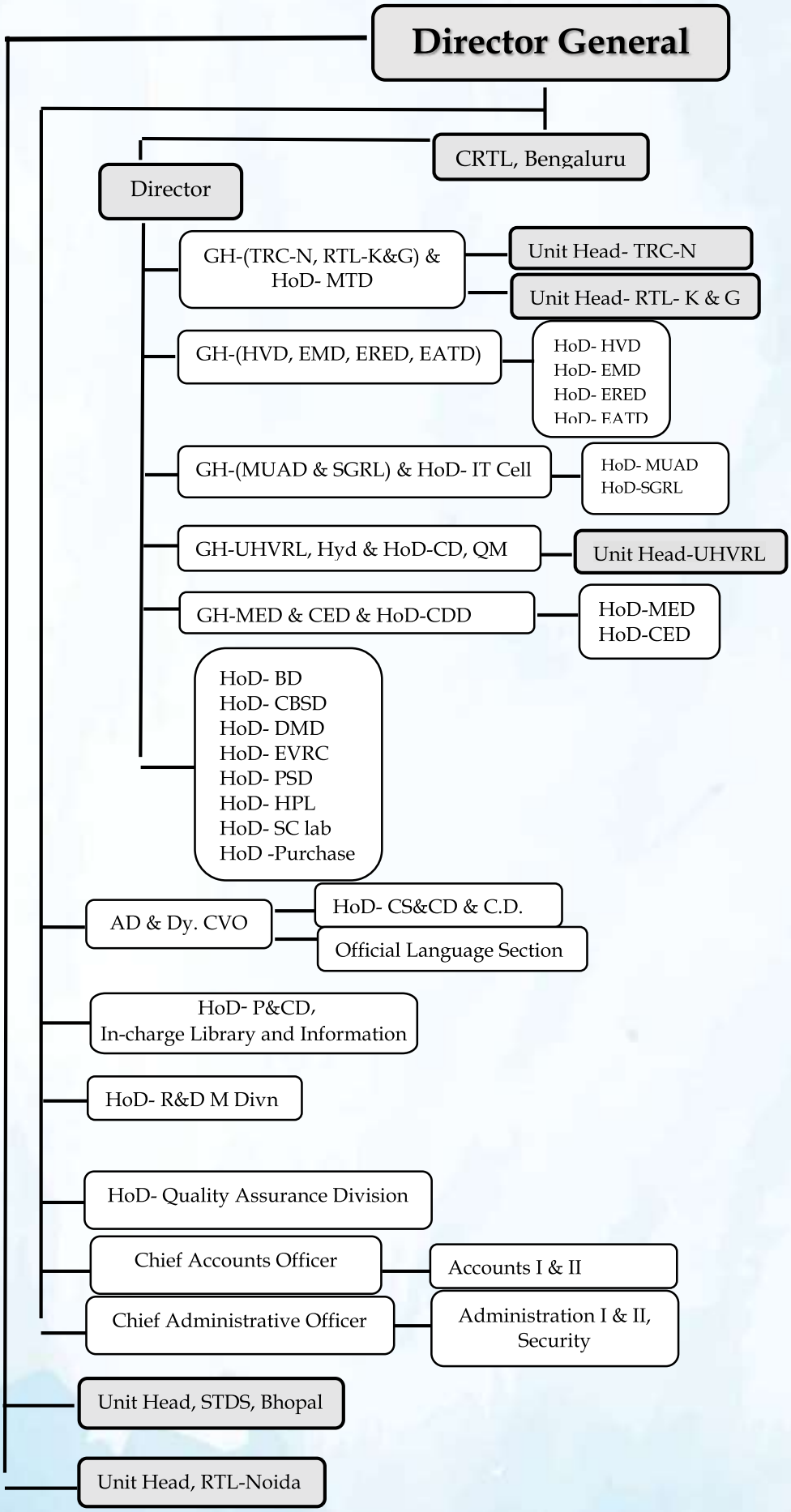
A Standing Committee under the Chairmanship of Special Secretary/Additional Secretary, MoP with Member (Power Systems), Central Electricity Authority, Joint Secretary & Financial Adviser from the Ministry of Power and Joint Secretary looking after CPRI in MoP as Members and the Director General-CPRI as Member-Convener takes decisions on behalf of the Governing Council from time to time on administrative and financial matters.

The Committee on Testing & Certification takes decision on test tariff related activities. The Committee is chaired by Member (Power Systems), CEA.


Apex Management of CPRI
President – Secretary (Power)
Governing Council
Standing Committee
Director General, CPRI
Unit Heads
Divisional Heads
Bhopal
Hyderabad
Nagpur
Noida
Kolkata
Guwahati
Nashik
Raipur (upcoming)
Narmadapuram (upcoming)
CRTL, Bengaluru

1.2 Organizational Chart of CPRI as on 31st March 2025

ORGANISATION CHART-CENTRAL POWER RESEARCH INSTITUTE (CPRI)



1.3 CPRI Head Office and its Units

Head Office:

1. **Central Research & Testing Laboratory (CRTL)**
   Prof. Sir. C. V. Raman Road,
   Sadashivanagar P.O, P. B. No. 8066,
   Bengaluru - 560 080, Karnataka

Units:

2. **Switchgear Testing & Development Station**
   Govindpura, Bhopal – 462023
   Madhya Pradesh

3. **Ultra High Voltage Research Laboratory**
   Post Bag No. 9, Uppal P.O,
   Warangal Highway, Hyderabad – 500098
   Telangana

4. **Thermal Research Centre**
   Dhuti, Wardha Road, Dongargaon,
   Nagpur-441108, Maharashtra

5. **Regional Testing Laboratory**
   No. 3A, Sector - 62, Institutional Area,
   Noida - 201 309, Uttar Pradesh

6. **Regional Testing Laboratory**
   1st Floor, CTD Workshop, WBSEDCL,
   Abhikshan Building, BN Block,
   Sector - V, Salt Lake City,
   Kolkata - 700 091, West Bengal

7. **Regional Testing Laboratory**
   No.4, Type-III (Old A.T.)
   A.S.E.B. Colony, Forest Gate, Narangi,
   Guwahati – 781 026, Assam

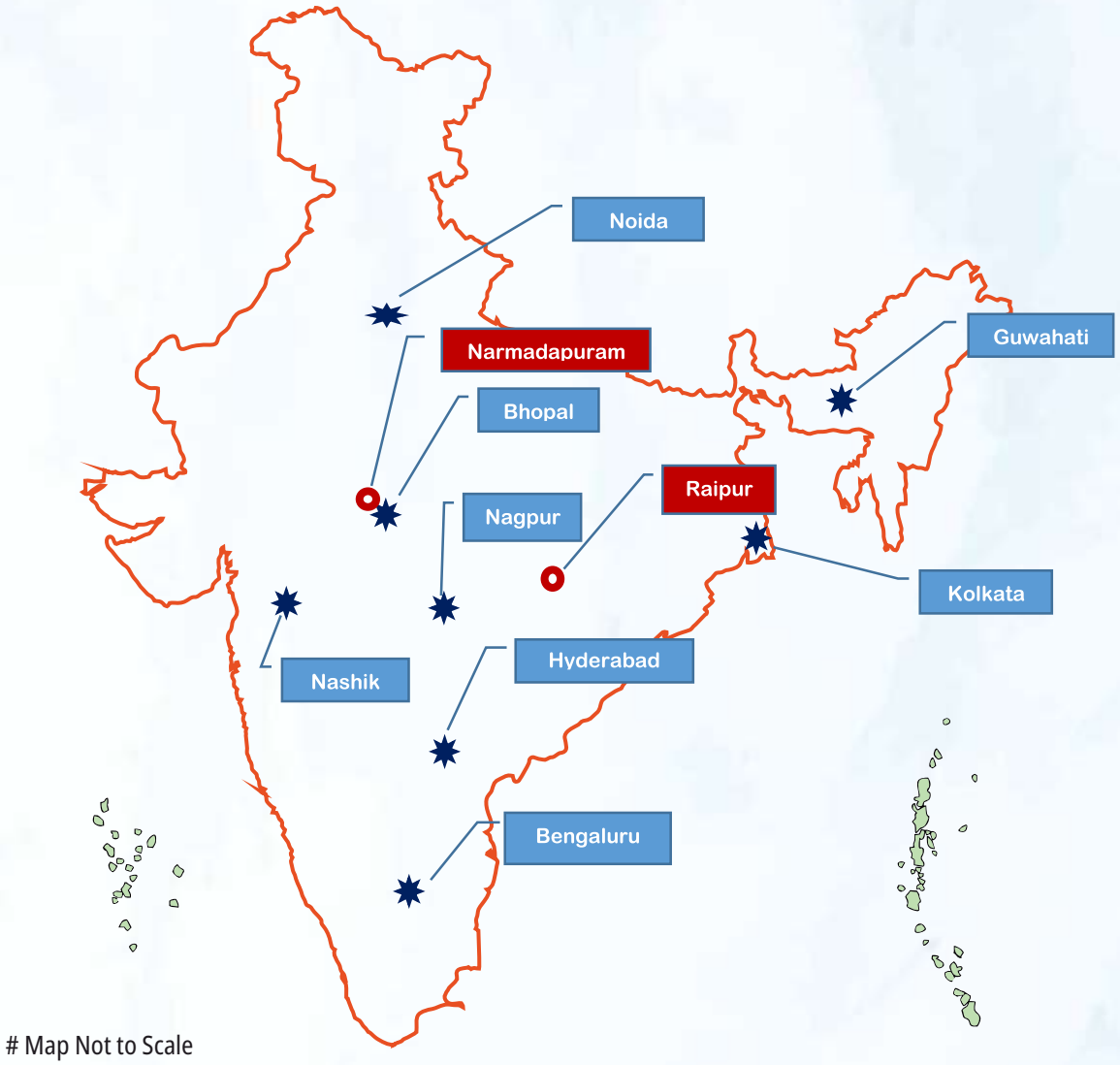
8. **Regional Testing Laboratory**
   Survey No. 220, Shilapur Village,
   Nashik Taluk,
   Maharashtra - 422003

Upcoming Units:

9. Regional Testing Laboratory
Village Banjari Layer 2,
IIM Road, Atal Nagar,
Nawa Raipur
Chhattisgarh – 493 661

10. Common Test Facility (CTF) at Manufacturing Zone (MPIDCL)
Madhya Pradesh Industrial Development
Corporation Limited,
Mohasa Babai Industrial Area,
Narmadapuram District,
Madhya Pradesh

Units of CPRI



Map Not to Scale

		Existing Units of CPRI
01	✸	Central Research & Testing Laboratory, Bengaluru
02	✸	Switchgear Testing & Development Station, Bhopal
03	✸	Ultra High Voltage Research Laboratory, Hyderabad
04	✸	Thermal Research Centre, Nagpur
05	✸	Regional Testing Laboratory, Noida
06	✸	Regional Testing Laboratory, Kolkata
07	✸	Regional Testing Laboratory, Guwahati
08	✸	Regional Testing Laboratory, Nashik

		Upcoming Units of CPRI
09	⊙	Regional Testing Laboratory, Raipur
10	⊙	Common Test Facility (CTF), MPIDCL, Narmadapuram

Divisions under Central Research & Testing Laboratory (CRTL), Bengaluru

1. Cables and Diagnostics Division (CDD)
2. Capacitors Division (CD)
3. Centre for Collaborative and Advanced Research (CCAR)
4. Dielectric Materials Division (DMD)
5. Earthquake Engineering & Vibration Research Centre (EVRC)
6. Electrical Appliances Technology Division (EATD)
7. Energy Efficiency and Renewable Energy Division (ERED)
8. High Power Laboratory (HPL)
9. High Voltage Division (HVD)
10. Materials Technology Division (MTD)
11. Mechanical Engineering Division (MED)
12. Metering and Utility Automation Division (MUAD)
13. Power System Division (PSD)
14. Research & Development Management Division (R & DM)
15. Short Circuit Laboratory (SCL)
16. Smart Grid Research Laboratory (SGRL)

1.4 Brief about CPRI Facilities

1.4.1 Central Research & Testing Laboratory (CRTL), Bengaluru

1. Cables & Diagnostics Division

The Division has facilities for type testing of all types of Power Cables of rating 1.1 kV up to 400 kV voltage and Power Cable accessories as per Indian and International standards. Cables laboratory has state of art facilities to take up prequalification test on Power Cables and accessories of rating up to 400 kV rating, for evaluation of EHV cable system for their long-term performance as per IEC 62067. In addition to electrical and physical test facilities the laboratory has test facilities for evaluating cables and materials for flame and smoke characteristics.

Power Cables Laboratory offers consultancy on:

- Failure analysis of Power Cables and accessories like Joints/Terminations
- Partial discharge measurements

Expertise is available for Diagnostic, RLA and LE (Remaining Life Assessment & Life Extension) studies on electrical equipment and for detailed investigations of specific problems related to Research and Development in these areas.

Diagnostics Laboratory has been rendering consultancy and field engineering services in the area of diagnostic testing of High Voltage substation and power plant electrical equipment. The Laboratory undertakes condition assessment of insulation system of the substation/ power plant electrical equipment.

EHV Cable Testing Bay

1 (a) Insulation Division

The Insulation Division has specialized facilities and expertise for testing and evaluation of Dielectric materials, to carry out accelerated ageing and corrosion resistance studies on Dielectric materials.

Solid Dielectrics Laboratory has comprehensive, testing and evaluation facilities for solid insulating materials and systems. Insulating materials are evaluated and tested for electrical, mechanical, physical and electro-chemical properties. This laboratory has undertaken consultancy works and sponsored projects for many power utilities and industries. Assistance has been rendered to BIS, in formulation of various standards on enameled winding wires and insulating materials & systems.

Cyclic Corrosion Test Equipment

2. Capacitors Division

Power Capacitors Laboratory of CPRI, Bengaluru has established state-of-the-art facilities to cater to the test requirements of Capacitor Manufacturers within the country and abroad. Research, Testing and Evaluation of Power Capacitors which have applications as shunt capacitors, series capacitors, surge protection capacitors, motor capacitors, fan capacitors, fluorescent capacitors are carried out as per National and International Standards. Laboratory also has facilities for undertaking tests on filter reactors and series damping reactors associated with LV capacitors. The laboratory with the unique facilities is the first of its kind in this part of the world.

2 (a) Testing of LV APFC Panels

Tests on LV APFC panels are carried out as per IEC 61921 and IEC 61439. The temperature rise test is carried out on APFC panels with all capacitor units, detuned/damping reactors, if any, and other components connected. Temperature rise test can also be carried out at elevated ambient temperature of 55 °C.

2 (b) Environmental tests

Environmental tests are carried out on various electrical and non-electrical equipment / components / materials as per relevant standards.

2 (c) Research and Consultancy

The Division undertakes R&D in the following areas:

1. Switching transients associated with capacitors.
2. Investigation of PD Activity in Model Transformers.

The Division offers Consultancy and field engineering services for:

1. Root cause analysis of premature failure of capacitors.
2. Online partial discharge measurement on power transformers in services.

3. Centre for Collaborative & Advanced Research

Established in 2006, this Centre facilitates and promotes advanced research, thereby helping the power sector to derive the benefits of latest technology.

The main objectives of the Centre are to:

1. Provide infrastructure for professionals to conduct research in power sector development.
2. Create a conducive environment for collaborative research between R&D Institutions, Industry, and Academia
3. Execute projects based on multi-disciplinary expertise drawn from different Institutions
4. Foster healthy interaction and exchange of ideas between research organizations at a global level

4. Dielectric Materials Division

This Division has comprehensive evaluation facilities for insulating materials and composites. The insulating materials are evaluated and tested for electrical, mechanical, physical & electro- chemical and thermal properties. The Division has the following laboratories:

1. Liquid Dielectrics Laboratory
2. Polymer Laboratory
3. Lubricating Oil Laboratory

The Division has developed several polymeric materials, namely epoxy novolok resin for insulators & electrical grade laminates and FRLS cables for critical safety applications. The Liquid Dielectric Laboratory has developed new extraction techniques for dissolved gas analysis. The Division has expertise in Furan analysis for interpreting the condition of solid insulation in transformers. It has also developed dielectric fluids based on Rapeseed oil. The Liquid Dielectric Laboratory has the complete facility for carrying out testing of Insulating oil, Natural Esters and Synthetic esters as per National/International standards.

The Lubricating Oil Laboratory has been set up to meet the quality assessment needs of industrial lubricating oils, turbine oils, etc.

Evaluation facilities like Cone Penetration, Drop Point, Oil Separation, Flash Point and Density are also available for Greases, Petroleum Jelly, Cable Filling & Flooding Compounds. Degree of Polymerization (DP) evaluation facility for solid insulation in Power Transformers is also available.

High Performance Liquid Chromatography - Furan Analysis

Head Space Gas Chromatograph System

5. Earthquake Engineering & Vibration Research Centre

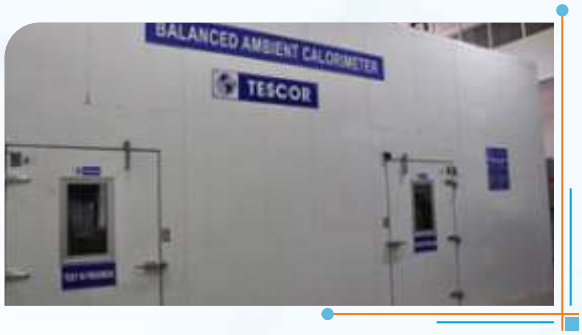
This Centre is equipped with facilities for providing testing, research and consultancy services in the area of Seismic and Vibration qualification of a) instruments b) Equipment for nuclear power plants & other generating stations and c) Railways as per National and International standards. In addition, this Centre offers consultancy services in checking the design adequacy of Structures/Substations for earthquakes.

The Division is equipped with a Triaxial shake table of 3m x 3m size and 10 ton pay load capacity for simulating earthquake vibrations. In addition, the Division has Electrodynamic Shaker Systems for carrying out vibration tests on products and assemblies.

Servo Hydraulic Shaker System

6. Electrical Appliances Technology Division

The important activities of the Division include performance evaluation of low voltage electrical power equipment enclosures and other allied equipment, Fans, Refrigerators, Air-Conditioners & Batteries.



Balanced Ambient Calorimeter

The Laboratories under this Division are:

1. Ingress Protection Laboratory
2. Battery Testing Laboratory
3. Fan Testing Laboratory
4. Refrigerator and Air Conditioner Testing Laboratory

The Division offers check testing under the standards and labeling programme of the Bureau of Energy Efficiency.

Ingress Protection Test facility

7. Energy Efficiency & Renewable Energy Division

The Division undertakes research and testing activities in the field of renewable energy, efficient and effective utilization of energy.

Some of the Consultancy activities undertaken are in the area of energy audit, energy conservation and field engineering services of power plants. This division also provides Fuel Audit Study, Assessment and fixation of heat rate for regulatory bodies, Ex-bus capacity assessment of power plants and Technical minimum study.

The Division is accredited by Bureau of Energy Efficiency (BEE) for conducting Energy audit in thermal power plants, process industries, buildings and commercial establishments.

Grid Tied Inverter Lab

The Division has facilities for evaluating the following:

1. Solar Photovoltaic modules
2. Grid tied inverters
3. LED & Photobiological tests
4. Solar pumping systems
5. Induction motors
6. Exposure to Solar Radiation
7. EV Chargers

8. High Power Laboratory

The High Power Laboratory at the Central Power Research Institute (CPRI) in Bengaluru plays a crucial role in testing and evaluating electrical power equipment. Established in 1990, this facility specializes in high-power short circuit testing and is a part of CPRI's extensive network dedicated to power research and testing in India.

The laboratory is equipped with 2500MVA short Circuit Generator with advanced controls for Short Circuit Testing of wide range of Switchgear, power transformers and other equipment to evaluate their performance under fault conditions, adhering to national and international standards such as IS, IEC& IEEE.

The lab features high current transformer that can deliver up to 300 kA for one second, enabling the testing of bus ducts, disconnectors and other high voltage equipment.

View of the Lab

2500 MVA Short Circuit Generator

9. High Voltage Division

The Division has facilities for dielectric testing of all major electrical equipment viz., Distribution Transformers, Power Transformers, Insulators, Potential Transformers, Air Break switches, Isolators, Cables, Bushings, Power Line Accessories, Lighting Arresters etc., up to 400 kV systems.

Impulse Voltage Generator of 3MV, 150kJ

The following Laboratories are under this Division:

a. EHV Test Laboratory

b. Pollution Laboratory

c. Impulse Current Test Laboratory

This division has the facilities and expertise to carry out grounding studies for Generating Stations, EHV Substations and various industries. Pollution level measurements at sites enroute the transmission line are also carried out.

Lightning Impulse, Switching Impulse, RIV, Corona and Power Frequency Test Facility

10. Materials Technology Division

The Division is equipped with advanced and sophisticated materials evaluation facilities aimed at providing testing and consultancy services in the areas of materials engineering, Dynamic testing, wear and erosion resistant materials, electrical steels (CRGO and CRNGO), ceramic materials, failure & root cause analysis, coal and other fuels, industrial waste utilization, Nondestructive testing (NDT), and field engineering & consultancy services viz. condition assessment, Remaining Life Assessment (RLA), Renovation and Modernization (R&M) for power sector.

The laboratories under the Division are:

1. Materials Engineering & Characterization and Analytical Laboratory
2. Coal Testing & Analysis and Industrial waste utilization Laboratory
3. Field Engineering Services & Consultancy Laboratory

Residual Stress Test – XRD based

Microwave Plasma Setup for Multi Fuel Gasification

11. Mechanical Engineering Division

The Division has unique facilities and expertise in testing and evaluation of transmission line towers and accessories like conductors, insulator strings, vibration dampers, and spacer dampers etc., up to 800 kV. It offers consultancy services for evolving optimized tower designs, up-grading/up- rating of existing transmission lines. Expertise is also available to investigate and offer specific R & D activities in these areas.

220kV Tower under Test

400kV D/C Tower Testing Facility

The Laboratories under the Division are:

1. Tower Testing Station Laboratory (TTS)
2. Structural Material Testing Laboratory (SMTL)
3. Design / Consultancy services
4. Vibration Laboratory

12. Metering & Utility Automation Division

This Division has facilities for Type Testing of electromechanical meters and electronic meter of accuracy class 0.2 to 2.0. By using latest versions of Conformance Test Tool – CTT and Functional Evaluation Tool – FET both Static Energy Meters and Smart Meters can be verified for their compliance respectively. Additionally, Communicability for Smart Meters can also be verified.

Energy Meter Testing

The following Laboratories are under this Division:

1. Energy Meter Testing Laboratory
2. Calibration Laboratory
3. Metering Protocol Laboratory

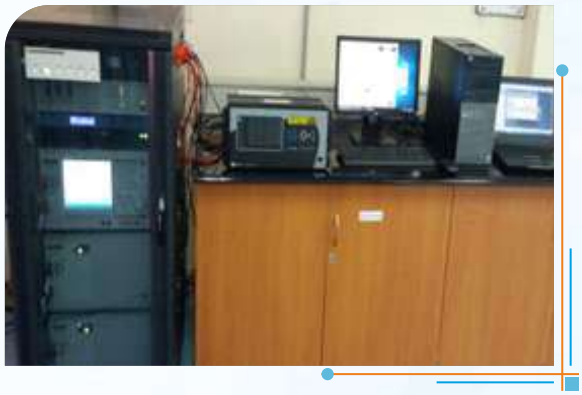
13. Power Systems Division

This Division is involved in the power systems consulting services for Power Utilities and Industry. Services encompass a wide spectrum of Power system studies like Power Systems Planning, Load Flow, Short Circuit Stability and Grid Integration Studies for Renewable Sources. Real time performance analysis of various types of controllers such as FACTS, HVDC, SVC, PPC and protection relays is carried out in HIL Testing Generating Stations and Sub-stations protection audit are undertaken as per IEGC 2023 Regulations.

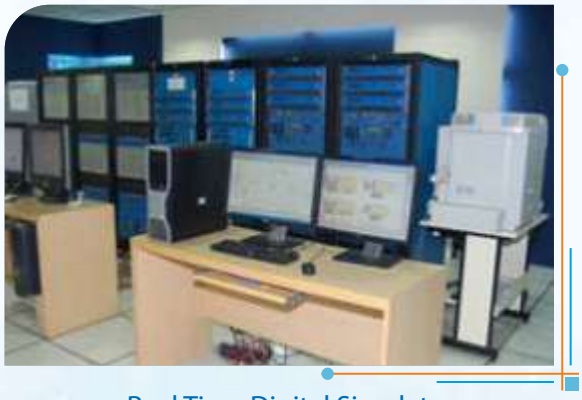
Testing services also include type testing of relays and phasor measurement units.

The Division has the following laboratories:

1. Relay Testing Laboratory
2. Phasor Measurement Unit
3. Laboratory



PMU Calibrator



Real Time Digital Simulator

14. Research and Development Management Division

CPRI plays a pivotal role in advancing research and development in the field of power generation, transmission, and distribution in India. With the State-of-the-art infrastructure, CPRI has been carrying out R&D projects that are crucial for addressing the pressing challenges faced by the Indian Power Sector. Focused on facilitating clean energy transition, CPRI's research contributions aim towards ensuring reliability, affordability, resilience, and access to energy for the masses. CPRI acts as a hub for fostering innovation by providing a platform for researchers in Academia, Utilities and Industry to explore and nurture their innovative ideas through the "R&D schemes of MoP being implemented through CPRI".

The R&D Management Division of CPRI co-ordinates the "R&D schemes of MoP being implemented through CPRI". Apart from managing the R&D schemes, CPRI also collaborates with Academia/Industry for joint Academic and Research Cooperation. CPRI has signed MoU with IIT Dharwad, IIT Ropar, IIT Mandi , MANIT Bhopal, KPCL, Bengaluru, BHEL and MPERC in this regard.

CPRI also coordinates and monitors the research required to support the Sustainable Agrarian Mission on use of Agri-Residue in Thermal Power Plants (SAMARTH) mission of MoP.

CPRI is also recognized as Research Centre by Visvesvaraya Technological University (VTU), Belgavi, Karnataka and Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur. The Research Centre promotes continuing education for officers, scientists, and engineers in the Indian Power Sector. The Centre offers Junior Research Fellowship (JRF) and Senior Research Fellowship (SRF) programs, leading to M.Sc.(Engg.) by Research and Ph.D.(Engg.) degrees in Electrical, Mechanical, Chemical Engineering, and Chemistry. The Research Centre also offers part-time registration for CPRI employees. Through this initiative, CPRI attracts talented students to contribute to ongoing research projects under its In-house R&D Scheme. The program helps in development of the highly skilled professionals for the Power Industry.

CPRI has also established a Visiting Chair Professor position at the Indian Institute of Science (IISc), Bangalore. This endowed chair aims to bring eminent scientists and engineers in power engineering from around the world to IISc for collaborative research and teaching. These appointments facilitate research collaborations in new technologies for power systems and power electronics, benefiting both CPRI and IISc through the exchange of knowledge and expertise.

15. Short Circuit Laboratory

This Laboratory has facilities to undertake testing of electrical equipment like Distribution Transformers, Current Transformers, Potential Transformers, Low voltage switchgear and control gear equipment (MCB/MCCB/RCCB/ACB/ Fuses/Starter Modules etc.) and associated panel assemblies [LT Panels (PCC/MCC) / Distribution Boards / Feeder Pillars/ LV busways etc.].

Power Cables and its accessories, Power connectors, Disconnectors, Load Break Switches, Earth Electrodes, HT Bus ducts, HT Panels etc. and many other related power system apparatus are evaluated.

Heat Run Test facility to carry out Temperature rise test upto 2.5MVA 33/22/11kV class Distribution Transformers, LV/HV Switchgear Equipment like LT Panels, Isolated Phase Bus-ducts, Isolators etc.

50MVA Short Circuit Generator

Test on LT Panel

16. Smart Grid Research Laboratory

The laboratory houses advanced facilities for carrying out testing and research in the area of Smart Grid which includes Advanced Distribution Automation, Advanced Metering Infrastructure, Interoperability, Communication and Cyber security systems. It includes Smart Grid Test Bed and Technology Demonstration Test Bed for AMI system. These test beds are also useful in performance evaluation of various smart grid components.

The Division provides testing of Communication Protocol and Security Conformance for Intelligent Electronic Devices (IEDs) / Gateways/ RTUs as per IEC 61850. The IEC test facility is accredited by UCA IUG as Level 'A'. The Division also provides testing of RTUs / FRTUs for communication protocol and security conformance as per IEC 60870-5-101 / 104 and IEC 62351.

Consultancy services for implementation of Smart Grid and AMI / smart meter implementation, Distribution Automation, SCADA System, substation automation systems, Cyber security and Communication Systems for various utilities, industries, and other organizations are also offered.

AMI System Testing

UNITS OF CPRI

1.4.2 Switchgear & Development Station (STDS), Bhopal

This Unit has two main testing stations for conducting Short Circuit tests. They are:

1. STATION - I :

Direct Short Circuit Testing Station of 1250 MVA capacity at 12kV capacity utilizing two specially designed 1500 MVA short circuit alternators, mainly caters to short circuit tests on high and Medium Voltage Switchgears, Transformers and other allied equipment.

1500MVA Short Circuit Alternator

2. STATION - II :

The On-line Testing Station mainly caters to Short Circuit tests on Low Voltage Switchgears, Transformers and other allied equipment.

The Laboratory has Short circuit test facility for LT circuit breakers, contactors, Starters, Disconnector & switches & combination units, MCBs, MCCBs, RCCBs, RCBOs, Short circuit Dynamic and Thermal withstand test facility for Distribution Transformers.

3. Supplementary Test Laboratories:

Supplementary Test Laboratories consist of:

1. High Voltage Lab
2. Temperature Rise Test Lab
3. CT and VT Test Lab
4. Partial Discharge Lab
5. Mechanical and Electrical Endurance Lab
6. ACB, MCCB, MCB, RCCB, Contactors and Fuse Test Lab
7. IP Test lab

2400kV Impulse Generator

25 kA Temperature Rise Test Bay

PD Test for Instrument Transformer, Busing, Isolator etc.

4. Calibration Laboratory:

Calibration Services are offered in the area of Electro-technical & Thermal Discipline for various products/equipment. This Laboratory is accredited as per ISO/IEC 17025.

5. Energy Meter Testing Laboratory:

The laboratory has high precision state of art test facilities for all Type tests on Single phase, Three Phase Energy Meters, Transformer operated meters, Prepayment meters, Smart Meters, Data Exchange protocol, Smart meter communicability as per IS 15959 (Part 1, 2 and 3).

1.4.3 Ultra-High Voltage Research Laboratory (UHVRL), Hyderabad

UHV Research Laboratory, Hyderabad provides facilities for the development and testing of UHV Equipment (above 400 kV) and provides design data validation for various climatic zones, environmental and operating conditions of the Country.

View of the lab

Wet Impulse Test Facility

The Unit has following facilities:

1. Pollution Test Chamber

The Pollution Test Chamber is one of the largest in the world with a diameter of 24 m and a height of 27 m. Salt fog test can be conducted on insulators, bushings etc., up to 800 kV class.

2. Power Frequency Laboratory

The Cascade Transformer, comprising two units rated 800 kV each (total rating is 1600 kV, 9600 kVA) is used for energizing the experimental line, pollution chamber and testing equipment. The tests performed in this laboratory are dry and wet withstand test, flashover test, Radio interference voltage test, visible corona test, voltage distribution tests, Ferro resonance tests etc.

3. Impulse Generator

This Unit has the necessary infrastructure to simulate operating voltage conditions in the range of 220 kV to

1200 kV on an experimental line. The facility can evaluate corona loss, audible noise, radio and television interference, electric field etc., under various voltage and climatic conditions. Besides, the Unit has the capability to investigate and evaluate equipment rated up to 1200 kV class.

4. DC Laboratory:

The ± 1200 kV / 200 mA DC outdoor test system is a unique facility which is used for research on HVDC transmission as well as facilitating indigenous development & testing of equipment for the HVDC transmission lines in the country.

A View of ± 1200 kV DC Test System

5. Oil Testing Laboratory:

The laboratory has been established to carryout tests on Transformer Oil. The laboratory has facilities to carry out the tests on Transformer Oil as per IS 1866: 2017 and IEC 60422:2013.

6. UHV Indoor Shielded Laboratory

The Laboratory has a 1200kV, 2A, AC Test System with partial discharge test facility for Instrument Transformers, Bushings and other high voltage equipment. This laboratory caters to type tests on Current Transformers and Voltage Transformers.

800kV RIP Transformer Bushing under Partial Discharge test

1.4.4 Thermal Research Centre (TRC), Nagpur

This Centre is mainly intended for taking up consultancy and R&D work pertaining to Thermal Power Stations. The Centre carries out Condition assessment, Remaining Life Assessment, Renovation & Modernization, Life Extension studies and Non Destructive Evaluation (NDE) of Power Utilities and Industries equipment.

The equipment covered are Boilers, Turbines, Condensers etc.

Consultancy is also offered for Material characterization & failure analysis, Condition assessment of RCC and steel Structures etc.

RLA of Hydro Plant

1.4.5 Regional Testing Laboratory (RTL), Noida

Various Laboratories housed under this unit are:

a) High Voltage Laboratory
b) Cables Laboratory
c) Oil Testing Laboratory
d) Energy Meter Laboratory
e) LED Lighting System

1000kV, 100kJ Impulse Voltage Generator

The important facilities under this Unit include testing of Cables up to 33kV rating, High Voltage facility for evaluation of Insulators, Transformers, Control Panels, CT, PT, CT-PT Unit, various types of bushings, Isolators, AB switch. Transformer Oil test facility for New and In-service Insulating oil of transformers. Energy Meter test facility for carrying out Type test, Acceptance test, Anti tamper feature verification and Protocol test for Static Meters and Smart Meters.

1.4.6 Regional Testing Laboratory Kolkata & Guwahati

These Laboratories were set up with a view to cater to the evaluation & certification needs of the electrical power equipment manufacturing companies, utilities and consumers in the eastern and north eastern region.

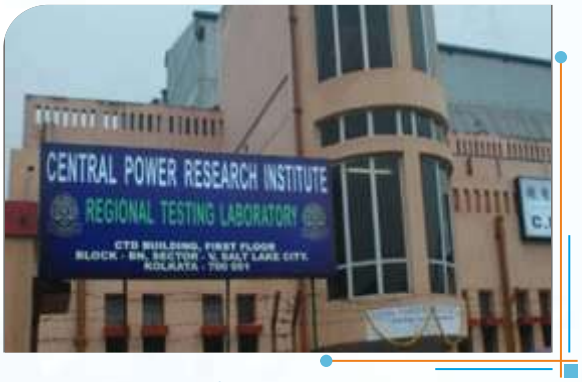
These Laboratories are equipped with facilities to carry out evaluation of insulating oil in Power Transformers. Dissolved gas analysis is carried out for assessing the internal condition of the Transformers. Furan Analysis using High Performance Liquid Chromatography (HPLC) is carried out for assessing the solid insulation condition of the transformers.

1.4.7 Regional Test Laboratory (RTL), CPRI – Nashik

The Regional Test Laboratory (RTL) at Nashik has been established under the project "Establishment of Total Test Facility for Transformers at CPRI, Western Region (Nashik)" with a total outlay of ₹216.14 crores. The facility aims to create a comprehensive and state-of-the-art testing infrastructure for transformers, strengthening CPRI's capacity to cater to the growing testing and certification needs of the power sector.

Five major laboratories have been established and commissioned at Nashik Unit —namely, (i) 1500 MVA On-line Short Circuit Testing Laboratory, (ii) Transformer Routine Test Facility, (iii) Transformer Temperature Rise Test Facility, (iv) 800 kV, 80 kJ Impulse Voltage Test Facility, and (v) Energy Meter/Smart meter Test Laboratory.

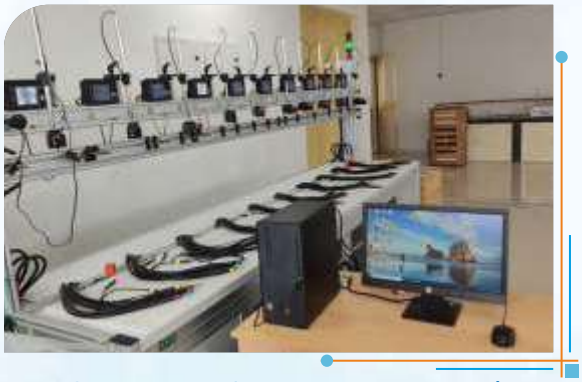
All laboratories are ready for commencement of commercial testing. The process for NABL accreditation is under progress, and several enquiries for non-NABL testing have already been received. The establishment of this advanced facility marks a significant enhancement of CPRI's transformer testing capabilities, ensuring improved quality, reliability, and performance of electrical equipment for the Indian power sector.



View of Unit - RTL, Kolkata


Impulse Voltage Test Laboratory


View of Unit - RTL, Guwahati


Smart Meter / Energy Meter Test Lab

SECTION - 2

RESEARCH & DEVELOPMENT

2. RESEARCH & DEVELOPMENT

CPRI is the Coordinating Nodal Agency for the "R&D schemes of the Ministry of Power (MoP) being implemented through CPRI" with details as given below:

I. In-House Research Projects (IHRD)

ii. Research Scheme on Power (RSoP) Projects

iii. R&D Under National Perspective Plan (NPP)

2.1 In-House Research Projects (IHRD)

In-house research projects serves to develop technology and expertise to cater to the future needs of the Indian power industry. These projects are proposed by officials of CPRI after careful analysis of the current technological requirements and conditions prevailing in the Indian Power Sector. The projects proposed are recommended by the Technical Committee on Transmission, Grid, Distribution and Energy Conservation, Hydro and Thermal Research and then approved by Standing Committee on R&D (SCRD), for projects above Rs. 50 Lakhs and by Director General, CPRI for projects with outlay upto Rs. 50 Lakhs.

Under IHRD, CPRI is engaged in research and development activities that enhance the efficiency and reliability of the power sector. The projects cover diverse domains such as power system analysis, power quality, high voltage engineering, and renewable energy integration. Some of the projects include developing high-efficiency insulating materials, enhancing thermal conductivity for ceramic insulators, design of run of the river hydro power plants etc. CPRI has also undertaken projects on designing dynamic protection schemes for utility-scale electric vehicle charging and developing high-energy density composite materials for fast-charging lithium-ion batteries. CPRI is also working on seismic qualification of instrument transformers, designing advanced transmission line towers, and assessing transformer inrush withstand capabilities.

2.2 Research Scheme on Power (RSoP) Projects

Under the RSoP scheme, the project proposals are invited from Academia, Power Utilities, and Research Institutes. The projects proposed by the Scientists and Engineers are recommended by the Technical Committee on Transmission, Grid, Distribution and Energy Conservation, Hydro and Thermal Research and then approved by Standing Committee on R&D (SCRD), for projects above Rs. 50 Lakhs and by Director General, CPRI for projects with outlay upto Rs. 50 Lakhs.

The RSoP scheme supports a spectrum of projects with a variety of novel ideas. These projects include the use of AI/ML in power Systems, Computer Vision for optimizing boiler combustion, and advanced coatings for thermal power plant components and robots for inspecting boiler tubes. Innovations also include enhanced transmission line performance studies, and cyber-security measures for power networks. The projects are also looking into improving renewable energy integration, development of metal nanocomposites for solar cells, sodium-ion batteries, grid-independent radiant air-conditioning systems, and energy blockchain implementation. Additionally, projects focus on transformer monitoring, electric vehicle charging infrastructure, and recycling of PV and Li-Battery modules.

2.3 National Perspective Plan (NPP) Projects

The project proposals are invited from Academia, Power Utilities, Electrical Equipment manufacturing companies and Research Institutes. The proposals are recommended by Technical Committees (Transmission, Grid, Distribution & Energy Conservation, Hydro and Thermal Research) and approved by Standing Committee on R&D chaired by the Chairperson, CEA, New Delhi.

Under the NPP scheme, supported projects include research under the SAMARTH mission for co-firing biomass in thermal power plants. Under the SAMARTH mission, CPRI is evaluating various coal and biomass blends, including raw biomass like coffee husk and groundnut shell, to facilitate co-firing in thermal power plants. This research also involves studying combustion kinetics and corrosion simulation of boiler tube coatings to optimize the

efficiency and sustainability of biomass co-firing. Further, ash analysis is also being carried out to understand the combustion process and Indigenous development and demonstration projects are a primary focus under NPP and projects like the use of drone swarms for monitoring power substations and the demonstration of a centralized protection and monitoring system within a substation are under execution through the scheme. The scheme has also supported development of Large Eddy Simulations techniques to investigate flow instabilities in hydraulic turbines operating off-design which is of great help for Hydro Power Utilities. Under one of the projects advanced multifunctional asbestos-free thermal insulating materials has been developed and currently discussions are going on with various industries for commercialization.

2.4 Administration of R&D Projects

The Apex Committee on R&D namely Standing Committee on R&D (SCRD) is headed by Chairperson, CEA. The Standing Committee on R&D (SCRD) is the apex body that evaluates the research projects and also monitors implementation of the scheme objectives.

Four Technical Committees have been duly constituted to administer the R&D Projects in the areas of Thermal, Hydro, Transmission, Grid, Distribution and Energy Conservation. The four Technical Committees assist SCRD by closely monitoring and steering the projects to successful completion.

2.5 Procedure for screening, review and approval of Project Proposals:

CPRI has a comprehensive review and approval mechanism of the proposals received under the R&D Schemes. The proposals are first checked by the R&D Management Division for consistency of information and examined whether the research intent is in line with the Thrust Areas identified in the National Electricity Plan. The proposals are then sent to two domain experts for review of the research content and to evaluate the technical feasibility. Based on the comments, the proposals are put up to a Technical Committee (TC) for recommendation. At present there are four TCs viz. TC on "Hydro", TC on "Thermal", TC on "Transmission" and TC on "Grid Distribution & Energy Conservation" Research. The TCs are chaired by eminent Professors from IITs. The proposals recommended by the TC are put up for consideration of Director General, CPRI/the Standing Committee on Research and Development (SCRD). The SCRD is chaired by Chairperson, Central Electricity Authority, New Delhi and has representations from MoP, Academia, Industry, other Ministries. The representation of other Ministries in the SCRD ensures that duplication of efforts for research under the proposed scheme can be avoided.

2.6 Funding Mechanism:

Projects approved under the RSoP and IHRD schemes are fully funded by the MoP. However, in case of projects taken up by the Industries under the R&D under NPP Scheme, the project cost is shared by the concerned Industry and the MoP on 50:50 basis.

2.7 Project monitoring:

Quarterly Progress Reports and Utilization Certificates are submitted by the project implementing organization to the R&D Management Division of CPRI. Further, the Four Technical Committees and the SCRD monitor the progress of the on-going projects.

"R&D Schemes of Ministry of Power being implemented through CPRI" has been approved for continuation from 2021-26 with an outlay of Rs.112.00 crore. During the plan period from 2021-26, CPRI has funded 19 projects under the "R&D under NPP" scheme, 85 projects under RSoP scheme and 14 projects under IHRD Scheme. Some of the projects aim at design and development of indigenous technologies with the objective of cost reduction, import substitution and employment generation. The deliverables of the projects help in development of innovative solutions thereby adding to the knowledge capital on the particular priority area and also acts as prior art for the future research.

During the FY 2024-25

No. of Patents Filed	5
No. of Patents Granted	11
No. of RSoP projects completed	14
No. of NPP projects completed	5

2.8 R&D Projects Completed during the year 2024-25:

The following projects pertaining to some of the thrust areas of research have been completed during the year:

Total numbers of projects – 19 Nos.

a) Cyber Security in Power Systems

Sl. No.	Project Title	Organization	Outlay (Rs lakhs)
1.	New generation Ethylene Vinyl Acetate (EVA) nano-composites with high UV shielding properties for Photovoltaic Modules	IIT Roorkee	45.42
2.	Investigations on Control Flexibilities of Grid Integrated Solar Photo Voltaic Energy Conversion System	IIT Kharagpur	48.74
3.	Transmission Line Protection in the Presence of Bulk Solar Photo Voltaic Power Plants	IIT Guwahati	17.78

b) Renewable Energy and Energy Efficiency

Sl. No.	Project Title	Organization	Outlay (Rs lakhs)
1.	Development of Metal Nanocomposites for the Enhancement of Efficiency of Solar Cell	NIT Agartala	16.86
2.	Design and development of wide bandgap semiconductor based three-level neutral-point-clamped converter for single stage grid-connected PV system	IIT Delhi	48.00
3.	Development of a Renewable Energy-based and Fully Grid Independent Radiant Air-Conditioning System	IIT Ropar	26.77

c) Power Quality and Grid Stability

Sl. No.	Project Title	Organization	Outlay (Rs lakhs)
1.	Characterization and Detection of Power System Ambient, Transient and Forced Oscillations Based on Synchrophasor Data Analytics in Indian Context	IIT Patna	44.76

d) Power System Equipment and Diagnostics

Sl. No.	Project Title	Organization	Outlay (Rs lakhs)
1.	Advanced Frequency Response Analysis Method for Identifying Winding Damage or Deformation in Transformer	IIT Kharagpur	34.50
2.	High Sensitive Grounded Conductor Identification for Human Safety in Low Tension (LT) System	IIT Kharagpur	23.71
3.	Strengthening studies for performance enhancement of existing transmission line towers	CSIR-SERC, Chennai	48.00

e) Power Plant Optimization & Maintenance

Sl. No.	Project Title	Organization	Outlay (Rs lakhs)
1.	Investigations in a Modernized Cavitation Channel to Optimize Hydraulic Turbine Operation and Maintenance Issues	IIT Delhi	56.16
2.	Design Of Cascaded Adaptive Control With O2 And Temperature Data Of Combustion Images For Optimization Of Boiler Combustion Processes In A Thermal Power Plant	Vel. Tech University, Tamil Nadu	29.88
3.	Design and Development of a Screw Drive type Wheeled Snake-like Robot to Access the inaccessible Areas inside the Boiler Tubes and other Enclosures	IIT Bhubaneswar	38.16
4.	Development of High Temperature Wear and Corrosion Resistant Graphene Nanoplatelates Reinforced Plasma Sprayed Cr3C2-NiCr composite Coating for thermal power plant	IIT Patna	30.64

f) Co-Firing of Biomass in TPPs

Sl. No.	Project Title	Organization	Outlay (Rs lakhs)
1.	Composition analysis of different types of pellets/briquettes received from unknown sources (Activity: 8)	SSS-NIBE Jalandhar Punjab	37.00
2.	Detailed Characterization of biomass and its ash to evaluate its properties with respect to co-firing in PC fired boiler (Activity No 23)	NTPC-NETRA	42.82
3.	Collection of different types of biomass and study the effect of long term storage on GCV (Activity 22)	NTPC-NETRA	323.44
4.	Experimental and Simulation studies on ash slagging, fouling and high temperature corrosion behavior during burning of biomass in a PC fired Boilers (Activity No 27)	NTPC-NETRA	36.9
5.	Experimental and Simulation analysis and establishing correlation of biomass characteristics with PC fired boiler combustion process for optimizing and increasing co-firing ratio of biomass (Activity 24)	NTPC-NETRA	99.72

SECTION - 3

CAPITAL PROJECTS

3. CAPITAL PROJECTS

During the FY 2024-25, CPRI is executing the following Capital Projects:

3.1 XII Plan Project

3.2 DIB Project

3.3 Common Test Facility (CTF) at Manufacturing Zone, MPIDCL, Narmadapuram

3.1 XII Plan Project

Capital project with an outlay of Rs. 996.10 Crores comprising of two project components titled (i) "Augmentation of High Power Short Circuit Test facilities by installation of two Additional 2500 MVA Generators and associated equipment-Outlay Rs.640.00 Crores" and (ii) "Establishment of New Test Facilities-Outlay Rs.356.10 Crores" under the 12th Five Year Plan, was approved as one project proposal by Finance Ministry & MoP vide order No.5/5/2014-T&R dated 5th January 2015 & is under implementation from April 2015.

The details of the Ongoing XII plan projects/schemes are given in the table below:

Sl. No	Title of the Proposal	Cost (Rs. in Crores)
I	**"Augmentation of High Power Short Circuit Test facilities by installation of two Additional 2500 MVA Generators and associated equipment" under XII Plan**	640.00
(i)	Augmentation of High Power Short Circuit Test facilities by installation of two Additional 2500 MVA Generators with associated equipment at High Power Laboratory, CPRI, Bengaluru.	509.00
II	**'Establishment of New Test Facilities' under XII Plan Proposals'**	356.10
(i)	Establishment of Total Test Facility for Transformers at CPRI Western Zone	216.14

3.2 DIB Project

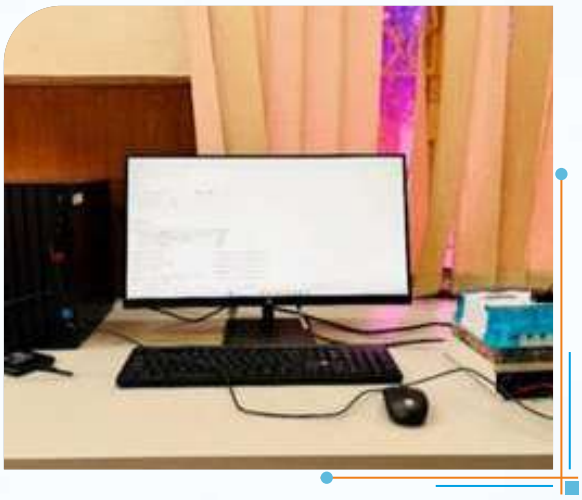
1. DIB proposal for Augmentation of existing Test Facilities & Establishment of New Test Facilities at various centers of CPRI, was approved by Ministry of Power, New Delhi, with an outlay of Rs. 213.40 Crore vide Letter No.5/1/2021-T&R dated 21st January 2022.

Sl. No.	Project Component	CPRI Units at	Total Cost (Rs. in Cr.)
1.	Test facilities for Smart Meters, RTUs, and IEDs including cyber security tests.	Bhopal, Hyderabad, Noida, Raipur, Nashik, Bangalore	76.40
2.	a) Test facilities for Routine tests, Impulse Test and Temperature Rise Test on Distribution Transformers	Hyderabad, Noida, Raipur	16.00
	b) Setting up of 10/350 micro second Impulse Current Test Facility	Bangalore	16.00
3.	Augmentation of Test Facilities Related to Instrument Transformers, Insulators and Power Transformers.	Hyderabad	65.00
4.	Modernization of Existing Synthetic test facility at High Power Laboratory, Bengaluru	Bangalore	40.00
		Total	**213.40**

2. Energy Meter Test Laboratory with state of the art high precision test facilities for carrying out Routine Tests, Acceptance Tests and DLMS compliance tests as per National and International Standards was established at CPRI, UHVRL- Hyderabad under DIB Projects. Few Photographs of this facility are placed below:

6 Position Energy Meter Test Bench Setup

AC & DC Magnet Test Setup



DLMS Compliance Test Setup

3.3 Common Test Facility (CTF) at Manufacturing Zone, MPIDCL, Narmadapuram

Setting up of manufacturing zone for power and Renewable energy equipment at Mohasa Babai industrial area, MPIDCL, District Narmadapuram, M.P.

Joint Scheme by MNRE and MoP

a. MNRE and MoP launched a pilot scheme for establishing Manufacturing Zones for Power and Renewable Energy Equipment.

b. Aim is to develop manufacturing based on clean and energy-efficient technologies.

c. Minimize dependency on imported equipment, critical components, and spares.

d. Promote "Make in India" and "Atmanirbhar Bharat."

e. Foster indigenization of imported items.

f. Set up exclusive Manufacturing Zones with easy land allotment, clearances, and competitive facilities.

g. Lower manufacturing costs, boosting domestic competitiveness and self-reliance.

h. Optimize resources and benefit from economies of scale.

Approval for Manufacturing Zone, MPIDCL in Madhya Pradesh

a. Ministry of Power has approved the establishment of a Manufacturing Zone for Power and Renewable Energy Equipment in Madhya Pradesh.

b. MPIDCL will set up the zone in Mohasa Babai Industrial Area, District Narmadapuram.

Role of CPRI

CPRI has been entrusted with the responsibility of establishing a Common Test Facility (CTF) for power equipment at the Manufacturing Zone. This facility aims to support the testing and validation of equipment, ensuring quality and reliability in the power sector.

Status of CPRI's Involvement

a. A comprehensive business proposal with a financial outlay of ₹93.23 crore, covering the development of test facilities for cables and batteries, has been submitted by CPRI to the Ministry of Power (MoP). This proposal has been duly approved by the MoP.

b. A Memorandum of Understanding (MoU) has been signed between CPRI and MPIDCL to the establishment of the CTF.

c. Procurement activities for the test facilities will be managed by CPRI, while the civil works associated with the project will be executed by MPIDCL.

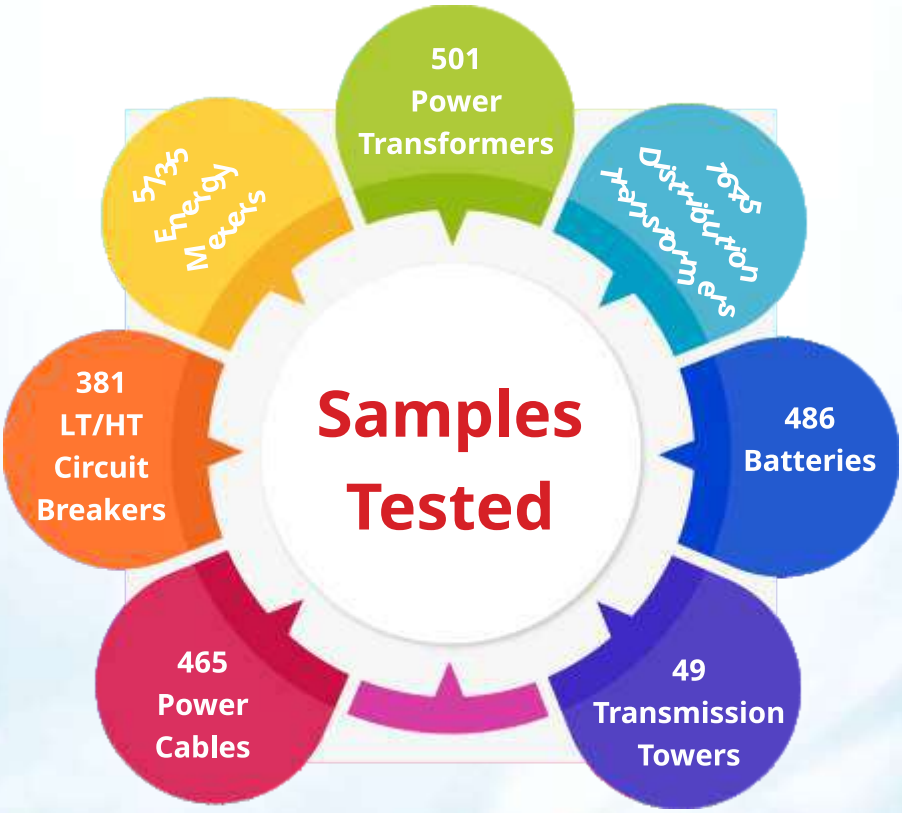
d. CPRI has already submitted the necessary civil drawings to MPIDCL for the commencement of construction activities.

SECTION - 4

EVALUATION & CERTIFICATION

Products Tested at CPRI

Power Transformers	Voltage Transformers	Busducts	Energymeters
Power Cables	Circuit Breakers	Capacitors	Inverters
Current Transformer	Distribution Transformers	Insulators	Transformer Oil
LT, HT Panels	Conductors	Towers	LEDs Batteries
	Total Reports issued	10434	



4. EVALUATION & CERTIFICATION

For the past six decades, the Institute has been serving the Power Sector in the field of evaluation and certification. CPRI is a Member of prestigious Short Circuit Testing Liaison (STL) (Forum of World's 11 largest laboratories) and the Laboratories of CPRI are accredited by NABL and NABCB as per IEC/ISO 17025:2017 and ISO/IEC 17065:2012 respectively. The Consultancy Services are certified as per ISO 9001:2015.

During the year 2024-25:

a) Total No. of tests - 1,13,841

b) Total No. of samples - 29,182

c) Total No. of clients – 6,141

Clientele: Central, State & Private Power Utilities, domestic and international manufacturers.

4.1 CPRI's Contributions in the Formulation of Standards

CPRI has made significant contributions to the development and upgrading of standards at both national and international levels, particularly through its active participation in bodies such as the Bureau of Indian Standards (BIS) and the International Electrotechnical Committee (IEC).

National Contributions:

CPRI is well-represented in BIS across various technical committees related to electrotechnical, chemical, and mechanical disciplines.

a) Leadership Roles: Three officers from CPRI hold Chair positions.

b) Principal Members: Seventeen officers serve as Principal Members.

c) Committee Members: Thirty-six officers contribute as members of different BIS committees.

International Contributions:

CPRI's presence extends to the IEC, where nine of its officers actively participate in various technical committees, contributing to the development of international standards.

4.2 Accreditation for IEC 61850 Edition 2 with Amendment 1 (Edition 2.1) from UCA International Users Group

Smart Grid Research Laboratory (SGRL), CPRI, Bengaluru received accreditation for IEC 61850 Edition 2 with Amendment 1 (Edition 2.1) from UCA International Users Group. This is the first and only laboratory in the country to receive accreditation for the latest edition of IEC 61850 (Edition 2.1). With this, the laboratory can take up conformance testing for IEC 61850 Edition 2 with Amendment 1 (Edition 2.1).

UCA International Users Group
Tester Qualification Approval Form

The following company is authorized to perform IEC 61850 Conformance Testing in accordance with the Users Group Quality Assurance Testing Program Procedures:

Contact details	
Company	CENTRAL POWER RESEARCH INSTITUTE
Address	Prof. Sir C. V. Raman Road, Sadashivanagar PO, P.B.No. 8066, Bengaluru – 560080
Contact person	Dr. Amol Sant, or Mr. Pradosh M
Phone number	+91-80-2207 2464 (Amol) +91-80-2207 2455 (Pradosh M)
Email address	amolsant@cpri.in , pradoshm@cpri.in

Test services	
Requested level (A,B):	A
Type of testing:	IED Server (Edition 2 And 2.1)

Test Capabilities: IEC 61850 Conformance	Submitted to UCA IUG
1. Basic Exchange (1a)	✓
2. Data Sets	✓
2c. Data Set Definition	✓
3. Substitution	✓
4. Setting Group Selection	✓
4c. Setting Group Definition	✓
5. Unbuffered Reporting	✓
6. Buffered Reporting	✓
7. Logging	Not Accredited
8a. GOOSE publish	✓
8b. GOOSE subscribe	✓
11a. SV publish	Not Accredited
11b. SV subscribe	Not Accredited
12a. Direct control	✓
12b. SBO control	✓
12c. Enhanced Direct Control	✓
12d. Enhanced SBO control	✓
13a. Time sync with SNTP	✓
13b. Time sync with PTP	✓
14. File transfer	✓
15. Server Tracking	✓
GOOSE Performance Testing	Not Accredited

IED Configuration Tool (ICT) Testing:	
21. ICD	Not Accredited
22. SCD Import	Not Accredited
23. IID Export	Not Accredited
24. Tool Functionality	Not Accredited
System Configuration Tool (SCT) Testing:	
31. ICD & IID import and usage	Not Accredited
32. Communication Engineering	Not Accredited
33. Data Flow Engineering	Not Accredited
34. Substation Section Handling	Not Accredited
35. SCD Modification	Not Accredited
36. SCD Export	Not Accredited
37. SCD Import	Not Accredited
38. SED Handling	Not Accredited

QA systems in place	Available/Certified
ISO 17025	Yes
ISO 9001	N/A
Any other	

Herbert Falk – VP of Testing, UCA Users Group
Effective: 26-Aug-2024

UCA Users Group CORPORATE SEAL NON-PROFIT Washington

Smart Meter & Cyber Security Testing Laboratory and the Oil Testing Laboratory of CPRI, UHVRL – Hyderabad were accredited to ISO/IEC 17025:2017 by the National Accreditation Board for Testing and Calibration Laboratories (NABL).

UHVRL was successfully accredited to ISO 9001: 2015 for consultancy projects, field measurements, and related activities.

4.3 New Test Facilities

1. Short Circuit Laboratory (SCL)

Continuous current test on Compact Substation of 2MVA, 11kV/433 V with Dry Type Transformer

Continuous current test on Compact Substation of 2MVA, 11kV/433 V with Dry type Transformer

2. Switchgear Testing & Development Station (STDS), Bhopal

Calibration facilities for CT/PT with NABL Accreditation.

4.4 First Time Tests & Special Tests

1. Thermal Cycle test and Voltage Endurance test on 1350 kVA, 10 kV Stator Coils (5 Nos) was conducted for the first time.

Test setup for Thermal Cycle Test on Stator Coils

Test setup for Voltage Endurance Test on Stator Coils

2. Solar radiation test was conducted for the first time on Automatic Teller Machine (ATM). The equipment was exposed to the solar radiation of 600 +/- 50 W/m2 for 4 hours.

Solar radiation test on Automatic Teller Machine (ATM)

3. Photo biological safety test was conducted for the first time on medical device, on an Infant Warmer for its photo biological safety systems, as per IS 16108: 2012/ IEC 62471: 2006.

4. Electrostatic Discharge and Electric Fast Transient Test on 22kW AC EV Charger was conducted for the first time.

Electric Fast Transient Test on 22kW AC EV Charger

5. Temperature rise test on air core, dry type, 1Ø, 33/ √3 kV, Filter Reactor as per IEC 60076-6:2007 & customer request.

Temperature rise test on air core, dry type, 1Ø, 33/ √3 kV, Filter Reactor

6. Verification of Temperature rise limits on 6.6 kV, 4000 kVAR, 3 Ø, 50 Hz, MV APFC Panel as per customer requirement.

Test arrangement for testing of 6.6 kV, 4000 kVAR, 3 Ø, 50 Hz, MV APFC Panel

7. Verification of Temperature rise and verification of Di-electric properties as per IEC 61921:2017 & customer requirement on Power Factor correction (PFC) Panel of rating 534 kVAR, 415V.

A view of the tested 3Ø, 415 V, 534 kVAR, PFC Panel

8. Type tests as per IEC 61071 & customer requirements on 3 x 40µF, 850 VAC, 50 Hz, AC Capacitor, Self-Healing Type, Aluminium Cylindrical Power Electronic Capacitor used in Solar application.

A view of 3 x 40µF, 850 VAC, 50 Hz, AC capacitor, Self-Healing Type, Aluminum cylindrical, Power Electronic Capacitor for Solar application

9. Environmental testing on 1Ø, 20 kVA, 20kW, 230Vac, 50 Hz UPS in accordance with various parts of IS 9000 and customer requirements.

Environmental testing on 1Ø, 20 kVA, 20kW, 230Vac, 50 Hz UPS

10. Environmental testing of an RTU- Scada System IO Marshalling Cabinet

A view of the tested RTU- Scada System IO Marshalling Cabinet

11. Seismic test on 800 kV Transformer Bushing.

Seismic test on 800 kV Transformer Bushing

12. Seismic test on 362 kV, Vertical Break Disconnector with grounding Switch.

Seismic test on 362 kV, Vertical Break Disconnector with grounding Switch

13. Vibration and shock test on Air Generation and Treatment Unit

Vibration and shock test on Air Generation and Treatment Unit

14. Short-time withstand current at 100kA for 3s & 250kA peak on High Current Measuring Shunt.

Short-time withstand current at 100kA for 3s & 250kA peak on High Current Measuring Shunt

15. Dynamic short circuit test on Short Circuit Current Limiting Reactors.

Dynamic short circuit test on Short Circuit Current Limiting Reactors

16. Short time withstand test on Rail earthing system for 105kA, 40 milliseconds.

Short time withstand test on Rail earthing system for 105kA, 40 milliseconds

17. Short time withstand current test at 50kA rms for 3.0 s on 245 kV Gas Insulated Line used in GIS application.

Short time withstand current test at 50kA rms for 3.0 s on 245 kV Gas Insulated Line used in GIS application

18. Short time withstand current test on Cable Sheath of 220kV XPLE Cable.

Short time withstand current test on Cable Sheath of 220kV XPLE Cable

19. Short circuit test at 63kA on 42kV/10kA Polymer Surge Arrester.

Short circuit test at 63kA on 42kV/10kA Polymer Surge Arrester

20. Short-time current test on Exothermic weld joint at 67.6kA/3 s.

Short-time current test on Exothermic weld joint at 67.6kA/3 s

21. Dynamic Short Circuit test and inrush current measurement test on 2400 kVA, 25 kV Traction Transformer.

Dynamic Short Circuit test and inrush current measurement test on 2400 kVA, 25 kV Traction Transformer

22. Lightning Impulse and Switching Impulse tests on 420kV SF6 Gas Circuit Breaker using two Sources (Combined Voltage Test) was conducted for the first time in High Voltage Laboratory.

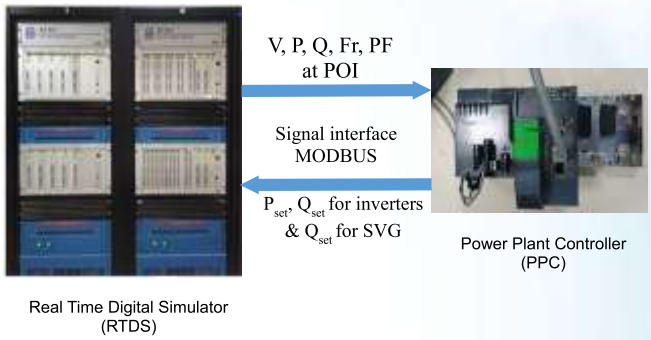
Lightning Impulse and Switching Impulse tests on 420kV SF6 Gas Circuit Breaker using two Sources (Combined Voltage Test)

23. Multiple Chopped Impulse test on 765kV Current Transformer with 600 application of chopped impulse at 1680KVp was conducted for the first time at High Voltage Division.

Multiple Chopped Impulse test on 765kV Current Transformer with 600 application of chopped impulse at 1680KVp

24. Hardware in Loop (HIL) testing of Power Plant Controller (PPC) on RTDS

Power Plant controller testing is done for the first time on RTDS in CPRI, India. The main challenge in integrating the renewables sources into grid is maintaining system stability. The Power Pant Controller (PCC) is vital for managing the variability of these intermittent sources and ensuring they operate within grid requirement. The PPC helps to maintain the voltage and frequency stability within grid. PPC is tested as per requirement under clause 40 of IEGC 2023 regulations and applicable CEA technical standards for connectivity of non-synchronous Generators (Solar/Wind).



25. Conformance Testing of first IED for IEC 61850 with Edition 2 Amendment 1 was carried out at Smart Grid Research Laboratory (SGRL), CPRI, Bengaluru.

Handing over first conformance test certificate for IEC 61850 Edition 2.1 by CPRI to the customer, M/s. Megawin Switchgear Private Limited, Salem

26. Lightning Impulse Voltage withstand test, Dry & Wet Power Frequency Voltage withstand tests on 33 KV FRP Discharge Rod.

27. Ability to withstand the dynamic effects of short circuit test on 18000kVA, 33/(4*0.8) kV, Three-Phase, Power Transformer.

28. Short time current test (symmetrical) on ACSR Bluejay Conductor for 400kV, Transmission Line.

29. Measurement of Inrush current test on 2750 kVA, 22/0.400 kV, 3-Phase, Dry Type Transformer.

30. Impulse withstands voltage test was conducted on Reactors of 11 kV, 5.4 Ω, 0.6 Ω, 0.9 Ω, 3.6 Ω, 24 Ω & 39 Ω for the first time in EHV Laboratory, STL, STDS, Bhopal. During the lightning impulse test of Reactors, achievement of the correct lightning impulse wave shape as per standard is very difficult especially for Reactors having low value of impedance. Using the Glaninger circuit, the correct impulse wave shape achieved as per standard.

4.5 Testing & Certification for Overseas Customers

1. Cables & Diagnostics Division (CDD)

a. Type test on 0.6/1 kV, 2CX25 Sq.mm, Al/PVC/LDPE Low Voltage Flat Cable as per IEC 60502- 1/2021 for M/s. Electro Cables, Egypt.

b. Type test on 4CX35 Sq.mm, CU/XLPE/PVC /SWA /PVC 0.6/1.0 Cable as per IEC 60502-1/2021 for M/s. Kabel Metal Nigeria PLC, Nigeria.

c. Type test on 3CX120 Sq.mm, 6.35/11 kV CU/XLPE/ PVC Cable & 1CX630 Sq.mm, 6.35/11 kV Cable as per IEC 60502-2-2014 for M/s. Phelps Dodge International (Thailand) Limited, Thailand.

d. Type test on 3CX300 Sq.mm, 6/10(12) kV XLPE Cable as per IEC 60502-2-2014 for M/s. BRB Cables, Bangladesh.

e. Type test on 1CX35 Sq.mm, 6/10(12) kV XLPE Cable as per BS 7884 for M/s. BICC Cables, Egypt.

f. Type testing on 6.35/11 kV, 3C X 240 Sq.mm, Cu/XLPE/CWS/PVC/SWA/PE Cable as per IEC 60502-2 for M/s. DOHA Cables, Qatar.

2. Energy Efficiency & Renewable Energy Division (ERED)

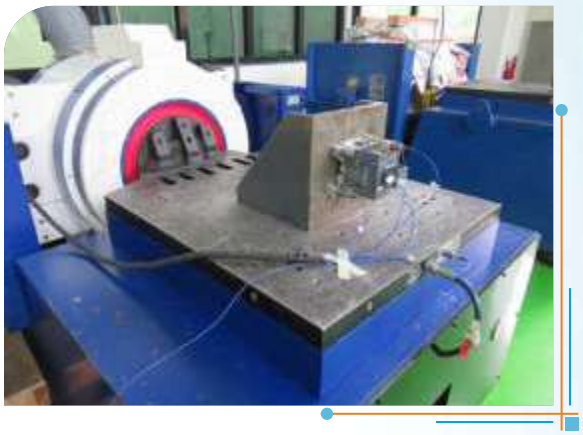
a. Electrostatic Discharge & Electric Fast Transient Test on 22kW AC EV Charger for M/s. ChargeNET, Sri Lanka

3. Earthquake Engineering & Vibration Research Centre (EVRC)

a. Seismic Test on Busbar Trunking System for M/s. Henikwon Corporation Sdn. Bhd., Malaysia.

Seismic Test on Busbar Trunking System

b. Vibration and shock test on Contractor for M/s. ABB France.



Vibration and shock test on Contractor

4. High Power Laboratory (HPL)

a. Short Time Current test on 12kV & 36kV Single Pole Neutral Disconnector for M/s. Any Ohm Sdn.Bhd., Malaysia.

Short Time Current test on 12kV & 36kV Single Pole Neutral Disconnector

b. Dynamic and thermal Short Circuit test on 1250 kVA, 11/0.415 kV Distribution Transformer for M/s. Automation Engineering, Bangladesh.

Dynamic and thermal Short Circuit test on 1250 kVA, 11/0.415 kV Distribution Transformer

c. Short-time withstand current test on 145kV Disconnector and Earth switch for M/s. Tenaga Switchgear Sdn. Bnd., Malaysia.

5. High Voltage Division (HVD)

a. Chopped Impulse Voltage test on 5kVA and 25kVA, 6.35/0.240kV, Single Pole Distribution Transformer for M/s. Sylvan Technologies Ltd., Bangladesh.

Chopped Impulse Voltage test on 5kVA and 25kVA, 6.35/0.240kV, Single Pole Distribution Transformer

b. Chopped Impulse Voltage test on Link Box 3/1 and 6/1 suitable for 132kV and 400kV Cable System for M/s. Power Transmission and Telecommunication Equipment's Factory Co., Saudi Arabia.

Chopped Impulse Voltage test on Link Box 3/1 and 6/1 suitable for 132kV and 400kV Cable System

c. Chopped Impulse Voltage test on 400 kVA and 630 kVA, 15.75 kV / 420-245V, Distribution Transformers for M/s. The Saudi Transformers Co. Ltd., Saudi Arabia.

6. Metering & Utility Automation Division (MUAD)

a. Testing of 1 Phase Electronic Energy Meter as per IEC 62052-11 & IEC 62053-21 for M/s. Nepal Electricity Authority.

7. Short Circuit Lab (SCL)

a. Short-time withstand current test and peak withstand current tests at 25kA rms for 3 s with 62.5 kA on 12kV 1600A 1 Phase Neutral Earthing Isolator Panel as per IEC 62271-200: 2021 for M/s. Any Ohm Sdn. Bhd, Malaysia.

b. Short-time withstand current test at 5kA rms for 1.0 s with 7.65 peak and Short-circuit making capacity test at 5 kA rms with 7.65 kA peak under Test sequence III: short-circuit performance capability on 415V 400A LV Fuse Switch Disconnector as per IEC 60947-3:2020:2011 for M/s. Tenaga Prisma Manufacturing Sdn. Bhd, Malaysia.

c. Temperature rise and Sound level tests on 400 kVA, 15.75kV / 420-245 V and 630kVA, 15.75 kV/420 V Transformers as per IEC 60076-2 & IEC 60076-10 for M/s. Saudi Transformer Co. Ltd., Saudi Arabia.

d. Short-circuit test (40 kA for 1 second and 100kA peak) on Link box suitable for 132kV cable system as per customer's requirement for M/s. Power Transmission and Communication Equipment Factory Co., Saudi Arabia.

8. Switchgear Testing & Development Station (STDS), Bhopal

a. Ability to withstand the dynamic effects of short circuit test, Determination of sound level – sound pressure method test on 5000kVA, 33/11 kV, 3-Phase, Power Transformer for M/s. LTL Transformers (Pvt.) Ltd., Sri Lanka.

b. Ability to withstand the dynamic effects of short circuit test on 1500kVA, 11/0.415kV, Distribution Transformer for M/s. Basic Power Engineering Ltd., Bangladesh.

c. Ability to withstand the dynamic effects of short circuit test on 1000 kVA, 24/0.416-0.240kV Distribution Transformer for M/s. Thai Maxwell Electric Co. Ltd., Thailand.

d. Routine test on 2500 kVA, 11/0.415 kV, Three Phase, Cast Resin Dry Type Distribution Transformer for M/s. Powermann Bangladesh Ltd., Bangladesh.

Routine test on 2500 kVA, 11/0.415 kV, Three Phase, Cast Resin Dry Type Distribution Transformer

e. Lightning Impulse Voltage Withstand Test on 20/24 MVA, 33/11kV Power Transformer for M/s. Woolong Electric Yinchuan Co. Pvt. Ltd., China.

f. Temperature Rise Test on 800/5A LV Current Transformers for M/s. Energia Industrial Sdn. Bhd, Malaysia.

g. Impulse Voltage withstand test on 315kVA, 11/0.415kV, Three Phase Distribution Transformer for M/s. Reverie Power & Automation Engineering Ltd., Bangladesh.

SECTION - 5

CONSULTANCY ACTIVITIES

5 CONSULTANCY ACTIVITIES

Consultancy Activities at CPRI

5.1 Consultancy Services for Diagnostic Studies

CPRI Diagnostic Laboratory has developed expertise for providing consultancy services in the following fields:

1. Condition Monitoring and Health Assessment of HV power equipment by conducting diagnostic tests and to predict remaining life of the equipment.
2. Carrying out Failure Investigation, Root Cause Analysis including laboratory investigations for site related problems.
3. Renovation and Modernisation (R&M) & Residual Life Assessment (RLA) Studies.

5.2 Equipment and Tests covered in Consultancy Activities

1. Power Transformer

Insulation Resistance/Polarization Index Test, Capacitance and Tan Delta Measurement on Windings and Bushings, Recovery Voltage Measurement, Dielectric Spectroscopy, Polarization Depolarization Current, Sweep Frequency Response Analysis, Transformer Turns Ratio, Short Circuit Impedance, Magnetising Current test, Magnetic balance Test, Winding Resistance Measurement, Core Insulation Resistance Test, On-line Partial Discharge Measurement by Acoustic Emission Method.

2. Generator / Large Motors / Stator / Rotor

Insulation Resistance/Polarization Index Test, Capacitance and Tan Delta Measurement, Partial Discharge Measurement, Surge Comparison Measurement, Conductor Resistance Measurement, Electro Magnetic Core Imperfection Detection (ELCID) Test, Wedge Mapping Test, Recurrent Surge Oscillogram (RSO) Test, Field Impedance Test, Pole Drop Test.

3. Power Cables (up to 66kV)

Insulation Resistance/Polarization Index Test, Capacitance and Tan Delta Measurement, Very Low Frequency (VLF) Capacitance and Tan Delta Test, Partial Discharge Measurement by VLF and Damped AC Voltage EHV CTs / CVTs

Insulation Resistance/Polarization Index Test, Capacitance and Tan Delta Measurement Resin Cast CTs (up to 33kV)

Insulation Resistance/Polarization Index Test, Capacitance and Tan Delta Measurement, Partial Discharge Test Lightning Arresters

On-line Third Harmonic Resistive Leakage measurement, Off-line DC Leakage Current Measurement

CLIENTELE:

Some of the esteemed customers include:

NHPC Limited, THDC India Limited, National Aluminium Company Limited, Powergrid Corporation of India, NEEPCO Limited, KPCL, KSEB, TSGENCO, APGENCO, MAHAGENCO

5.3 Onsite Consultancy Services Using A Mobile Transformer Oil Testing Facility

1. CPRI has specialization to conduct onsite consultancy services using a mobile transformer oil test facility.

1. Condition assessment and monitoring of power transformers through oil analysis, including Dissolved Gas Analysis (DGA) in accordance with IEC 60567, IS 9434, IEC 60599, IS 10593, and Furan analysis as per IEC 61198 and IS 15668.
2. Onsite testing of mineral insulating oils: Dielectric Materials Division (DMD) employs state-of-the-art facilities and offers consulting services for mineral insulating oils in Compliance with IS 1866/IEC 60422.

DMD actively conducts onsite testing of transformer oil samples for various power utilities, includings government sector, public sector undertaking (PSU), and private electrical/power companies. The mobile transformer oil test facility is equipped to perform testing and consultation activities directly at customer's premises.

2. Area of Expertise in Polychlorinated Biphenyls (PCB)

The Dielectric Materials Division specializes in treatment of mineral insulating oils contaminated

with PCBs, with a mission to create clean environment by using a mobile PCB-dechlorination unit, at different power stations.

PCBs were widely used as fire retardants and insulating material in the manufacture of transformers and capacitors. Later since classified as a human carcinogen, EPA banned their use in 1979. The Stockholm Convention on Persistent Organic Pollutant (POPs)., adopted in May 2001, the objective of protecting human health and the environment from POPs, which came into force on 17th May 2004. PCB are one of the POPs. India also signed the convention and ratified it on 13th January 2006. The availability of PCBs was required to be mapped through National Inventory Plan (NIPs). And as such, Ministry of Forest and Climate Change.

(MoEFCC), India, invited UNIDO with expanded opportunities for the development of the NIP and inventoried 9837.662 tons of pure PCBs and contaminated PCB oil.

Further, CPRI Bengaluru was recognized as a nodal organization for PCB – dechlironation of contaminated mineral insulating oils, by using mobile dechlorination unit. Till date 828 MT of PCB contaminated transformer oil have been treated.

The project after completion will contribute to international efforts to control hazardous chemicals in general, and to eliminate the use and release of PCBs in particular, by taking out pure PCBs and PCB contaminated equipment and related waste from India to global circulation. It can be expected that this in turn will reduce the overall environmental concentrations of PCBs and therefore the adverse effects of PCBs on human health and the environment on a global scale.

CPRI has a mobile PCB treatment plant to dechlorinate transformer oil contaminated with PCBs safely.

Esteemed Customers who have availed CPRI's PCB Services

KPCL, UPRVUNL, NALCO-Angul Odisha, NMDC-Chhattisgarh, NLCIL-Tamil Nadu, Southern Railway-Tamil nadu, NPCIL-Kaiga and many more.

5.4 Consultancy Services for Energy Efficiency & Energy Audit

CPRI has comprehensive infrastructure, computational facilities and a team of qualified engineers for providing energy related services like energy audits and training programs for energy managers. We have been rendering the services for a variety of customers for more than four decade and have undertaken audits in several energy intensive industries, thermal power stations (TPS), hydel power stations (HPS), captive power plants, port trusts, oil refineries, refrigeration and air conditioning plants and buildings, etc. The services encompass the generating, distribution and utilization segments of the power sector. Besides, the fuel sector is also considered.

CPRI has BEE accredited and certified Energy Auditors and the Energy Efficiency and Renewable Energy Division of CPRI has accreditation with ISO 9001:2015 certificate.

1. CPRI expertise profile for consultancy services in the area of energy service

Technical energy and power audits (with aims ranging from identifying ways of improving energy efficiency to evolution of a new blue print for the energy system) provide insight into the modes of better utilization of fossil resources and high-grade energy and exploration of renewable energy solutions. ERED has conducted energy audits in major thermal and hydro power stations of India. In the area of dispute resolution and generating authentic first- hand database, ERED has been providing analytical and laboratory services to regulatory commissions.

2. Some of the specialized areas of energy services in power plants are:

1. Boilers and combustion systems, Steam turbines, Hydro turbines and auxiliaries

Auxiliaries: pumps, fans, mills blowers, etc. and associated motors

1. Auxiliary power of balance of plant of thermal and hydro power plants
2. Heat exchangers, Condensers, Cooling towers

Utilities: compressed air, water pumping, air conditioning, refrigeration Gas turbines, Hydro turbines, Electrical distribution networks

The studies include:

1. Heat rate optimization, Ex-bus assessment
2. Fuel audit study, Benchmarking of energy parameters
3. Capacity adequacy analysis, Forced outage analysis
4. Design deficiency analysis
5. Power quality audits in industries and distribution system
6. Harmonic and voltage flicker measurements of non-linear equipment in industries

3. CPRI has successfully carried out energy audit consultancy and training assignments for overseas customers such as:

1. Greater Nile Petroleum Operating Company, Sudan
2. Zimbabwe Power Company, Zimbabwe

CPRI has rendered its energy audit and energy conservation consultancy studies in the following sectors: thermal power stations (coal, gas, atomic, oil etc.) hydel power stations, medium scale process and manufacturing industries, ports, water pumping stations, building, hospitals, star hotels, airports etc.

5.5 Earthing Studies

Electrical Earthing plays a vital role in the electrical network for the operation of electrical equipment. Effective earthing is essential for proper operation and coordination of protection schemes as well as for safety of personnel. More often not much attention and care are given to the design, construction & maintenance of earthing systems which give rise to problems of mal-operation of power system equipment which involves failure of equipment's and hazards to the safety of personnel. Besides this, such a situation may prove uneconomical in the overall context of planning, design & construction of substations, generating stations and any electrical installations.

1. Areas of expertise

1. Design of the earthing system for industries, substations, generating stations, test laboratories etc.
2. Soil Resistivity measurement at site
3. Earth Resistance measurement at site
4. Evaluation of the existing Earthing System
5. Step and Touch Potential Measurement at site

2. The following standards are referred for the studies

IEEE 81, IEEE 80, IS 3043, CEA regulations, NEC guidelines and CBIP manual, etc.

In addition to the above activities, High Voltage Division has a capability to impart training on best practices to be adopted on earthing system at CPRI / customers location.

3. Pollution mapping of electrical transmission lines

Area of expertise:

1. Determination of site pollution severity for new transmission line or other electrical network
2. Selection of insulators according to the measured site pollution severity
3. Root cause analysis for overhead lines insulators (using ESDD and NSDD measurements) Reference Standards: IEC/TS 60815-1, IEC TS 60815-2.

The study can be carried out at various transmission lines, power plants, substations & traction lines.

5.6 Consultancy Services on Tower Design

The Design & Consultancy Cell supports the Tower Testing Station activities and takes up the consultancy works on design of towers for new transmission lines, design approval/checking of transmission line towers/ monopoles/dual poles, communication towers, foundation (like open cast foundations, raft foundations, pile foundations & Caisson Foundations etc.). Failure Analysis of towers/monopoles, up-grading/up- rating of existing transmission lines, RLA Studies on transmission lines etc. for power utilities from India / overseas.

5.7 Consultancy Services for Smart Grid & Scada

CPRI has expertise to provide consultancy services to power utilities in the area of Smart Grid, AMI System, SCADA and Automation. We believe that our proven

track record, strong technical team and deep knowledge in these area makes us uniquely qualified to successfully deliver on the objectives of various projects for power utilities.

CPRI has successfully carried out consultancy projects including Smart Grid pilot project with AMI System for TSSPDCL, Hyderabad, SCADA EMS / DMS consultancy work for utilities like KPTCL, (this includes control centres and substations of KPTCL, KPCL, BESCOM, MESCOM, GESCOM, HESCOM & CESC) Puducherry Electricity Department, APSPDCL, APEPDCL, TGSPDCL, TGNPDCL, BESCOM Distribution Automation System to name a few.

5.8 Expertise In Materials Engineering, Characterization / Evaluation for Power Generation

1. **Renovation & Modernization:** Studies of residual life estimate of critical components for upgradation to extend operational lifespan.
2. **Thermal Turbine and Generator:** Shaft fatigue crack growth and evaluate the residual life of turbine and generator shafts.
3. **Hydro Turbine and Generator:** Shaft inspection, life estimation of turbine and generator shafts of hydro plants.
4. **Root Cause Analysis:** Failure investigation and root cause analysis of different boiler tubes of thermal plants and other industrial components based on detailed metallurgical and mechanical evaluation.
5. **On-Site Inspection:** Identify defects in components, corrosion assessment, mapping of boiler tubes, and oxide scale assessment to prevent failures. Detection of boiler tube magnetite exfoliation and assessment of magnetic layer degradation.
6. **Condition Assessment & Evaluation of Thermal and hydro plant components:** Advanced Non- Destructive Evaluation (NDE), corrosion mapping, piping and hanger inspection, field metallography and material identification, fibroscopy inspection.
7. **Civil Structures:** Condition monitoring of civil foundations and structures by various NDT and DT methods. Solution for -strengthening of the same.
8. **Materials Engineering and Characterization:** Residual stress, retained austenite measurements in steel, titanium and other components, Surface morphology, microstructure and composition analysis through optical emission spectrometer, Scanning Electron Microscopy (SEM) integrated with Energy Dispersive spectroscopy analysis, X-ray diffraction techniques (EDAX), optical and confocal microscopy technique for assessment of fractured/ damaged surface, Phase/compound analysis in different materials by X-ray Diffractometer (XRD).

Studies on CRGO and CRNGO electrical steels for transformer applications - Evaluation of magnetic properties viz. specific power loss, magnetic polarisation, field strength, permeability, ductility, stacking factor and surface insulation resistance using Epstein, Franklin and Single Sheet Tester types of equipment.

Valuable customers served are:

Public Sector organizations such as- NTPC, NHPC, NEEPCO, SJVNL, THDC, HAL, BALCO, NALCO, BHEL etc.

State Government Organization- MAHAGENCO, KPCL, KSEB, HPGCL, MPGCL, CSPGCL, APGCL etc.

5.9 Power System Studies:

CPRI is equipped with advanced facilities like the **Real Time Digital Simulator (RTDS), OPAL-RT simulator** and popular power system software tools such as **PSSE, ETAP, DIg SILIENT, NEPLAN.** The Power System Division offers simulation-based studies across diverse time scales—from nanoseconds to several seconds. All the services provide are ISO 9001:2015 certified, ensuring high-quality deliverables.

The key consultancy services rendered include: transmission planning & power evacuation studies, load flow, short circuit, stability (transient, dynamic, voltage) reactive power compensation, technical loss evaluation and Sub-Synchronous Resonance (SSR) studies, HVDC transmission system studies & Insulation coordination, static VAR compensator sizing, grid integration of renewables (wind/solar), harmonic analysis & filter design studies are carried out.

In the area of protection studies on relay settings calculations for lines, transformers, generators, relay

coordination, power swing and load encroachment. Third-party protection audit of generators and substations and GPS-synchronized end-to-end protection testing.

Hard-ware-in-Loop (HIL) testing of Relays, FACTS and HVDC controllers, Power Management System, Special Protection Schemes, Power Plant Controllers (PPC) on Real Time Digital Simulator are some of the activity that are possible at Power System Division, CPRI.

All studies follow CEA, IEEE, ANSI and IEGC guidelines as per client requirements.

Real Time Simulation Facilities available for closed loop testing of Power System Controllers & Relays.

1. Area of Expertise In Consultancy Activities of UHVRL, CPRI

1. Measurement of Radio Interference Voltage (RIV) emission from converter valve stations, transmission lines and substations
2. Measurement of AC electric and magnetic field emission from HVAC transmission lines and substation
3. Measurement of DC electric and magnetic field emission from HVDC transmission line and substation
4. Pollution mapping
5. Sweep Frequency Response Analysis of Transformers (SFRA)
6. Audible noise measurement of substation and converter valve

5.10 Special Consultancy Activities

a. Cables & Diagnostics Division (CDD)

1. Root Cause Analysis of Failure of 80 MVA, 400/11.5/11.5 kV Station Transformer for M/s. Karnataka Power Corporation Limited (KPCL), Bellary Thermal Power Station, Kudatini.
2. Condition Monitoring Tests on 50MVA, 11/220 kV Turbo Generator for M/s. North Eastern Electric Power Corporation Limited (NEEPCO), Assam Gas Based Power Plant (AGBP), Bakuloni, Assam.
3. Diagnostic/Condition monitoring tests on 102 MVA, 400/√3kV/16kV, 50 Hz, 1Φ Generator Transformers for M/s. National Hydroelectric Power Corporation (NHPC) Ltd., Subansiri, Arunachal Pradesh.
4. Condition Monitoring / Diagnostic tests on 11/07kV, 15 MVA, 50 Hz, 3Φ Unit Auxiliary Transformer for M/s. Uttar Pradesh Rajya Vidyut Utpadan Nigam Limited (UPRVUNL), Harduaganj.
5. Diagnostic/Condition Monitoring Tests on 170 MW, 13.8 kV Hydro Generators and Retrieved Equipment for M/s. National Hydroelectric Power Corporation (NHPC) Ltd., Teesta V, Sikkim.

b. Energy Efficiency & Renewable Energy Division (ERED)

1. Energy Auditing of HP & LP Compressors at M/s. National Thermal Power Corporation Limited (NTPC), Dadri.
2. Detailed Auxiliary Power Consumption Audit of Unit No. 8, 9 and 10 at Koradi Thermal Power Station, Koradi, Nagpur.
3. Assessment of performance of Boilers and Turbine Cycle Heat Rate of 2 x 525 MW Units at Maithon Power Ltd., Jharkhand.
4. Energy Audit of Panyor Lower Hydro Power Station (3X135 MW), for M/s. North Eastern Electric Power Corporation Limited (NEEPCO), Arunachal Pradesh.
5. Energy audit of BWSSB Pumping Station stage 1, 2 and 3.
6. Review of design of coal pipe conveyor system at Koradi and Khaperkheda, for M/s. Maharashtra State Power Generation Company Ltd.

c. High Voltage Division (HVD)

1. Earth Resistance Measurement at the site of Rajasthan Atomic Power Station.
2. Soil Resistivity & Earth resistance Measurement for M/s. Bharath Traders, Neyveli.

d. Materials Technology Division (MTD)

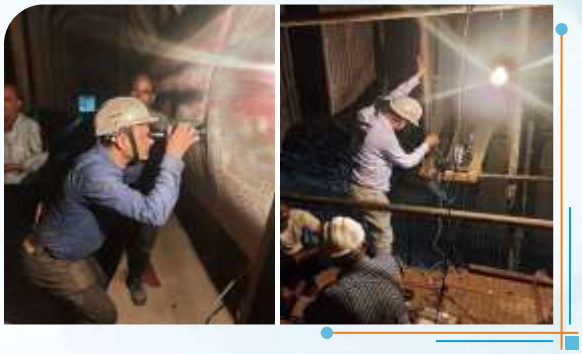
1. Condition monitoring (Mechanical studies) of Hydro Turbine Machines and other components of Tehri & Koteshwar Hydro Electric Projects for M/s. Tehri Hydro Development Corporation Limited (THDCIL), Rishikesh.

Condition monitoring (Mechanical studies) of Hydro Turbine Machines and other components of Tehri & Koteshwar Hydro Electric Projects

2. Corrosion Mapping of Water Wall Tubes of Unit No.4, 500MW Boiler for M/s. National Thermal Power Corporation Limited (NTPC), Simhadri.

Corrosion Mapping of Water Wall Tubes of Unit No.4, 500MW Boiler

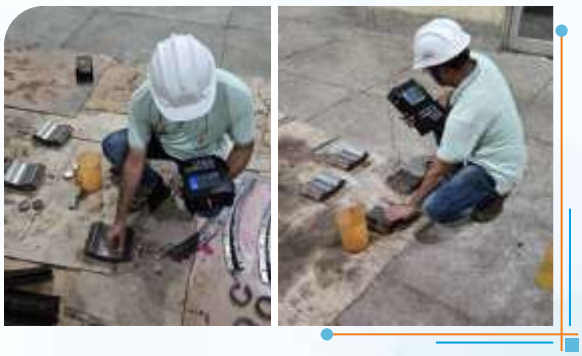
3. Residual Life Assessment (RLA) study of 500 MW Boiler for M/s. Maharashtra State Power Generation Company Limited (MAHAGENCO), Bhusawal Thermal Power Station (BTPS), Bhusawal.



Residual Life Assessment (RLA) study of 500 MW Boiler

4. Magnetic Particle Inspection (MPI) & Ultrasonic Testing (UT) for compressor diaphragm and thrust bearing and journal bearing in Unit No. 1 for M/s. North Eastern Electric Power Corporation Limited (NEEPCO), Assam Gas Based Power Plant (AGBP), Bakuloni, Assam.

Magnetic Particle Inspection



Ultrasonic Testing

5. Corrosion mapping of Boiler water wall tubes of Unit No. 6 for M/s. National Capital Power Station (NCPS), NTPC Dadri, Uttar Pradesh

Corrosion mapping of Boiler water wall tubes

6. Corrosion mapping of Boiler water wall tubes of Unit No. 5 at M/s. National Thermal Power Corporation Limited (NTPC), Unchahar, Uttar Pradesh.
7. Chimney Inspection at Bhusawal Thermal Power Station, Bhusawal.
8. Corrosion mapping of Boiler water wall tubes and oxide layer thickness measurement of Divisional, Platten super heater, Reheater, final super heater & LTSH tubes of Unit No.1 at Deenbandhu Chhotu Ram Thermal Power Plant (DCRTPP), Yamuna Nagar for M/s. Haryana Power Generation Corporation Limited (HPGCL), Haryana.
9. Root Cause Analysis of the five failed tubes of Unit No. 1 & 2, 500 MW Boiler for M/s. NLC Tamilnadu Power Ltd., Tuticorin

e. Mechanical Engineering Division (MED)

1. Vetting/Checking the Design Calculation & Drawings of 132 kV D/C Type "PB (0-15D) _BXA@19.58M", "PE (0O- 90O) _ BXA@17.24M " & "PE (0O-90O) _ BXA@19.68M " Monopole & its foundation with +6M Extension for M/s. Odisha Power Transmission Corporation Limited (OPTCL), Rourkela.
2. Vetting/Checking the Design Calculations & Drawings of 220 kV D/C Type "PS4-CTT (0°-15°) _BXA@21M" Cable Termination Monopole for M/s. Karnataka Power Transmission Corporation Limited (KPTCL).
3. Vetting/Checking the Structural Drawings & Bill of Materials (BOM) of 66 kV S/C Type "SA (0O-2O)", "SB (0O-15O)", "SC (15O-30O)" & "SD (30O-60O)/DE (0O-15O)" Suspension Tower upto +6m Body Extension for 70MW project for M/s. National Thermal Power Corporation (NTPC) Limited.
4. Vetting/ Checking the Design Calculations & SLD of 400 kV D/C Type DA (0-2 Deg.) Suspension Tower, "DB (2O-15O)", "DD (30O-60O)/DE(0O-15O)" & "DC (15O-30O)" Tension Tower (Quad AL59 Moose Conductor) with +0M & +9M BE for M/s. Greenko Energies Private Limited, Hyderabad
5. Vetting/ Checking the Design Calculations & Drawings of 66 kV D/C Type "PB (2°-15°) & "PC (15°-30°)_16M & 26M BXA Monopole for M/s. Punjab State Power Corporation Limited (PSPCL).
6. Vetting/ Checking the Design Calculations & Drawings of 400 kV D/C Type "PD (30°-60°)/DE(0O LS & 15O SS)_23M BXA" Twin Monopole for M/s. Haryana Vidyut Prasaran Nigam Limited (HVPNL).
7. Vetting/ Checking the Caisson Foundation Design Calculations & Drawings of 220 kV D/C Type "220DCT_21.5M BXAFL" Cable Termination Pole in submerged type of soil for M/s. Transmission Corporation of Telangana Limited (TGTRANSCO).

f. Power System Division (PSD)

1. Comprehensive Study of Power Transmission Network of Delhi Comprising of Generation and Transmission for M/s. Delhi Transco Ltd. (DTL).
2. Electrical System study and relay coordination of 4x300MW Thermal Power Plant of M/s. Rosa Power Supply Company Limited.
3. Field testing of numerical protection relay of Hydro Generators (4x200 MW, 13.8 kV) at M/s. NHPC Limited, Parbati–II HEP, Kullu.

Field testing of Numerical Protection relays of Hydro Generators (4x200 MW, 13.8 kV)

4. Protection Audit of 765kV, 400kV, 220 kV substations (10 Nos.) of M/s. PGCIL WR-I (Talegaon, Kotra, Tamnar, Dharajaygarh Korba, Medesara, Aurangabad, Padghe, Shikrapur, Kolhapur and Champa Substations).

Protection audit of 765kV GIS Padghe substation in PGCIL WR-I region

5. Protection Audit of 765kV, 400kV, 220 kV substations (7 Nos.) of M/s. PGCIL WR-II (Indore, Jabalpur, Kala, Magarwada, Vindhyachal, Vadodara, Betul).
6. Protection Audit of 400kV Switchyard of M/s. Jhabua Power Ltd., Madhya Pradesh.
7. Protection Audit of 4x200MW Parbathi Generating station and switchyard for M/s. National Hydroelectric Power Corporation (NHPC) Limited.
8. Protection Audit of 1110 MW Ukai Thermal Power Plant of M/s. Gujarat State Electricity Corporation Limited (GSECL).

Protection Audit of 1110 MW Ukai Thermal Power Plant of M/s. GSEC

SECTION - 6

PROMOTIONAL ACTIVITIES

6. PROMOTIONAL ACTIVITIES

6.1 Important Conferences/Webinars/Training Programmes Organized

1. Workshop on "Clean Energy Innovations: Hydrogen Fuel Cell for a Sustainable Future" held at CPRI, Bengaluru on 30th & 31st May 2024.
2. 12th International Conference on Power Cables CABLETECH 2024 on 13th & 14th June 2024.
3. Training programme on "Aspects of maintenance of Transformer by Oil analysis" for the engineers of M/s. GTPS, Gujarat, held at GTPS, Gandhinagar on 16th July 2024.
4. Webinar on "Latest Trends in Transformer Technology, Testing and Analysis" on 13th September 2024.
5. Training Program on "On-line Diagnosis Transformers"– at site for Senior Officials, Engineers & Technical Staffs of M/s. Tehri Hydro Development Corporation (THDC) - HEP, Tehri, Uttarkhand on 28th October 2024.
6. Webinar on "Recent technologies, standardization and testing of AMI system" on 05th December 2024.
7. Training program on "Quality Assurance in PV module Manufacturing" as part of Indo-German Cooperation Project on Strengthening Quality Infrastructure for the Solar Industry, during 27th to 31st January 2025
8. Workshop on "Impulse Testing of High Voltage Equipment", on 31st January 2025.
9. Webinar on "Cybersecurity issues in Smart Meters and Advanced Metering Infrastructure", on 27th February 2025.
10. Webinar on "High Voltage Testing Techniques of UHV/EHV Equipment" on 14th March 2025.

6.2 Awards & Accolades

1. The technical paper titled "CFD Modeling of Indian Coal – Rice Husk Co-firing in 210 MWe Pulverized Coal Fired Boiler" authored by V. Saravanan and Riya Mariam John received the Best Oral Presentation and Best Paper Award, at the 2nd Global Conference on Decarbonizing India (GCDI '25), Towards Achieving Net Zero organized by Centre for Clean Energy and Circular Economy (CCECE) & Centre for Sustainable Technologies (CST), National Institute of Technology Calicut, Kerala during 06th to 08th March 2025.

6.3 Visit of Important Persons/Foreign Delegations to CPRI

A. Cables & Diagnostics Division (CDD)

1. Mr. Mazin Aziz from M/s. Dubai Electricity & Water Authority (DEWA), Dubai & Mr. Anoop Kallumpurathu Varghese from M/s. DOHA Cables, Qatar visited Cables & Diagnostics Division, CPRI, Bengaluru for witnessing Type test on 6.35/11 kV, 3C X 240 Sq.mm, Cu/XLPE/CWS/PVC/SWA/PE Cable as per IEC 60502-2 from 11th November 2024 to 02nd December 2024.

Visit of Mr. Mazin Aziz from M/s. Dubai Electricity & Water Authority (DEWA), Dubai & Mr. Anoop Kallumpurathu Varghese from M/s. DOHA Cables, Qatar

B. Electrical Appliances Technology Division (EATD)

1. Mr. Luai Alnakawai and Mr. Omair Juma Mohammed Khalifa Alameemi from M/s. AADC, Abu Dhabi & Mr. Arif Abdul Samad Shaikh from M/s. DHAFIR, Abu Dhabi visited Electrical Appliances Technology Division, CPRI, Bengaluru for witnessing of IP 54 category 2 test on 400A LV service cabinet for M/s. Novateur Electrical & Digital, Haryana, on 25th & 26th July 2024.

Visit of Mr. Luai Alnakawai and Mr. Omair Juma Mohammed Khalifa Alameemi from M/s. AADC, Abu Dhabi & Mr. Arif Abdul Samad Shaikh from M/s. DHAFIR, Abu Dhabi

2. Mr. Pierre Jean Arvers, CEO, Bitrode, USA visited Electrical Appliances Technology Division, CPRI, Bengaluru for discussion regarding Battery testing, future expansion of equipment like Life Cycle Test equipment and Testing facilities for Battery Energy Storage System (BESS) on 20th January 2025.

Visit of Mr. Pierre Jean Arvers, CEO, Bitrode, USA

C. Earthquake Engineering and Vibration Research Centre (EVRC)

1. Mr. Ivan Aleksic and Mr. Nenad Radovanovic from M/s. Minel General Electric doo, Serbia visited Earthquake Engineering and Vibration Research Centre, CPRI, Bengaluru for witnessing Vibration test and Shock test on High Reach Pantograph from 15th to 19th April 2024.

Visit of Mr. Ivan Aleksic and Mr. Nenad Radovanovic from M/s. Minel General Electric doo, Serbia

2. Mr. Manogaran Ekambram and Mr. Wam Muhammad Faris Bin Wan Sohaimi from M/s. Henikwon, Malaysia visited Earthquake Engineering and Vibration Research Centre, CPRI, Bengaluru for witnessing Seismic test on Busbar Trunking System from 30th September 2024 to 10th October 2024.

3. Mr. Ivan Mikoyan and Mr. Pavel Kiryukhin from M/s. Izolyator Company, Russia visited Earthquake Engineering and Vibration Research Centre, CPRI, Bengaluru for discussion regarding Seismic test on 420kV Bushing on 26th February 2025.

D. Mechanical Engineering Division (MED)

1. Mr. Paulwaithaka Mungai, Mr. Dorington Omondi Sadia, Mr. Samuel Ndirangu Githae, Mrs. Jane Njambi Muigai & Mr. Dedan Kuria Njoroge from M/s. Kenya Power and Lighting Company visited Mechanical Engineering Division, CPRI, Bengaluru for witnessing of testing on 132 kV D/C Tension/ Dead End Pole Type "PD(60-90D)/ DE_15.4M BXA", on 31st July 2024.

Visit of Mr. Paulwaithaka Mungai, Mr. Dorington Omondi Sadia, Mr. Samuel Ndirangu Githae, Mrs. Jane Njambi Muigai & Mr. Dedan Kuria Njoroge from M/s. Kenya Power and Lighting Company

2. Mrs. Rudelle Anak Roland Renggie, Mr. Idzwan Bin Rapaiee & Mr. Nik Mohd Ikhwan Bin Nik Yusoff from M/s. Sabah Electricity Sdn. Bhd, Malaysia visited Mechanical Engineering Division, CPRI, Bengaluru for witnessing of testing on 275-132 kV M/C Suspension Tower Type "SL" with +0M Body Extension, on 11th & 14th November 2024.

Visit of Mrs. Rudelle Anak Roland Renggie, Mr. Idzwan Bin Rapaiee & Mr. Nik Mohd Ikhwan Bin Nik Yusoff from M/s. Sabah Electricity Sdn. Bhd, Malaysia

3. Mrs. Nor Haliza Binti ABD Wahab, Mrs. Anneline Eugenie Robinson Stabal & Mr. Wan Mohd Hamizan Bin Wan Hassan from M/s. Sabah Electricity Sdn. Bhd, Malaysia visited Mechanical Engineering Division, CPRI, Bengaluru for witnessing of testing on 275-132 kV M/C Suspension Tower Type "S" with +0M Body Extension, on 04th & 05th November 2024.

Visit of Mrs. Nor Haliza Binti ABD Wahab, Mrs. Anneline Eugenie Robinson Stabal & Mr. Wan Mohd Hamizan Bin Wan Hassan from M/s. Sabah Electricity Sdn. Bhd, Malaysia

E. Short Circuit Laboratory (SCL)

1. Mr. Paulo Gois, PGI – Consultant, Inspections & Representations Ltd., Brazil & Mr. Cesario Da Silva Guerci, Tecnico Inspecao Material, M/s. CEMIG, Brazil visited Short Circuit Laboratory, CPRI, Bengaluru for witnessing of short-circuit withstand (Dynamic & Thermal) tests on 2 nos. of 37.5 kVA 7969/240V 1 Phase Distribution Transformer (1 - Amorphous and other one CRGO core) and 2 nos. of 150kVA 13800/220V 3 Phase Distribution Transformer (1 - Amorphous and other one CRGO core) as per Brazilian Standards ABNT NBR 5356-5 2015 and NBR 5440:2014 for M/s. Shirdi Sai Electricals Ltd., Kadapa, on 15th & 16th April 2024.

Visit of Mr. Paulo Gois, PGI – Consultant, Inspections & Representations Ltd., Brazil & Mr. Cesario Da Silva Guerci, Tecnico Inspecao Material, M/s. CEMIG, Brazil

2. Mr. Aleksic Ivan & Mr. Radovanovic Nenad, Design Engineers from M/s. MINEL, Serbia visited Short Circuit Laboratory, CPRI, Bengaluru for witnessing Current Heating Test on 25kV Pantograph as per IEC 60494-1:2013, for M/s. MINEL India (P) Ltd., Noida, on 18th & 19th April 2024.

Visit of Mr. Aleksic Ivan & Mr. Radovanovic Nenad, Design Engineers from M/s. MINEL, Serbia

3. Mr. Sanjeev Kumar, AGM – R & D from M/s. Novateur Electrical & Digital Systems Pvt Ltd., Rohad and Mr. Luai Alnakawai from M/s. AADC – Power Services Section – CS, Abu Dhabi visited Short Circuit Laboratory, CPRI, Bengaluru for witnessing Short-circuit withstand strength test at 10kA rms for 1 s with 17 kA peak on Incomer Vertical Fuse Switch Disconnector on 440V 400A 50Hz 14Way TPN LV Service Cabinet as per IEC 61439-1: 2020 & IEC 61439-2: 2020 for M/s. Novateur Electrical & Digital Systems Pvt Ltd., Rohad on 24th July 2024.

Visit of Mr. Sanjeev Kumar, AGM – R & D from M/s. Novateur Electrical & Digital Systems Pvt Ltd., Rohad and Mr. Luai Alnakawai from M/s. AADC – Power Services Section – CS, Abu Dhabi

4. Mr. Chidanand & Mr. Madhu from M/s. ABB India Pvt. Ltd. and Mr. Andrea D'Adda from M/s. ABB, Milano, Italy visited Short Circuit Laboratory, CPRI, Bengaluru for witnessing of Overload performance test under Test Sequence I on 440V 630A 4P MCCB as per IS/IEC 60947-2: 2016 for M/s. ABB India Pvt. Ltd., Bengaluru, on 31st July 2024.

Visit of Mr. Chidanand & Mr. Madhu from M/s. ABB India Pvt. Ltd. and Mr. Andrea D'Adda from M/s. ABB, Milano, Italy

5. Mr. Meng Fee Chiat from M/s. Any Ohm Sdn. Bhd, Malaysia visited Short Circuit Laboratory, CPRI, Bengaluru for witnessing of verification of Short-time withstand current test and peak withstand current tests at 25kA rms for 3 s with 62.5 kA on 12kV 1600A 1 Phase Neutral Earthing Isolator Panel as per IEC 62271-200: 2021, on 25th October 2024.

Visit of Mr. Meng Fee Chiat from M/s. Any Ohm Sdn. Bhd, Malaysia

6. Mr. Wan Mohd Syahmi Bin Wan Othman, Senior Executive – Technical and Mr. Mohd Khir Bin Hamzah, Quality Technical & Engineering Manager from M/s. Tenaga Prisma Manufacturing Sdn. Bhd, Malaysia visited Short Circuit Laboratory, CPRI, Bengaluru for witnessing Short-time withstand current test at 5kA rms for 1.0 s with 7.65 peak and Short-circuit making capacity test at 5 kA rms with 7.65 kA peak under Test sequence III: short-circuit performance capability on 415V 400A LV Fuse Switch Disconnector as per IEC 60947-3: 2020:2011, on 21st January 2025.

Visit of Mr. Wan Mohd Syahmi Bin Wan Othman, Senior Executive – Technical and Mr. Mohd Khir Bin Hamzah, Quality Technical & Engineering Manager from M/s. Tenaga Prisma Manufacturing Sdn Bhd, Malaysia

7. Mr. Caleb Luke Walker, Lead Engineer & Mr. Ruairidh Iain Mcgowan Chalmers, Sr. Engineer from M/s. SPEN Energy Ltd., UK and Mr. SK Subhani, Sr. Engineer from M/s. Toshiba Transmission & Distribution Systems (India) Pvt. Ltd., Telangana visited Short Circuit Laboratory, CPRI, Bengaluru for witnessing Ability to withstand the dynamic effects of short circuit test on 50kVA 11000/500-250V Hermetically Sealed Single Phase Distribution Transformer for M/s. Toshiba Transmission & Distribution Systems (India) Pvt. Ltd., on 29th January 2025.

Visit of Mr. Caleb Luke Walker, Lead Engineer & Mr. Ruairidh Iain Mcgowan Chalmers, Sr. Engineer from M/s. SPEN Energy Ltd., UK and Mr. SK Subhani, Sr. Engineer from M/s. Toshiba Transmission & Distribution Systems (India) Pvt. Ltd., Telangana

8. Mr. Sridhar Reddy Chitla, Design Manager from M/s. Saudi Transformer Co. Ltd., Saudi Arabia visited Short Circuit Laboratory, CPRI, Bengaluru for witnessing Temperature rise and Sound level tests on 400 kVA 15.75kV / 420-245 V and 630kVA 15.75 kV/420 V Transformers as per IEC 60076-2 & IEC 60076 -10 during 17th to 27th March 2025.

Visit of Mr. Sridhar Reddy Chitla, Design Manager from M/s. Saudi Transformer Co. Ltd., Saudi Arabia

9. Mr. Athul Ziraj Ismail, QA/QC Engineer from M/s. Power Transmission and Communication Equipment Factory Co., Saudi Arabia visited Short Circuit Laboratory, CPRI, Bengaluru for witnessing Short-circuit test (40 kA for 1 second and 100kA peak) on Link box suitable for 132kV cable system as per customer's requirement on 13th March 2025.

Visit of Mr. Athul Ziraj Ismail, QA/QC Engineer, M/s. Power Transmission and Communication Equipment Factory Co., Saudi Arabia

F. Switchgear Testing & Development Station (STDS), Bhopal

1. Mr. Benjamin LE CAER, Director, M/s. Socomec S.A. France visited test facilities of Station-2 and Supplementary Test Laboratory at STDS-Bhopal, on 20th November 2024.

Visit of Mr. Benjamin LE CAER, Director, M/s. Socomec S.A. France

2. Mr. Cusilakhe Mamama, Head of Production, M/s. EEC Swaziland visited STDS, Bhopal for witnessing the ability to withstand the dynamic effects of short circuit test on 20000/25000kVA, 132/11 kV, Three-Phase Power Transformer for M/s. Technical Associates Ltd., Sitarganj, Uttarakhand on 15th April 2024

Visit of Mr. Cusilakhe Mamama, Head of Production, M/s. EEC Swaziland

3. Mr. Tharindu Bopitiya and Mr. Nimesh Madusanka from M/s. LTL Transformers (Pvt.) Ltd., Sri Lanka visited STDS, Bhopal for witnessing the Ability to withstand the dynamic effects of short circuit test on 5000kVA, 33/11 kV, 3-Phase Power Transformer, on 15th, 24th & 25th April 2024.
4. Mr. Richard Sevigny, Test Specialist, M/s. Hydro Quebec, Canada visited STDS, Bhopal for witnessing Short time current test on 765 kV, 4000-2000/5-1-1-1-1A, Current Transformer for M/s. Hitachi Energy India Limited, Vadodara, Gujarat, on 25th April 2024.
5. Mr. M. Keramot Ali Khan and Mr. M.H. Shakib from M/s. Basic Power Engineering Ltd., Bangladesh visited STDS, Bhopal for witnessing the ability to withstand the dynamic effects of short circuit test on 1500kVA, 11/0.415kV, Distribution Transformer, on 29th April 2024.

Visit of Mr. M. Keramot Ali Khan and Mr. M.H. Shakib from M/s. Basic Power Engineering Ltd., Bangladesh

6. Mr. Pratap Baral, Electrical Engineer from Nepal Electricity Authority and Mr. Vijay Kumar Choudhary, authorized representative from M/s. Wolong Electric Yinchuan Co. Pvt. Ltd., China visited STDS, Bhopal for witnessing of Lightning Impulse Voltage Withstand Test conducted on 20/24 MVA, 33/11kV Power Transformer, on 24th & 25th May 2024.

Visit of Mr. Pratap Baral, Electrical Engineer from Nepal Electricity Authority and Mr. Vijay Kumar Choudhary, authorized representative from M/s. Wolong Electric Yinchuan Co. Pvt. Ltd., China

7. Mr. Fabio Milesi, Project & Documentation Officer, M/s. ABB, Italy visited STDS, Bhopal for witnessing Test Sequence-II, III on 80A - 250A, 415V, FP MCCB & combined test sequence II & III on 125A - 250A, FP MCCB for M/s. ABB India Pvt. Ltd., Bengaluru on 30th & 31st July 2024.

8. Engr. M. M. Hassan Mamoon, Managing Director, M/s. Powermann Bangladesh Ltd., Bangladesh visited STDS, Bhopal for witnessing Routine test on 2500 kVA, 11/0.415 kV, Three Phase, Cast Resin Dry Type Distribution Transformer, on 18th & 19th November 2024.

9. Mr. Sachin Sharma & Mr. Tek Paneru from M/s. Raghuganga Hydropower Ltd., Nepal visited STDS, Bhopal for witnessing Short circuit withstand strength test on 26MVA, 220/11kV, Transformer for M/s. BHEL, Jhansi, on 27th & 28th March 2025.

Mr. Sachin Sharma from M/s. Raghuganga Hydropower Ltd., Nepal

Mr. Tek Paneru from M/s. Raghuganga Hydropower Ltd., Nepal

10. Mr. Manojkumar Shankhwar from M/s. Reverie Power & Automation Engineering Ltd., Bangladesh visited STDS, Bhopal for witnessing of Impulse Voltage withstand test on 315kVA, 11/0.415kV, Three Phase Distribution Transformer, on 05th December 2024.

11. Mr. Roberto Amboni & Mr. Carlo Ghisalberti from M/s. ABB, Italy visited STDS, Bhopal for witnessing of tests on Breakers for M/s. ABB India Pvt. Ltd., Bengaluru, from 11th November 2024 to 10th December 2024.

Visit of Mr. Roberto Amboni & Mr. Carlo Ghisalberti from M/s. ABB, Italy

12. Mr. Andrea & Mr. Filippo from M/s. ABB, Italy visited STDS, Bhopal for witnessing of tests on Breakers for M/s. ABB India Pvt. Ltd., Bengaluru from 09th to 25th December 2025.

Visit of Mr. Andrea & Mr. Filippo from M/s. ABB, Italy

13. Mr. Mauro Gamba from M/s. ABB, Italy visited STDS, Bhopal for witnessing of tests on Breakers for M/s. ABB India Pvt. Ltd., Bengaluru from 20th January 2025 to 05th February 2025.

Visit of Mr. Mauro Gamba from M/s. ABB, Italy

G. Ultra High Voltage Research Laboratory (UHVRL)

1. Mr. Sevigny Richard, Test Specialist from M/s. Hydro Quebec, Canada visited UHVRL, Hyderabad for witnessing of tests on 765 kV, 4000 A Current Transformer for M/s. Hitachi Energy India Ltd., Vadodara from 22nd to 26th April 2024.

Visit of Mr. Sevigny Richard, Test Specialist from M/s. Hydro Quebec, Canada

2. Mr. Kiryukhin Pavel, Lavrov Evgenii and Mikoyan Ivan from M/s. Massa Izolyator, Russia, visited UHVRL, Hyderabad for discussion regarding testing of 145 kV & 245 kV, RIP Bushing of M/s. Massa Izolyator Mehru Pvt. Ltd., Haryana, on 16th May 2024.

Visit of Mr. Kiryukhin Pavel, Lavrov Evgenii and Mikoyan Ivan from M/s. Massa Izolyator, Russia

3. Ms. Lavrov Noor Hidayath Binti Mustafa Kamal from M/s. Hitachi Energy, Malaysia visited UHVRL, Hyderabad for witnessing of type testing of 420 kV, 4800 pF CVT for M/s. Hitachi Energy, Vadodara, Gujarat from 02nd to 13th September 2024.

Visit of Ms. Lavrov Noor Hidayath Binti Mustafa Kamal from M/s. Hitachi Energy, Malaysia

4. Mr. Belhaj Seghaier & Mr. Laribi Wissem from M/s. STEG, Tunisia, visited UHVRL, Hyderabad for witnessing of tests on 400 kV & 225 kV insulator strings of M/s. Olectra Greentech Ltd., from 17th to 21st February 2025.

Visit of Mr. Belhaj Seghaier & Mr. Laribi Wissem from M/s. STEG, Tunisia

5. Mr. Papadopoulos Kouklakis Georgios from M/s. IPTO, Greece, visited UHVRL, Hyderabad for witnessing of tests on 400 kV & 150 kV insulator strings, 400 kV & 150 kV Accessories of M/s. IAC Electricals Pvt. Ltd., Kolkata from 26th to 28th March 2025.

Visit of Mr. Papadopoulos Kouklakis Georgios from M/s. IPTO, Greece

6.4 Participation in Conferences / Exhibitions

1. EL Asia 2024 Exhibition, Bengaluru

CPRI participated in EL Asia Exhibition organized by M/s. Triune Exhibitors, Bengaluru during 24th to 26th May 2024 at Bangalore International Exhibition Centre (BIEC), Bengaluru. Shri R. Sudhir Kumar, Additional Director, CPRI was the Chief Guest of the event who inaugurated the exhibition on 24th May 2024. CPRI displayed its test facilities in the exhibition.

Inauguration by Shri R. Sudhir Kumar, Additional Director, CPRI, Bengaluru

Visitors to the CPRI Stall

2. 12th International Conference on Power Cables - CABLETECH 2024

Cables & Diagnostic Division (CDD), CPRI, Bengaluru organised the 12th International Conference on Power Cables - CABLETECH 2024 during 13th to 14th June 2024 at CPRI, Bengaluru. Shri B. A. Sawale, Director General, CPRI inaugurated the exhibition on 13th June 2024. CPRI's test facilities and other activities were highlighted during the exhibition. The conference delegates from various organizations, utilities and manufacturers visited CPRI stall. Photographs are placed below:

DG CPRI with Senior Officials at CPRI Stall

3. Global Investors Summit:

CPRI participated by putting its stall at the 8th Edition of biennial Global Investors Summit-2025 organized by the Govt. of Madhya Pradesh in Bhopal on 24th & 25th February 2025.The event was inaugurated by Hon'ble Prime Minister, Shri Narendra Modi. CPRI stall was inaugurated by Smt. Sumbul Munshi Additional Director - Unit Head, STDS-Bhopal.

Smt. Sumbul Munshi Additional Director - Unit Head, STDS, CPRI-Bhopal inaugurating CPRI Stall

Hon'ble Minister Shri Gautam Tejwal, Ministry of Skill Development visited CPRI stall

4. ELECRAMA 2025:

CPRI participated in the ELECRAMA Exhibition organised by IEEMA at India Expo Mart, Greater Noida during 22nd to 26th February 2025. Honourable Minister for Power, Shri Manohar Lal Khattar, was the Chief Guest for the event and inaugurated the Exhibition on 22nd February 2025.

Ministry of Power had arranged Power Pavilion for the participation of CPSEs. Hon'ble Union Minister for Power inaugurated the Power Pavilion. CPRI showcased its test facilities & credentials by way of digital posters.

DG CPRI visited ELECRAMA 2025

5. GRIDCON 2025:

CPRI participated in the GRIDCON 2025 Exhibition, organized by Power Grid Corporation of India (PGCIL) during 09th to 11th March 2025 at Yashobhoomi, Dwaraka, New Delhi. Hon'ble Union Minister of Power and Housing & Urban Affairs, Shri Manohar Lal Khattar inaugurated the International Conference cum Exhibition on 09th March 2025 at IICC, Yashobhoomi, Dwarka, New Delhi in the august presence of Hon'ble Union Minster of State for Power and New & Renewable Energy, Shri Shripad Yesso Naik.

CPRI showcased its credentials in terms of test facilities and other activities in its stall. The event provided an excellent opportunity to CPRI to highlight Testing and Certification, R&D, Consultancy, Field Activities, Third-Party Inspection and other capabilities.

Painting Competition on Energy Conservation

The State Level Painting Competition 2024 on Energy Conservation was held at CPRI, Bengaluru on 22nd November 2024. The competition was well attended by both Group A and B participants with a participation of 48 students in Group A and 50 students in Group-B. The prize distribution ceremony was held at S J Auditorium, CPRI, Bengaluru. Prizes were distributed to the winners of both A & B Category.

Painting Competition Winners - Category A

Painting Competition Winners - Category B

SECTION - 7

CONFERENCES / SEMINARS/ WORKSHOPS / WEBINARS/ SPECIALISED TRAINING PROGRAMMES

7. TRAINING ACTIVITIES & PROGRAMMES

The phenomenal growth in the Indian Power Sector over past few years has magnified the need for absorption of latest technology in all the three spheres of Power Sector activity viz. Generation, Transmission and Distribution. Coupled with this is the paucity of trained technical personnel and or skilled manpower.

Recognizing this need of the Indian Power Sector, CPRI has been in the forefront amongst many Training Institutes to disseminate the knowledge, assimilated by way of in-house research, through technical training programmes organized for:

- Upgrading the working skills of the Power Sector employees
- Training of personnel from Utilities/ Industries/ Clientele from Companies in the Power Sector in relevant skill for their day to day activities.

Constant efforts are being put up by CPRI in training and continuing education schemes, from basic theoretical knowledge to practical hands-on training in electrical systems. Training Programmes and Courses conducted by CPRI are well designed and have made substantial impact on the confidence level of the engineers actually working on the systems, by way of changing their thought process while working. The training modules are so designed to comprehensively address the specific need of the Power Sector Utilities and have benefitted large number of employees from Indian Electrical Equipment Manufacturers, Generation, Transmission and Distribution Companies for the past several years. The training courses help the technical personnel / engineers by upgrading their occupational skills and improve their performance. This has led to the overall improvement in the efficiency in performance and competitiveness of the Indian Electrical Industry as a whole.

7.1 Conferences/ Seminars/ Workshops/ Webinars/ Specialized Training Programmes organised by CPRI during the year 2024-25 (Total Nos. – 61)

Sl. No	CONFERENCES / SEMINARS/ WORKSHOPS / WEBINARS/ SPECIALISED TRAINING PROGRAMMES
1.	Workshop on "Clean Energy Innovations: Hydrogen Fuel Cell for a Sustainable Future" held at CPRI, Bengaluru on 30th & 31st May 2024.
2.	Three days Residential Induction Training Programme for M/s. PGCIL, Bengaluru from 29th April 2024 to 01st May 2024.
3.	Five days Residential Training Programme for M/s. NLCIL, Neyveli Tamil Nadu from 10th to 14th June 2024
4.	Twenty-one days Residential Training Programme for M/s. WBSETCL, from 08th to 18th July 2024 and 22nd to 31st July 2024.
5.	Residential Induction Training Programme for M/s. PGCIL, Bengaluru from 12th to 16th November 2024.
6.	Two days Awareness Workshop on EEQCO-2024 (Electrical Equipment Quality Control Order) for Low Voltage Switchgear, Jointly organized by Business Development & Capacity Building Division (BD&CBD), CPRI, Bengaluru and IEEMA on 21st & 22nd January 2025.
7.	Training Program on "Condition Based EHV Switchgear Asset Management in Power Stations – at site" for Engineers & Technical Staffs of M/s. THDC India Ltd., Koteshwar Power House (KHEP), Koteshwar, Uttarakhand, on 25th June 2024.
8.	Training Program on "On-line Diagnosis Transformers"– at site for Senior Officials, Engineers & Technical Staffs of M/s. Tehri Hydro Development Corporation (THDC) - HEP, Tehri, Uttarkhand held on 28th October 2024.

Sl. No	CONFERENCES / SEMINARS/ WORKSHOPS / WEBINARS/ SPECIALISED TRAINING PROGRAMMES
9.	12th International Conference on Power Cables CABLETECH 2024 held on 13th & 14th June 2024.
10.	Training program on "Condition monitoring tests on in service transformers" for the officials of M/s. NALCO held on 14th November 2024.
11.	On Site training programme on "Diagnostic Testing and Condition Assessment of Hydro/Turbo Generators" for M/s. NHPC, Uri-2 Power Station, held on 21st January 2025.
12.	On Site training programme on "Diagnostic Testing and Condition Assessment of Power Transformers In-Service" for M/s. NHPC, Uri-2 Power Station held on 21st January 2025.
13.	Training programme on "Aspects of maintenance of transformer by oil analysis" for the engineers of M/s. GTPS, Gujarat, held at GTPS, Gandhinagar on 16th July 2024.
14.	One-day Workshop on "Importance of Transformer Oil Analysis" held at Harduaganj Thermal Power Station, UPRVUNL on 05th March 2025.
15.	Workshop on "Condition Assessment of Transformer Oil" and "Management Service for the Treatment of Transformer Mineral Oil Containing PCBs Using the Mobile De-Chlorination System" held at Obra Thermal Power Plant, on 13th March 2025.
16.	Workshop on "Condition Monitoring of Transformers by DGA and Furan and Degree of Polymerization" and "Standards procedure for testing of transformer oil" held at Anpara Thermal Power Station, UPRVUNL, on 18th March 2025.
17.	Webinar on "Standard and testing equipments for Safety test of Lithium ion Batteries and cells" held on 19th September 2024.
18.	One-day workshop on "Need of Ingress Protection Testing for enclosures, test standard and Procedure" held on 12th December 2024.
19.	One-day Workshop on "Battery and BESS & Development of standards for Energy Storage Technologies", held on 07th February 2025.
20.	Two Days Onsite Training Program on "Solar Inverters and Applicable Standards" for M/s. Havells India Limited, Centre for Research and Innovation, Bengaluru, held on 30th & 31st May 2024.
21.	Training Program on "Ancillary Power Consumption Audit" at Koradi Thermal Power Station, MSPGCL, Maharashtra, held on 11th July 2024.
22.	Training program on "Quality Assurance in PV module Manufacturing" as part of Indo-German Cooperation Project on Strengthening Quality Infrastructure for the Solar Industry, held from 27th to 31st January 2025.
23.	Webinar on "Vibration & Seismic testing of Equipment" for M/s. Reliance Infrastructures Ltd, Mumbai, held on 20th January 2025.
24.	Webinar on "Transformer Evolution: Sustainability" held on 21st June 2024.
25.	Webinar on "Requirements of Design Validation on Switchgear" held on 28th June 2024.
26.	Webinar on "Metal-clad switchgear: Grid Applications and Challenges, held on 12th July 2024.
27.	Workshop on "Impulse Testing of High Voltage Equipment", held on 31st January 2025.
28.	Webinar on "Impulse Testing of Surge Arrester", held on 20th February 2025.
29.	Webinar on "OT Cybersecurity in Thermal Power Station, held on 31st July 2024.
30.	Webinar on "Cybersecurity issues in Smart Meters and Advanced Metering Infrastructure", held on 27th February 2025.

Sl. No	CONFERENCES / SEMINARS/ WORKSHOPS / WEBINARS/ SPECIALISED TRAINING PROGRAMMES
31.	Webinar on "Calibration of Reference Standard Meters and Uncertainty Analysis" held on 17th March 2025.
32.	Webinar on "Smart Meter Testing and Failure Analysis: Insight for the Indian Market" held on 18th March 2025.
33.	Webinar on "Emerging trends in Communication Technologies for Smart Meters" held on 28th March 2025.
34.	Workshop on "Power System Protection" for Engineers of Chhabra Thermal Power Plant, Rajasthan, held on 03rd June 2024.
35.	Workshop on "Testing of Generator numerical relay" for the Engineers of M/s. NHPC, Parbati-II held on 02nd September 2024.
36.	Workshop on "Testing of Transformer numerical relay" for the Engineers of M/s. NHPC, Parbati-II, held on 13th September 2024.
37.	Workshop on "Testing of Line numerical relay" for the Engineers of M/s. NHPC, Parbati-II, held on 20th September 2024.
38.	Workshop on "Generator Protection" for Engineers of M/s. IOCL, held on 17th March 2025.
39.	Workshop on "Substation Protection" for Engineers of M/s. IOCL, held on 18th March 2025.
40.	Workshop on "Testing of Numerical IED's" for Engineers of M/s. IOCL, on 19th March 2025.
41.	Webinar on "Testing and Assessment of Distribution Equipment and Accessories of Power Systems" held on 24th March 2025.
42.	Webinar on "Latest Trends in Transformer Technology, Testing and Analysis" held on 13th September 2024.
43.	Webinar on "Testing of Instrument Transformers as per Latest Standards" on 24th January 2025.
44.	Webinar on "Temperature Rise Test Requirement for HT Switchgear & Controlgear Equipment", held on 14th February 2025.
45.	Webinar on "Trends in Advanced Metering Infrastructure (AMI) System and Technologies" held on 27th June 2024.
46.	Webinar on "Latest Trend in Cyber Security in Power sector" held on 08th August 2024.
47.	Webinar on "Trends in IEC 61850 Technologies and Conformance Testing" held on 26th September 2024.
48.	Webinar on "Recent technologies, standardization and testing of AMI system" held on 05th December 2024.
49.	Webinar on "Latest IEC 61869:2023- Key Changes, Interpretations & Test Methodologies of Instrument transformers" held on 31st July 2024.
50.	Webinar on "Challenges in Design and Testing of LT & HT Switchgear considering Modern Practices in Distribution and Transmission System as per National and International Standards" held on 14th October 2024.
51.	Webinar on "Smart Metering Applications beyond Billing" held on 25th October 2024.
52.	Webinar on "Application of Conformance test and Protocol testing in AMI System" held on 17th December 2024.

Sl. No	CONFERENCES / SEMINARS/ WORKSHOPS / WEBINARS/ SPECIALISED TRAINING PROGRAMMES
53.	Webinar on "Best Practices in Design, Testing and Maintenance of Transformer for Conventional and Non-Conventional Energy Sources" held on 06th December 2024.
54.	Webinar on "Navigating the latest Test Requirements for MCB, RCCB & RCBO: IS & IEC Standards" held on 18th December 2024.
55.	Webinar on " Significance of dielectric oil testing in preventive maintenance of transformer" held on 16th December 2024.
56.	Webinar on "Testing and Evaluation of HT & LT Electrical Equipments", held on 24th January 2025.
57.	Webinar on "Calibration Technique for Electro-Technical, CT/PT & Thermal Instruments" held on 21st February 2025.
58.	Webinar on "Routine Testing of Mineral based new oil & service oil as per IEC standards" held on 21st March 2025.
59.	Webinar on "Preventive Maintenance of Transformers through Transformer Oil Testing" held on 24th January 2025.
60.	Webinar on "Testing of Static/Smart Meters as per Indian and International Standards" held on 31st January 2025.
61.	Webinar on "High Voltage Testing Techniques of UHV/EHV Equipment" held on 14th March 2025.

SECTION - 8

ADMINISTRATIVE MATTERS

8. ADMINISTRATIVE MATTERS

8.1 Governance

A. The following distinguished persons have joined the Governing Council and the Society of CPRI as members in 2024-25:

1. Shri Srikant Nagulapalli, IAS, Additional Secretary, MoP
2. Shri Piyush Singh, IAS, Additional Secretary, MoP
3. Shri Mahabir Prasad, IRAS, Joint Secretary & Financial Adviser, MoP
4. Shri Amardeep Singh Bhatia, Secretary, Department for Promotion of Industry and Internal Trade (DPIIT)
5. Shri Prashant Kumar Singh, Secretary, Ministry of New and Renewable Energy (MNRE)
6. Shri Sunil Singhvi, President, IEEMA
7. Shri A. Sreenivas, Managing Director, Dakshin Haryana Bijli Vitran Nigam (DHVBN)
8. Shri Devendra Jalihal, Director, IIT Guwahati

B. The following distinguished persons joined the Standing Committee of CPRI as Members in 2024-25:

1. Shri Srikant Nagulapalli, IAS, Additional Secretary, MoP
2. Shri Piyush Singh, IAS, Additional Secretary, MoP
3. Shri Mahabir Prasad, IRAS, Joint Secretary & Financial Adviser, MoP

C. Details of Governing Council & the Standing Committee meetings of CPRI held during the year 2024-25:

1. 93rd GC & 47th Annual General Meeting held on 19th November 2024.
2. 89th Meeting of CPRI Standing Committee held on 13th November 2024.

8.2 Important Events

1. 133rd Birth Anniversary of Bharat Ratna Dr. B. R. Ambedkar was celebrated by CPRI, Bengaluru on 15th April 2024.
2. The fourth meeting of the Technical Scoping Committee of National Mission on Advanced and High Impact Research (MAHIR) was held under the chairmanship of Chairperson, CEA, through video conferencing mode on 11th April 2024.
3. The eleventh meeting of the Sub-Group-1 under National Mission on use of Biomass in coal fired Thermal Power Plants (SAMARTH) was held at NTPC-NETRA, Greater Noida on 12th & 13th August 2024.
4. The seventh meeting of the Steering Committee for National Mission on use of Biomass in coal based thermal power plants was held under the chairmanship of Secretary, Ministry of Power at New Delhi on 20th September 2024.
5. The First meeting of Sub-Committee for scrutiny of proposals under MAHIR was held through Video Conference mode, on 21st October 2024.
6. The Eighth Executive Committee meeting of National Mission on use of Biomass in Thermal Power Plants (SAMARTH) was held under the chairmanship of Member-Thermal, CEA, through video-conferencing mode, on 02nd December 2024.

7. Inauguration of 40kA Temperature Rise Test Facility at CPRI, Bengaluru

Shri Srikant Nagulapalli, IAS, Additional Secretary, Ministry of Power inaugurated the 40kA Temperature Rise Test Facility at CPRI, Bengaluru in the presence of Shri B. A. Sawale, Director General and senior officers of CPRI on 16th January 2025.

This facility will cater to testing needs of Manufacturers of Switchgear and allied equipment.

Inauguration of 40kA Temperature Rise Test Facility

8. Inauguration of Dynamic Laboratory at CPRI, Bengaluru

Shri Srikant Nagulapalli, IAS, Additional Secretary, Ministry of Power inaugurated the Dynamic Laboratory at CPRI, Bengaluru in the presence of Shri B. A. Sawale, Director General and senior officers of CPRI on 16th January 2025. This laboratory will cater to Seismic, Vibration and shock testing of Power equipment.

View of the inaugurated Dynamic Laboratory

8.3 Meeting of Technical Committees of Research

1. Meeting of the Technical Committee on Thermal Research was held on 08th May 2024, 10th September 2024, 03rd December 2024 & 20th February 2025.
2. Meeting of the Technical Committee on Hydro Research was held on 08th July 2024 & 21st January 2025.
3. Meeting of the Technical Committee on Transmission Research was held on 29th May 2024, 06th December 2024 & 15th January 2025.
4. Meeting of the Technical Committee on Grid, Distribution and Energy Conservation Research was held on 25th & 26th June 2024, 18th July 2024, 20th January 2025, 07th & 17th February 2025.
5. The Meeting of the Standing Committee on Research & Development (SCRD) was held under the Chairmanship of Chairperson, CEA, on 19th December 2024 & 25th February 2025.

8.4 Signing of MoUs

1. CPRI and MANIT Bhopal inked a Memorandum of Understanding for research and academic collaboration, on 06th June 2024. The MoU signing Ceremony was held in CPRI, Bhopal Campus in the presence of Director General - CPRI, Director - MANIT Bhopal and senior faculty members/ officials from MANIT, Bhopal and CPRI.

Signing of MoU between CPRI and MANIT Bhopal

2. CPRI and MPIDCL signed an agreement for Establishment of Common Test Facilities at Manufacturing Zone, Narmadapuram, Madhya Pradesh, on 07th June 2024.

Signing of Agreement between CPRI and MPIDCL

3. A Memorandum of Understanding (MoU) was signed between Ministry of Power & Central Power Research Institute on the key performance parameters proposed for the financial year 2024-25, on 13th September 2024.

4. CPRI and BHEL signed an MOU for collaborative Research and Development works of mutual interest on 28th November 2024 at CPRI, Bangalore in the presence of Shri Jai Prakash Srivastava, Director (E R&D), BHEL and Shri B.A Sawale, Director General, CPRI along with senior officials from both the organisations. Shri Rajesh Kohli, Chairman & Managing Director, HMT graced the occasion.

Signing of MoU between CPRI and BHEL

5. CPRI signed an MoU for research collaboration with KPCL, on 18th December 2024 at KPCL Office, Bangalore.

Signing of MoU between CPRI and KPCL

8.5 Activities Related to Women Employees

The Women's Cell looks after:

1. Welfare of the women employees of the organization
2. Addresses the issues/ grievances concerning women employees and facilitates redressal of the same
3. Manages the Creche in CPRI colony and provides necessary guidelines for its smooth functioning

The internal complaints committee of Women's cell investigates reported cases of sexual harassment of women in CPRI and submits its report to the disciplinary authority by recommending action to be taken against the accused employees. This is carried out as per the CPRI's Internal Policy for Prevention, Prohibition and Redressal of Sexual Harassment of Women at Workplace. The women's cell also looks into any other complaints by Women employees in workplace. The committee consists of five members from CPRI and one external member.

The crèche at CPRI is open for employee's kids and is housed in CPRI colony. It is managed by women's cell with support of CPRI management and with two caretakers. Felicitations were arranged by the Women's cell to superannuating women of the institute during the year.

International Women's Day was celebrated on 07th March 2025 at CPRI. An interactive session with Ms. Nalini Nagraj, Head of POSH operations, Silver Oak Health on "Empowering Women with Responsibility" was conducted for women employees and women staff of CPRI, Bengaluru.

Some of the photographs of the function are given below:

Statement indicating total number of employees in the Institute and number of women in each category as on 31st March 2025

Sl. No.	Post(s)	No. of employees	No. of women employees	Percentage of women employees
1	Director General	1	-	-
2	Director	1	-	-
3	Additional Director	15	3	20.00
4	Joint Director	37	8	21.62
5	Chief Accounts Officer	-	-	-
6	Chief Administrative Officer	1	-	-
7	Scientists/Engg Officers	114	13	11.40
8	Scientists/Engg Assistants	65	3	4.62
9	Non-Tech Officers	11	4	36.36
10	Office Staff/Stenographer	56	24	42.86
11	Library staff	1	1	100.00
12	Technicians	79	-	-
13	Technical Attendant/Attendant	38	3	7.89
14	Drivers/Cook-cum-care taker	5	-	-
15	Multi-Tasking Staff	21	3	14.29
	Total	**445**	**62**	**13.93**

Staff Strength of the Institute as on 31st March 2025

Sl. No.	Posts	No. of employees
1	Director General	1
2	Director	1
3	Additional Director	15
4	Joint Director	37
5	Chief Accounts Officer	-
6	Chief Administrative Officer	1
7	Scientific/Engg. Category	179
8	Technicians	79
9	Administrative & Supporting Staff	94
10	Supporting Technical Staff	38
	Total	**445**

8.6 Vigilance Activities

1. The Institute observed "Vigilance Awareness Week 2024" during 28th October 2024 to 02nd November 2024. The activities commenced with administering "Integrity Pledge" on 28th October 2024.
2. Background of the theme "Culture of Integrity for Nation's Prosperity; "सत्यनिष्ठा की संस्कृति से राष्ट्र की समृद्धि" of Vigilance Awareness week -2024 was displayed on the web page of CPRI.
3. Hyperlink for Integrity Pledge was provided in CPRI website to enable the newly recruited employees to take e-pledge.
4. Several competitions were organized by the Institute to the students of KV Hebbal School, Bengaluru to create awareness among the students on the theme and Cash prizes along with certificates were distributed to the winners of the competitions.
5. Essay competition was conducted for the employees of the Institute at Head Office & Units and cash prizes were distributed to the winners.
6. On 04th November 2024, Dr. Chetan Singh Rathore, IPS & Dy. Inspector General of Police (DIG) Recruitment in Karnataka was invited as Chief Guest to address the employees on the subject. The Chief Guest addressed the gathering, emphasizing the importance of transparency, integrity and accountability in public administration.
7. The Ministry of Power has assigned Shri Santhosh Kumar, IFS, Chief Vigilance Officer, NHPC Ltd. with additional charge of CVO of CPRI w.e.f. 18th November 2024.

8.7 Vigilance Cases

Nil

8.8 Information on Right to Information Act

CPRI has Right to Information (RTI) cell to respond RTI applications and the RTI cell consists of CPIO, APIO & Appellate Authority under the Ministry of Power. The nominated RTI cell office bearer during 2024-25 are Shri Ramjeet Singh, Additional Director as Appellate Authority, Dr. Amit Jain, Additional Director as Central Public Information Officer and Shri Pradish M, Joint Director as Nodal Officer & Central Assistant Public Information Officer.

The suo moto disclosure of the organization information is uploaded in website of CPRI (www.cpri.res.in) under the RTI act 2005, section 4 with all the details of staff, organization and updated on daily, monthly and quarterly basis.

The data on number of applications received and applications disposed during the year 2024-2025 i.e., from 01.04.2024 to 31.03.2025 is given below:

No. of Applications received	Total Directly received applications	Applications forwarded by MoP	Applications forwarded by other PA's	Applications transferred to other PA's	Applications Rejected under the various clauses of section-8 RTI
52	43	3	6	2	4

All the RTI applications responded by RTI cell is within the specified period.

8.9 Liaison Officer for SC/ST & PWD & OBC Welfare Activities

Activities relating to Liaison Officer SC/ST & PWD & OBC Welfare Activities:

Shri Gurudev T, Joint Director and Shri T Mallikharjuna Rao, Additional Director, CPRI, Bengaluru served as Liaison Officers for SC/ST & PWD and OBC categories respectively during the year 2024-25. Reservation registers and Roster registers were updated for the year 2024-25.

Representation of Scheduled Caste, Scheduled Tribe & OBC as on 31st March 2025:

Group	Total	SC	ST	OBC	Others
A	170	40	17	41	72
B	154	22	17	45	70
C	100	13	11	32	44
MTS	21	9	3	2	7
Total	445	84	48	120	193
Percentage	-	**18.88**	**10.79**	**26.97**	**43.37**

Representation of Physically Challenged Employees as on 31st March 2024

Sl. No.	Post(s)	No. of employees	No. of physically challenged employees	Percentage of physically challenged employees
1	Director General	1	-	-
2	Director	1	-	-
3	Additional Director	15	-	-
4	Joint Director	37	-	-
5	Chief Accounts Officer	-	-	-
6	Chief Administrative Officer	1	-	-
7	Scientists/Engg Officers	114	3	2.63
8	Scientists/Engg Assistants	65	3	4.62
9	Non-Tech Officers	11	-	-
10	Office Staff/Stenographer	56	3	5.36
11	Library staff	1	-	-
12	Technicians	79	-	-
13	Technical Attendant/Attendant	38	4	10.53
14	Drivers/Cook-cum-care taker	5	-	-
15	Multi-Tasking Staff	21	-	-
		445	13	2.92

8.10 Public & Staff Grievance Cell

Central Power Research Institute has a separate cell for redressing the staff and public grievances. The Grievance Redressal Mechanism is a part and parcel of the machinery of CPRI Administration. The role of Public and Staff Grievance Cell is primarily to assist the management in redressing the Staff and Public grievance petitions. The grievance received by the Cell are forwarded to the concerned Section/Division who are dealing with substantive function linked with the grievance for redressal under intimation to the complainant. The complaints are either received in person, by post, Fax, e-media or through online CPGRAMS portal. CPRI web portal has direct link to CPGRAMS portal www.CPGRAMS.IN. The CPGRAMS offers to the staff and public the facility of lodging online grievances, on-line reminders and online view of current status of the grievances. The guideline indeed is that CPRI deals with every grievance in a fair, objective and just manner. The monitoring of grievances received and disposed of by CPRI under Public & Staff Grievances Cell is on a regular basis.

During the year 2024-25, CPRI has redressed 9 grievance petitions from online grievance portal. No other grievances received from other means (through letter, email, fax, RTI etc.). Grievance petitions received from the ex-employees and general public on matters related to pension, recruitment and new innovative ideas under Research & Developments. Suggestions, comments made by the general public have been appreciated and replied.

Summary of online grievances received and disposed:

Grievance Source	Brought Forward	Receipt During Period	Total Receipts	Grievances Disposed During Period	Closing Balance	Yet to Assess	At our Office	With Subordinate
DARPG	0	0	0	0	0	0	0	0
Direct from complainant	0	6	6	6	0	1	0	0
President Secretariat	0	1	1	1	0	0	0	0
Pension	0	1	1	1	0	0	0	0
PMO	0	1	1	1	0	0	0	0
Total	0	9	9	9	0	1	0	0

8.11 CPRI Library and Information Centre, Bengaluru

The Library and Information Centre is a specialized facility dedicated to serving the needs of Electrical and Power Engineering. It is located in the centre of the campus with a floor area of 720.10 square meters.

The Institute has a modern Library with a vast collection of over 29,535 text documents and 40,384 loose issues of journals. The library offers a diverse range of resources, including technical books, reports, standards, CD-ROMs, Hindi literature, fiction, audio-visual educational cassettes, journal issues and back volumes of journals.

To enhance accessibility and user experience, the Library provides Computer facilities with internet connectivity. Additionally, the Library offers a dedicated Wi-Fi facility for laptop users, while ensuring the security of premises with CCTV web cameras.

The KOHA Library Management System automates essential operations such as acquisition, circulation and cataloguing. The Library also features a Knowledge Management System portal for archiving digital documents and standards.

The Institute has established various amenities for the patrons of Library, including a Web Online Public Access Catalogue (Web OPAC) for effortless resource searching, a Knowledge Management portal, an e-resource browsing area, and a designated laptop zone equipped with Wi-Fi connectivity.

In the year 2024-25, the Library has expanded its collection with the addition of 123 documents, encompassing IEC, ASTM, BSI, ISO standards and other publications. The total number of Library cardholders is 147. In addition, users generously donated 38 books to the Library. The Library has subscribed to fourteen Indian and three International journals and newspapers in multiple languages including Hindi, English, Kannada and Employment Newspaper. Moreover, the Library has secured annual subscriptions to CIGRE Collective Membership, IEEE Xplore Digital Library (Enterprise Level 1), the World Energy Council and CBIP Life membership, the complete set of the Bureau of Indian Standards and a Grammarly Premium subscription to assist the users. This year, the Library has also subscribed to DELNET Membership.

CPRI now has access to the One Nation One Subscription (ONOS) resources. ONOS provides access to over 13,000 peer-reviewed full-text journals from 30 publishers, spanning diverse disciplines such as Science, engineering, medicine, social sciences, humanities, and natural sciences.

The Library and Information Centre is committed to continuously enhancing library services and resources to ensure that users always have access to the most up-to-date information in a conducive environment for research and learning.

SECTION - 9

FINANCE & ACCOUNTS

9. FINANCE & ACCOUNTS

Financial Performance of CPRI during the year 2024-25

A. The Institute has done well in its financial performance during the year 2024- 25 and earned revenue of Rs. 221.71 Crores

Revenue earnings during the past five years

Year	Revenue (Amount in Crores)
2024-2025	Rs. 221.71
2023-2024	Rs. 227.23
2022-2023	Rs. 179.26
2021-2022	Rs. 131.39
2020-2021	Rs. 149.39

During the year under report, as against the revenue billed of Rs. 22,171.29 lakhs, the expenditure on revenue activities stood at Rs.19,594.54 lakhs resulting in a surplus of Rs. 2,576.74 lakhs. For the 36th year in succession, the Institute has not drawn any Revenue Grant-in-Aid from the Government of India.

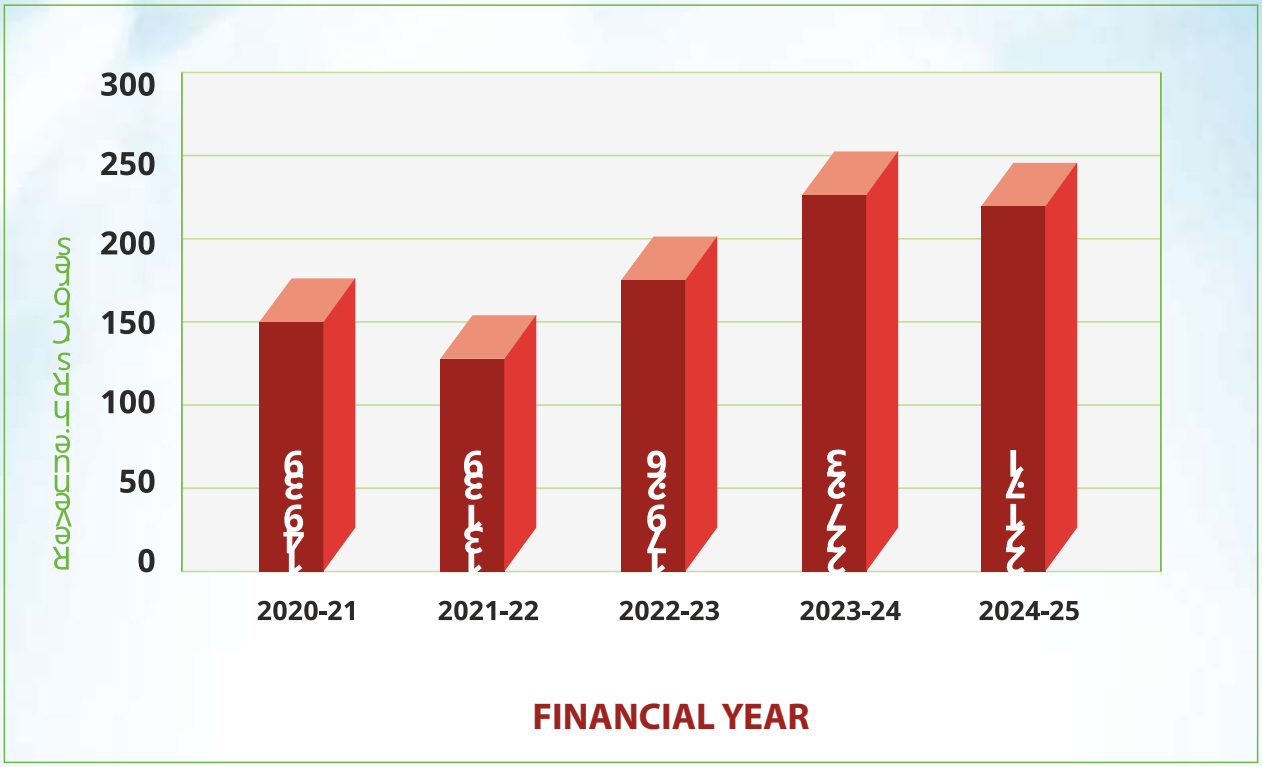
B. During the year 2024-25, the expenditure under various heads has been as follows:

Revenue	Rs. 19,594.54 lakhs
Plan Capital	Rs. 13,752.24 lakhs
R & D Schemes: IHRD	Rs. 107.82 lakhs
RSoP	Rs. 1,589.63 lakhs
NPP	Rs. 302.55 lakhs

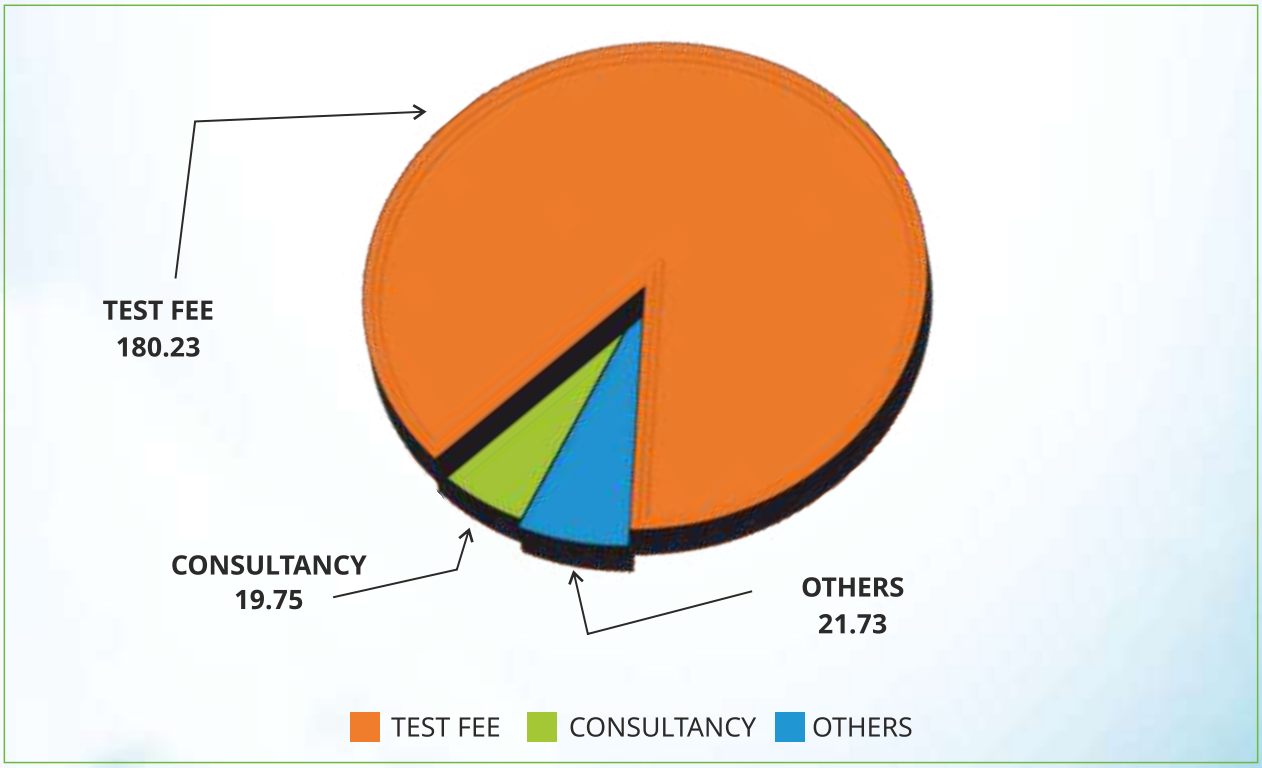
The Institute received grants-in-aid for Creation of Capital Assets of Rs. 23,300.00 lakhs from the Government of India during the year. The details along with Auditors Report are furnished in Appendix– 11.

As at the end of March 2025, the capital investment by the Government of India on the Institute has been Rs.1,61,277.81 lakhs.

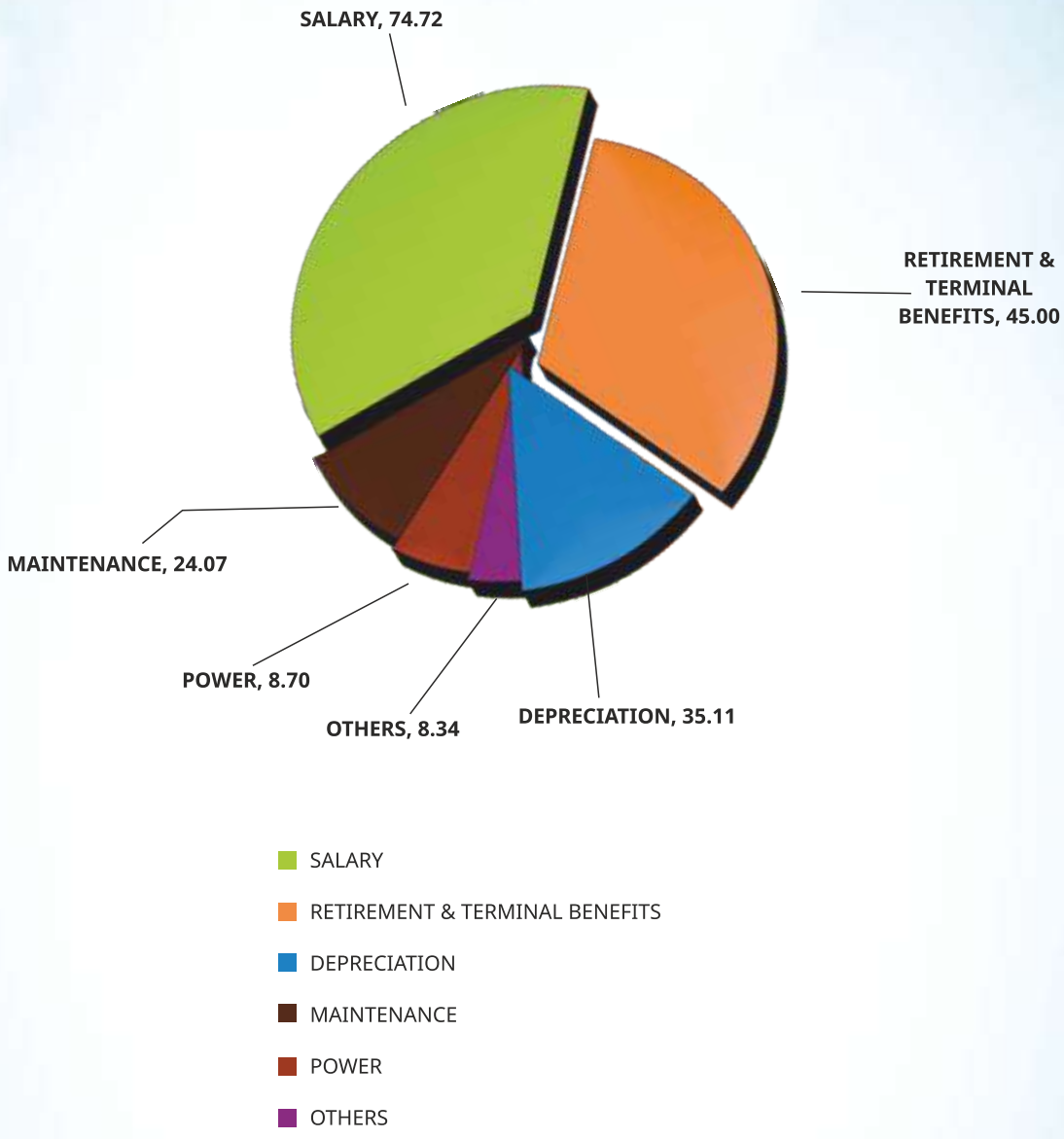
REVENUE EARNINGS DURING THE PAST FIVE YEARS (Rs. in Crores)

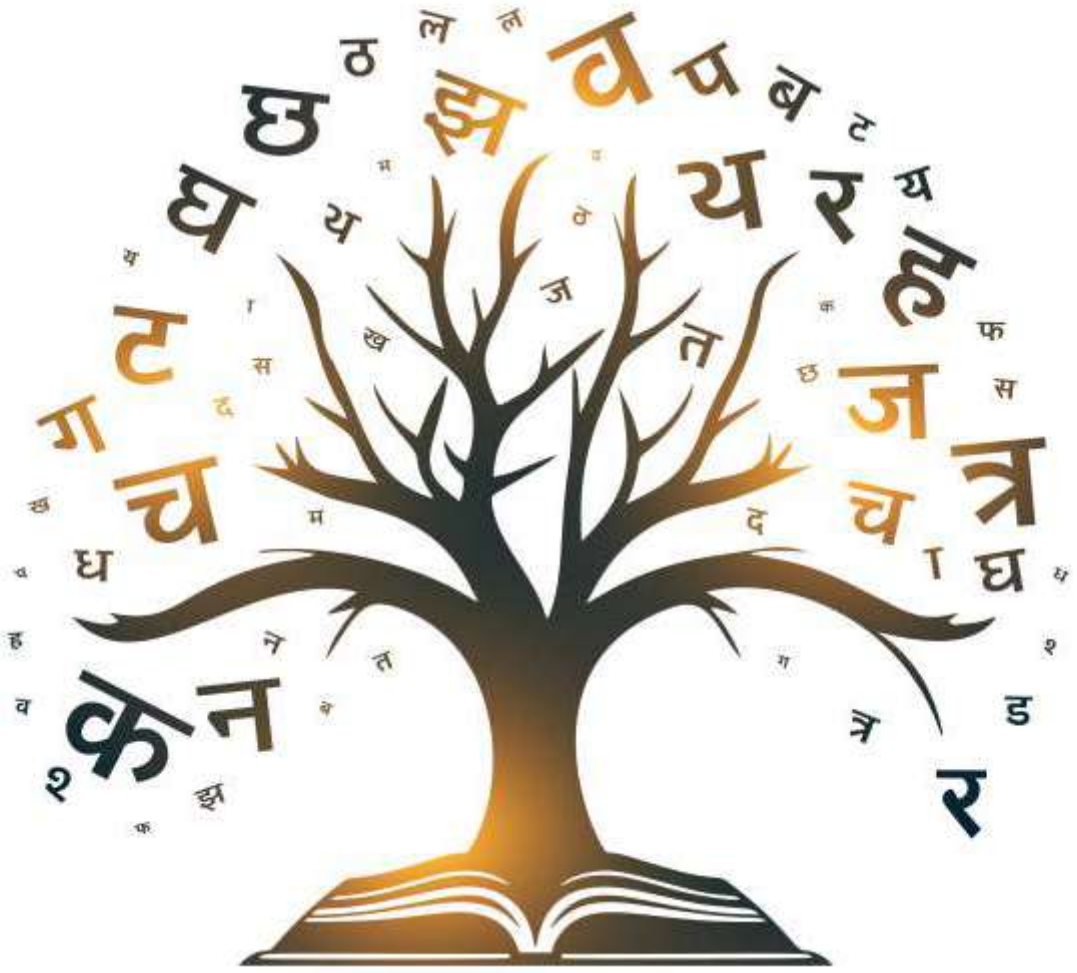


REVENUE DURING 2024-25 UNDER MAJOR HEADS (Rs. in Crores)



EXPENDITURE DURING 2024-25 UNDER MAJOR HEADS (Rs. in Crores)





SECTION - 10

ACTIVITIES IN OFFICIAL LANGUAGE : HINDI

10. ACTIVITIES IN OFFICIAL LANGUAGE: HINDI

Remarkable achievements of the Institute in the field of Official Language Implementation during the year 2024 – 25 are listed below:

10.1 Awards

A. TOLIC Rajbhasha Shield (First Prize)

Central Power Research Institute was awarded TOLIC Rajbhasha Shield – First prize for its exceptional achievements in implementing the Official Language during the year 2023-24, which was given by the Chairman, TOLIC during the second meeting of TOLIC held at the Office of the Chief Postmaster General, Bengaluru on 10th January 2025. The Institute was also honoured with a memento for organizing the "Kavi Sammelan" for the first time under the aegis of TOLIC, as well as for conducting an essay competition in Hindi for all Central Government offices in Bengaluru. The photograph is placed below:

B. Regional Official Language Award – First

CPRI, STDS - Bhopal was honored with the First Regional Official Language Award and a certificate. The Honorable Chief Minister presented the Official Language Shield to the Additional Director and Unit Head, Smt. Sumbul Munshi, while the certificate was awarded to Junior Hindi Translator, Smt. Vidya Raj.

C. CPRI, STDS - Bhopal received a Letter of Appreciation for the second time from the Regional Implementation Office, Department of Official Language, Ministry of Home Affairs in recognition of the successful publication of the in-house magazine STDS Darpan 2024 for its outstanding contents.

D. Kanthastha 2.0 Translation Contest

Shri B. Radhakrishnan, Administrative Officer and Smt. Vidya Raj, Junior Hindi Translator, STDS, Bhopal, were selected as winners in the Kanthasth 2.0 Translation Competition organized by the Department of Official Language, Ministry of Home Affairs, New Delhi, during April 2024.

10.2 Hindi Workshop

A. Workshop on "Kanthasth 2.0"

Under the aegis of TOLIC-2, a workshop on Kanthasth 2.0 was organised at GPO, Bangalore on 22nd May 2025. Senior Hindi Officer and the Hindi Assistant attended the workshop.

B. Kavi Sammelan

Under the guidance of the Town Official Language Implementation Committee (TOLIC), Kavi Sammelan was organized for the first time in the Institute on 19th June 2024. The event was held under the chairmanship of the Director General.

Around 30 Officers and Employees from various Central Govt. organizations participated in the event and expressed the creativity in Hindi language through their self-composed poems. The program commenced with the Member Secretary of TOLIC, Shri Sushil Kumar Goyal, presenting a commemorative Indian postage stamp to the Director General as a token of appreciation.

All poems presented during the event were commendable. Six outstanding compositions were selected for cash awards. Additionally, all participants were presented with mementos on behalf of the Institute. Shri Ramjeet Singh, Additional Director, CPRI, Bengaluru participated in the event and recited his self-composed poem titled "यथार्थ" (Reality), for which he was awarded Cash Prize.

C. Workshop on "Kanthasth and Various Translation tools based on AI"

An online workshop on "Kanthasth and Various Translation Tools based on AI" was organized on 11th December 2024. The speaker for the session was Dr. S. N. Mahesh, Assistant Director, CAIR, DRDO, who provided valuable insights into advancements in AI-powered translation technologies. The workshop link was made available to all Units of CPRI, enabling active participation from approximately 95 officers/staff from CPRI, Bengaluru and other Units.

D. Workshop on Seven Dimensions for Healthy and Balanced Life

An online workshop on "Seven Dimensions for a Healthy and Balanced Life" was organized on 27th February 2025. The speaker for the workshop was Dr. Wahida Moorthy, MBBS, DLO, Founder and CEO of SwasthyaNiketan – Integrated Healthcare and Research Foundation, Bengaluru. The link to this workshop was made available to Officers/staff of CPRI, Bengaluru and other Units. A majority of employees were benefitted from this Workshop.

10.3 Conferences

A. All India Official Language Conference

All India Official Language Conference was organized by the Ministry of Power under the chairmanship of the Hon'ble Minister of State for Power and New and Renewable Energy, Govt. of India and in the presence of Secretary, Power on 03rd August 2024 in Haryana. Shri B. A. Sawale, Director General, Shri Ramjeet Singh, Additional Director, Shri Manohar Singh Takkher, Joint Director, Shri Manoj Kumar Jaiswal, Joint Director, Smt. L.N. Vidya, Senior Hindi Officer and Smt. Vidya Raj, Junior Hindi Translator attended the Conference. Photographs are placed below:

B. Joint Hindi Day and Fourth All India Official Language Conference:

The Joint Hindi Day Celebration and the Fourth All India Official Language Conference were organized by the Department of Official Language, Ministry of Home Affairs at Bharat Mandapam, New Delhi, on 14th and 15th September 2024, under the chairmanship of the Hon'ble Union Home and Cooperation Minister, Shri Amit Shah. Representing the Institute, Shri Radha Krishna, Administrative Officer, Smt. Vidya Raj, Junior Hindi Translator and Shri Netram Meena, Engineering Officer participated in the Conference.

10.4 Training

1. The second batch comprising of 17 Engineering Officers was nominated for the Parangat classes and 3 employees were nominated for the Prabodh classes. The training classes commenced in January 2025.

10.5 Publications

A. Annual Report

The Annual Report of the institute for the year 2023-24 was published in bilingual.

B. CPRI News

Vidyut Anusandhan Samachar - The Quarterly magazine of CPRI was published in bilingual.

C. Table Calendar

A compiled Table Calendar was prepared and distributed to all senior officers to promote the effective use of Hindi in official work. This calendar includes the designations of Officers and Employees, along with commonly used administrative phrases and their English-Hindi equivalents to facilitate Hindi usage in day-to-day functioning.

In addition, information regarding the basic correspondence protocols to be followed with offices located in regions classified as A, B and C based on language requirements was provided. The calendar also includes details of the Annual Program of the Ministry of Home Affairs that includes the targets set for the progressive use of Hindi for necessary compliance.

D. STDS Darpan

25th edition of STDS Darpan, the prestigious in-house magazine of CPRI, STDS, Bhopal was successfully published.

10.6 Hindi Month & Hindi Divas

The Hindi Month was celebrated from 28th August 2024, marking a vibrant period dedicated to promote the Hindi language in the Institute. During this month, a variety of competitions were organized including Hindi Translation, Essay writing, News reading, Hindi song, Crossword Puzzles, Hindi Skit, Quiz and Antakshari. These activities were thoughtfully designed with different levels of difficulty to accommodate Officers and Employees based on their working knowledge and proficiency in Hindi. Winners of all competitions were honored with cash prizes and certificates. Additionally, under the Institute's incentive scheme, 15 employees were awarded cash prizes and certificates for their original noting and drafting in Hindi, encouraging the use of Hindi in official work.

Hindi Divas Celebration

Hindi Divas was celebrated at CPRI, Bangalore on 17th September 2024.

10.7 Activities of Town Official Language Implementation Committee

1. The first meeting of TOLIC-II was held at CPMG on 04th July 2024. Additional Director (Official Language In-charge) and Senior Hindi Officer participated in the meeting.
2. The second meeting of TOLIC-II took place at CPMG on 10th January 2025. Shri S.K. Das, Director along with Senior Hindi Officer and Senior Hindi Translator participated in the meeting.
3. The first meeting of TOLIC-IV was held at CMTI on 30th January 2025. Shri S.K. Das, Director along with Senior Hindi Officer and Senior Hindi Translator participated in the meeting.

4. On the occasion of Joint Hindi Divas, under the aegis of TOLIC-II, Bengaluru, the Institute organized and sponsored an Essay Competition in Hindi for all member offices on 15th October 2024. Participants from around 17 offices took part in the event.
5. Officials of the Institute actively participated in various competitions organized by other member organizations under TOLIC-II, Bengaluru.
6. Rajbhasha Sangam: A one-day programme i.e., "Rajbhasha Sangam" was organized by the Head Office of the Coffee Board, Bengaluru on 02nd September 2024. Senior Hindi Officer and Senior Hindi Translator participated in the event.

10.8 Other Activities

1. Hindi words and their English meanings written at important places in the Institute

Boards have been installed at prominent places in the Institute where a new Hindi word, along with its English meaning is written every day. This initiative aims to enhance the Hindi vocabulary of staff while fostering interest in the language. To further encourage participation, a competition based on the words written throughout the year is organized annually on the occasion of Hindi Diwas. Winners of the competition are awarded cash prizes, making the event both educational and rewarding.

2. "Learn and use twenty Hindi words per month" scheme

Under this scheme, twenty Hindi words are released every month, along with their English equivalent. The objective is to encourage the practical use of Hindi in day-to-day official work. These selected words are meant to be used in regular communication and office work during the month, helping everyone become more familiar and comfortable with Hindi terms in a working environment.

3. Tenders in Bilingual

All the Notice Inviting Tenders, E-Tenders, Corrigendum, Addendum, Notice Inviting Quotation etc. from Civil Engineering Division, Mechanical Engineering Division, Purchase Section etc. are issued and published in bilingual in Newspapers. Also, they are uploaded on the CPRI website simultaneously.

4. Advertisements in Bilingual

All advertisements issued by the Administration Section are published exclusively in bilingual format (Hindi and English) in Employment News and Rojgar Samachar.

10.9 Website

The website of the Institute www.cpri.res.in is available in Bilingual and is being updated from time to time.

10.10 Supply of Forms

Three kinds of forms (Hindi / Hindi–Kannada/ Hindi–English) are used in the Institute and are uploaded in "Gyan Shakti" for easy access and use.

i. 64 different types of forms are available in Bilingual.

ii. Only Hindi forms are issued to employees possessing the working knowledge of Hindi.

iii. Hindi-Kannada forms are provided to employees belonging to Category 'D'.

10.11 English-Hindi Phrases printed on folders

The file folders used in the Institute contain 40 English-Hindi Phrases and 40 English-Hindi word meanings printed on it so that every employee who does desk work can easily access the ready reckoner list of Hindi words and Phrases.

SECTION - 11

AUDITORS REPORT & BALANCE SHEET

KARUNAKARA SHETTY & CO.,
Chartered Accountants

Independent Auditors' Report

To,
The Governing Council
Central Power Research Institute
Bangalore

Report on the audit of the Financial Statements

Opinion

We have audited the accompanying financial statements of **CENTRAL POWER REASEARCH INSTITUTE** ("the Institute"), which comprise the Balance Sheet as at March 31, 2025, the Income and Expenditure Account for the year then ended and notes to the financial statement including a summary of the significant accounting policies and other explanatory information. (Here in after referred to as "the financial statements").

In our opinion and to the best of our information and according to the explanations given to us, the aforesaid financial statements, except for the effect on the financial statements of the matters described in the Emphasis of Matter paragraph, give the information required in the manner so required and give a true and fair view, in conformity with the accounting principles generally accepted in India,

a. In the case of the Balance Sheet, of the state of the affairs of the Institute as at March 31, 2025. And
b. In the case of the Income and Expenditure Account, of the excess of income over expenditure for the year ended as at that date.

Basis for opinion

We conducted our audit of the financial statements in accordance with the Standards on Auditing (SAs). Our responsibilities under those standards are further described in the Auditor's Responsibilities for the audit of the financial statements section of our report. We are independent of the Institute in accordance with the Code of Ethics issued by the Institute of Chartered Accountants of India (ICAI) together with the ethical requirements that are relevant to our audit of the financial statements and we have fulfilled our ethical responsibilities in accordance with these requirements and the Code of Ethics. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion on the financial statements.

Emphasis of Matter - We draw attention to the following matters in the Notes to the financial statements:

(a) CPRI has invested Superannuation fund with M/s LIC of India to the extent of Rs 996.90 crores for the year ended 31.03.2025 including the current year earmarked deposit of Rs 45.00 crores. CPRI has received Two Actuarial Valuation reports as follows:-

#10 B, 3rd Cross, Bhima Jyothi LIC Colony, West off Chord Road, Bangalore - 560 079.
Tel : (080) 29774541 | Mobile : 98453 59901
E-mial : shettykaruna@yahoo.com | cakrnkr@gmail.com

(i) Estimation received from M/s Transvalue Consultants is Rs 1144.59 crores
(ii) Estimation received from M/s LIC of India is Rs 774.63 crores

Hence, considering the Valuation report of M/s Transvalue Consultants, the surplus for the year has been overstated and liability is understated by Rs 147.69 crores. And considering the Valuation report of M/s LIC of India , the surplus for the year has been under stated and liability is overstated by Rs 222.27 crores.

(b) The balances in Fixed Deposits with banks and Security Deposit ledger accounts as on 31.03.2025 are subject to confirmation.

However, our opinion will not be changed on account of the matters stated above.

Responsibilities of Management and Those Charged with Governance for the Financial Statements

The Management of the Institute is responsible for the preparation of the financial statements in accordance with the accounting principles generally accepted in India. This responsibility also includes maintenance of adequate accounting records in accordance with the provisions of the Act and Bye laws for safeguarding of the assets of the Institute and for preventing and detecting frauds and other irregularities; selection and application of appropriate accounting policies; making judgments and estimates that are reasonable and prudent; and design, implementation and maintenance of adequate internal financial controls, that were operating effectively for ensuring the accuracy and completeness of the accounting records, relevant to the preparation and presentation of the financial statements that give a true and fair view and are free from material mis statement, whether due to fraud or error.

In preparing the financial statements the Management are responsible for assessing the Institute's ability to continue as going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Institute or to cease operations or has no realistic alternative but to do so.

The Management is responsible for overseeing the Institute's financial reporting process.

Auditor's Responsibility for the audit of financial statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material mis statements, whether due to fraud or error and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance but is not guarantee that an audit conducted in accordance with the SAs will always detect a material misstatement when it exists. Mis statements can arise from fraud or error and are considered material if individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with SAs, we exercise professional judgment and maintain professional skepticism throughout the audit. We also

•Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material mis statement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

•Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control.

•Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.

•Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Institute's ability to continue as a going concern. If we conclude that material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Institute to cease to continue as a going concern.

•Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards

Report on Other Legal and Regulatory Requirements

As required by Societies Registration Act and other applicable statutes/rules, we report that:

a. We have sought and obtained all the information and explanations which to the best of our knowledge and belief were necessary for the purposes of our audit.

b. In our opinion, proper books of account as required by law have been kept by the Institute so far as it appears from our examination of those books.

c. The Balance Sheet and the Statement of Income and Expenditure dealt with by this Report are in agreement with the books of account.

For Karunakara Shetty & Co (FRN- 0084745)
Chartered Accountants

Karunakara Shetty
Partner
Membership No. 207776
UDIN-25207776BMILXT2382

Place: - Bangalore
Date: -24.09.2025

CENTRAL POWER RESEARCH INSTITUE, BANGALORE

BALANCE SHEET AS AT 31ST MARCH 2025

(Amount in Rs.)

Capital Fund and Liabilities	Schedule	Current Year	Previous Year
Capital Reserve representing Assets acquired from Grant-in-Aid from Government of India and Others	1	17,41,70,51,173	15,90,21,24,780
Reserves and Surplus	2	1,00,69,92,205	99,43,74,456
Earmarked and Endowment Funds	3	15,31,90,16,435	14,16,27,05,981
Grants from Government of India	4	2,48,33,87,806	1,71,69,74,060
Current Liabilities and Provisions	5	2,44,42,68,581	1,55,84,38,285
TOTAL		**38,67,07,16,200**	**34,33,46,17,562**
Assets			
Fixed Assets	6	17,06,81,01,013	15,60,55,37,121
Investments from Earmarked & Endowment Funds	7	14,35,69,04,160	12,88,88,68,386
Current Assets, Loans and Advances	8	7,24,57,11,027	5,84,02,12,055
TOTAL		**38,67,07,16,200**	**34,33,46,17,562**
Significant Accounting Policies	16		
Notes on Accounts & Contingent Liability	17		

Schedules 1 to 8 and 16 & 17 form part of Balance Sheet

As per Our Report of Even Date
for Karunakara Shetty & Co.
Chartered Accountants
FRN:008474s

Bangalore
24-09-2025

(Dittakavi Sri Krishna)
Chief Accounts Officer

(Asit Singh)
Director General

(Karunakara Shetty)
Partner
Membeship No.207776

UDIN:- 25207776BMICXT2382

CENTRAL POWER RESEARCH INSTITUTE, BANGALORE

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MARCH 2025

(Amount in Rs.)

INCOME	Schedule	Current Year	Previous Year
Income from Test Fee & Consultancy	9	199,98,00,828	213,36,64,153
Fees	10	79,67,131	1,37,94,608
Interest Earned	11	10,80,34,277	9,54,68,761
Other Income	12	10,13,27,054	2,93,25,387
TOTAL (A)		**221,71,29,290**	**227,22,52,909**
EXPENDITURE			
Research Establishment Expenses	13	119,71,67,425	150,06,86,981
Research Administrative Expenses	14	41,11,79,157	37,79,85,555
Depreciation and Provision for doubtfull debts	15	35,11,08,314	30,72,62,999
TOTAL (B)		**195,94,54,896**	**218,59,35,535**
Balance being excess of Income over Expenditure (A-B)		25,76,74,394	8,63,17,374
Add:			
Opening Balance of General Reserve Account		13,94,25,498	5,99,87,242
Investment in NHPTL Equity Capital		18,40,00,000	-
Assets (Revenue) acquired transferred to Capital Reserve		73,12,354	68,79,118
CLOSING BALANCE OF GENERAL RESERVE		**20,57,87,538**	**13,94,25,498**
Significant Accounting Policies	16		
Notes on Accounts & Contingent Liability	17		

Schedules 9 to 15 and 16 & 17 form part of Income & Expenditure Account

As per Our Report of Even Date
for Karunakara Shetty & Co.,
Chartered Accountants
FRN:008474s

Bangalore
24-09-2025

(Dittakavi Sri Krishna)
Chief Accounts Officer

(Asit Singh)
Director General

(Karunakara Shetty)
Partner
Membership No. 207776

UDIN:- 25207776BMILXT2382

CENTRAL POWER RESEARCH INSTITUTE, BANGALORE

Schedules forming part of Balance Sheet as at 31st March 2025

(Amount in Rs.)

	SCHEDULE - 1	Current Year		Previous Year	
	CAPITAL RESERVE REPRESENTING ASSETS ACQUIRED FROM GRANT-IN-AID FROM GOVT. OF INDIA AND INTERNAL RESOURCES				
a)	Under Non-recurring Grant-in-Aid	1410,49,91,318		1240,74,26,034	
	Addition during the year	137,52,24,880		169,75,65,284	
	Transferred from CPRI Revenue	-		-	
			1548,02,16,198		1410,49,91,318
b)	Under Non-recurring Grant-in aid (For M/s. NHPTL Equity Capital)	24,00,00,000		24,00,00,000	
	Addition during the year	-	24,00,00,000	-	24,00,00,000
c)	Under R&D Schemes	40,20,18,633		39,23,62,729	
	Less: Re-classification	-		-	
	Addition during the year	29,95,203	40,50,13,836	96,55,904	40,20,18,633
d)	Assets Acquired out of RSoP & NPP Management Fund	25,51,283		25,51,283	
	Addition during the year	-	25,51,283	-	25,51,283
	Sub Total (A)		1612,77,81,317		1474,95,61,234
	ASSETS ACQUIRED FROM INTERNAL RESOURCES				
e)	Under Non-recurring Grant-in aid (CPRI's 10% Contribn.)	26,49,26,531		19,26,13,358	
	Addition during the year	5,63,06,867		7,23,13,173	
	Transferred To CAPITAL WIP	-		-	
			32,12,33,398		26,49,26,531
f)	Under Revenue	27,92,50,368		27,23,71,250	
	Less: Re-classification	-		-	
	Addition during the year	73,12,354	28,65,62,722	68,79,118	27,92,50,368
g)	Under Revenue (Equity Participation)	6,40,00,000		6,40,00,000	
	Addition during the year	5,23,62,501	11,63,62,501	-	6,40,00,000
h)	Assets Acquired out of General Reserve	8,54,61,298		8,54,61,298	
	Addition during the year		8,54,61,298		8,54,61,298
i)	Assets Acquired out of Sponsored Schemes	40,45,17,758		39,87,81,519	
	Addition during the year	2,07,24,588	42,52,42,346	57,36,239.00	40,45,17,758
j)	Capitalisation of Assets acquired out of Loan	4,89,94,808	4,89,94,808	4,89,94,808	4,89,94,808
k)	Surplus on sale of Asset	54,12,783		54,12,783	
	Addition during the year		54,12,783	-	54,12,783
	Sub Total (B)		1,78,92,69,856		1,15,25,63,546
	TOTAL (A+B)		17,41,70,51,173		15,90,21,24,780

Place : Bangalore,
Date : 24-09-2025

CENTRAL POWER RESEARCH INSTITUTE, BANGALORE

Schedules forming part of Balance Sheet as at 31st March 2025

(Amount in Rs.)

	SCHEDULE 2	Current Year		Previous Year	
	RESERVES AND SURPLUS				
A	**GENERAL RESERVE**				
	As per last Account	13,94,25,498		5,99,87,242	
	Add: Surplus during the year	25,76,74,394		8,63,17,374	
	Less: Investement Equity Capital of M/S NHPTL	18,40,00,000			
	Less: Assets (Revenue) acquired transferred to Capital Reserve	73,12,354		68,79,118	
	Net Balance A		**20,57,87,538**		**13,94,25,498**
B	**Reserve for Capital Expenditure out of CPRI generated funds**				
	Opening Balance	81,99,73,470		89,22,86,642	
	Less: Provision reversed during the year	-		-	
	Less: Utilisation during the year	5,63,06,867		7,23,13,172	
	Net Balance B		**76,36,66,603**		**81,99,73,470**
C	**MAINTENANCE, RENEWAL & OBSOLESCENCE RESERVE**				
	Opening Balance	3,42,40,345		3,20,65,612	
	Add: Interest earned	25,62,576		21,74,733	
	Less: Utilisation during the year	-		-	
	Sub Total	**3,68,02,921**		**342,40,345**	
	Add: Security Deposit	7,35,143		7,35,143	
	Net Balance C		**3,75,38,064**		**3,49,75,488**
	TOTAL (A+B+C)		**100,69,92,205**		**99,43,74,456**

Place : Bangalore
Date: 24-09-2025

CENTRAL POWER RESEARCH INSTITUTE, BANGALORE

Schedules forming part of Balance Sheet as at 31st March 2025

(Amount in Rs.)

	SCHEDULE 3:	Current Year		Previous Year	
	EARMARKED & ENDOWMENT FUNDS:				
A	**SUPERANNUATION FUND**				
	Opening Balance	806,18,24,115		726,18,24,115	
	Less: Re-classification of Additional Interest earned	-		-	
	Add: Contribution during the year	45,00,00,000		80,00,00,000	
	Add: Interest Transferred for Utilisation	50,23,60,111		43,38,90,547	
	Less: Utilisation for Pension payments	50,23,60,111		43,38,90,547	
	Sub Total	**851,18,24,115**		**806,18,24,115**	
	Add: Retention Money & Security Deposit	38,23,952		39,30,403	
	Add: Interest Earned	70,07,69,291		58,06,95,743	
	Less: Interest Transferred for Utilisation	50,23,60,111		43,38,90,547	
	Additional Interest for the year	19,84,09,180		14,68,05,196	
	Opening Balance of Additional Interest	128,07,25,689		113,39,20,493	
		147,91,34,869		**128,07,25,689**	
	Net Balance - A		**999,47,82,936**		**934,64,80,207**
B	**PROVIDENT FUND**				
	Opening Balance	39,53,20,014		39,20,68,573	
	Add: Subscriptions & Repayments	5,40,44,988		5,62,66,130	
	Add: Interest Credited to PF subscribers	2,50,68,610		2,57,10,887	
	Less: Final Settlement Withdrawals	4,74,51,600		4,01,83,934	
	Less: Withdrawals	2,85,71,880		3,85,41,642	
	Sub Total	**39,84,10,132**		**39,53,20,014**	
	Add: Balances under Security Deposit etc.,	79,454		79,454	
	Opening Balance (Additional Interest)	5,58,83,461		5,09,15,101	
	Add: Additional Interest earned (Excess of Interest Paid over interest earned Rs.2,96,32,737 Rs.2,66,52,019)	29,80,718		49,68,360	
	Total	**5,88,64,179**		**5,58,83,461**	
	Net Balance - B		**45,73,53,765**		**45,12,82,929**
C	**DEPRECIATION FUND**				
	Opening Balance	418,04,35,148		371,07,97,102	
	Add: Depreciation During the year	35,11,08,314		28,72,62,999	
	Sub Total	453,15,43,462		399,80,60,101	
	Add: Interest earned	25,55,62,280		23,77,46,069	
	Less: Utilization During the year	12,63,04,721		6,53,71,022	
	Sub Total	466,08,01,021		4,17,04,35,148	
	Less: Repaid during year to CPRI	1,00,00,000		-	
	Add: Payables to CPRI	5,00,00,000		1,00,00,000	
	Net Balance - D		**470,08,01,021**		**418,04,35,148**
D	**OTHER FUNDS**				
	(I) Sponsored Scheme Deposits		10,00,65,409		11,35,63,302
	(II) IHRD Scheme Deposits		6,60,13,304		7,09,44,395
	TOTAL (A+B+C+D+E)		**1531,90,16,435**		**1416,27,05,981**

Place: Bengalore
Date 24-09-2025

CENTRAL POWER RESEARCH INSTITUTE, BANGALORE

Schedules forming part of Balance Sheet as at 31st March 2025

(Amount in Rs.)

		SCHEDULE 4	Current Year		Previous Year	
		GRANTS FROM GOVT. OF INDIA, & OTHERS				
A		Under Non-recurring Grant-in aid				
		Opening Balance	171,11,16,216		216,46,82,450	
		Add: Grant received during the year	213,00,00,000		124,39,99,050	
		Less: Grant utilised during the year	137,52,24,880		169,75,65,284	
		Grant Balance		246,58,91,336		171,11,16,216
B		Under R&D Schemes Grant-in-Aid				
	(i)	Under IHRD Schemes				
		Opening Balance	-		-	
		Add: Grant received during the year	1,07,82,000		88,43,000	
		Less: Grant utilised during the year	1,07,82,000		88,43,000	
		Grant Balance		-		-
	(ii)	Under RSoP Scheme				
		Opening Balance	-		-	
		Add: Grant received during the year	15,89,63,000		11,37,28,000	
		Less: Grant utilised during the year	15,89,63,000		11,37,28,000	
		Add: Unspent balance received from executing agencies	1,62,64,236		58,56,844	
		Less: Grant refunded to M o P during the year	-		-	
		Grant Balance		1,62,64,236		58,56,844
	(iii)	Under NPP Scheme				
		Opening Balance	1,000		1,000	
		Add: Grant received during the year	3,02,55,000		7,29,44,000	
		Less: Grant utilised during the year	3,02,55,000		7,29,44,000	
		Add: Unspent balance received from executing agencies	12,31,234		-	
		Add: from IHRD	-		-	
		Grant Balance		12,32,234		1,000
		TOTAL		**248,33,87,806**		**171,69,74,060**

Place : Bangalore
Date : 24-09-2025

CENTRAL POWER RESEARCH INSTITUTE, BANGALORE

Schedules forming part of Balance Sheet as at 31st March 2025

(Amount in Rs.)

		SCHEDULE 5	Current Year		Previous Year	
		CURRENT LIABILITIES AND PROVISIONS				
I		CURRENT LIABILITIES				
	1	Sundry Creditors				
		i) For Supplies & Services	4,17,17,980		(33,58,651)	
		ii) For Expenses	53,30,88,383		12,59,34,285	
		iii) For Salaries	5,52,30,939		5,70,13,036	
		iv) For Others	12,00,80,107		7,72,01,794	
		v) Interest received on Grant Account to be refunded to M o P	1,11,71,935		1,56,34,123	
				76,12,89,344		27,24,24,587
	2	Deposits Received		120,77,03,602		90,55,49,198
	3	Statutory Liabilities		2,85,54,866		2,63,76,027
	4	EMD, Security Deposits and others		42,32,72,759		31,36,40,463
	5	Reserve for Doubtful debts		2,29,63,010		2,29,63,010
II		PROVISIONS		4,85,000		1,74,85,000
		TOTAL		**244,42,68,581**		**155,84,38,285**

Place: Bangalore

Date : 24-09-2025

CENTRAL POWER RESEARCH INSTITUTE, BANGALORE

Schedules forming part of Balance Sheet as at 31st March 2025

(Amount in Rs.)

	SCHEDULE 6	GROSS BLOCK						
	FIXED ASSETS	Cost/valuation As at beginning of the year	Additons during the year (Non-Plan)	Additons during the year (RC-Project)	Transfer from WIP (CPRI)	Transfer from WIP (MOP)	As at the Current year end	As at the Previous year end
A	FIXED ASSETS:							
1	LAND:							
	Freehold	6,96,84,860					6,96,84,860	6,96,84,860
2	BUILDINGS ON FREEHOLD LAND	141,69,21,388			6,42,43,362	1,08,31,07,671	256,42,72,421	141,69,21,388
3	PLANT MACHINERY & EQUIPMENT	725,16,21,929	71,89,628	29,95,203	8,88,09,903	1,01,58,35,446	836,64,52,309	725,16,21,929
4	VEHICLES	55,81,762				33,68,644	89,50,406	55,81,762
5	FURNITURE, FIXTURES	3,37,69,557	1,22,526			23,69,228	3,62,81,311	3,37,69,557
6	LIBRARY BOOKS & FILM	2,50,24,413					2,50,24,413	2,50,24,413
7	MACHINERY & EQUIPMENTS (SPONSERED [illegible])	40,45,17,757		2,07,24,588			42,52,42,345	40,45,17,757
	TOTAL (A)	920,71,21,666	73,12,154	2,37,19,791	15,30,53,265	2,10,46,80,989	11,49,58,88,065	9,20,71,21,666
B	CAPITAL WORK-IN-PROGRESS	624,50,11,931	137,52,24,880			(2,10,46,80,989)	551,35,55,822	624,50,11,931
	CAPITAL WORK-IN-PROGRESS (CPRI GRANT	15,34,03,524	5,63,06,867		(15,30,53,265)		5,66,57,126	15,34,03,524
	TOTAL (B)	6,39,84,15,455	143,15,31,747	-	(15,30,53,265)	(2,10,46,80,989)	5,57,22,12,948	6,39,84,15,455
	GRAND TOTAL	1560,55,37,121	1,43,88,44,101	2,37,19,791	-	-	1706,81,01,013	1560,55,37,121

Place : Bangalore,
Date: 24-09-2025

CENTRAL POWER RESEARCH INSTITUTE, BANGALORE

Schedules forming part of Balance Sheet as at 31st March 2025

(Amount in Rs.)

	SCHEDULE 7		Current Year	Previous Year
	INVESTMENTS FROM EARMARKED/ENDOWMENT FUNDS			
A	**SUPERANNUATION FUND INVESTMENT ACCOUNT**			
	1	Investment in LIC of India, under Superannuation Scheme	9,51,89,54,875	851,79,78,634
	2	Receivable from HO (CPRI)	8,09,000	-
	3	Cash at Bank (S.B. Account No.10356553751)	2,50,10,061	2,75,87,913
		Total - A	**954,47,73,936**	**854,55,66,547**
B	**PROVIDENT FUND INVESTMENT ACCOUNT**			
	1	In Government Securities	3,64,92,938	3,64,92,938
	2	Bonds	-	-
	3	Term Deposits with Banks & Financial Institutions	36,61,00,000	29,95,00,000
	4	Interest Accrued on Provident Fund Investments	148,03,651	122,00,102
	5	TDS Receivables	88,32,887	62,26,244
	6	Receivable from HO	74,59,285.00	-
	7	Cash at Bank (S.B. Account No.10356553740)	2,36,65,004	968,63,645
		Total - B	**45,73,53,765**	**45,12,82,929**
C	**DEPRECIATION FUND INVESTMENT ACCOUNT**			
	1	Term Deposits with Banks & Financial Institutions	3,72,40,81,474	3,31,12,14,782
	2	Bonds	3,75,00,000	9,00,00,000
	3	Interest Accrued on Depreciation Fund Investments	45,57,34,420	37,87,54,561
	4	Margin Money Deposit	-	-
	5	Bank balance	3,76,09,152	8,70,43,999
	6	TDS & other receivables	9,98,51,413	2,50,05,568
		Total - C	**4,35,47,76,459**	**3,89,20,18,910**
		Total (A+B+C+D)	**14,35,69,04,160**	**12,88,88,68,386**

Place : Bangalore
Date : 24-09-2025

CENTRAL POWER RESEARCH INSTITUTE, BANGALORE

Schedules forming part of Balance Sheet as at 31st March 2025

(Amount in Rs.)

		SCHEDULE 8	Current Year		Previous Year	
		CURRENT ASSETS, INVESTMENTS, LOANS & ADVANCES				
A		CURRENT ASSETS:				
	1	Inventories:				
		a) Stores and Spares		11,99,612		9,70,819
	2	Sundry Debtors:				
		a) Debts Outstanding for a period exceeding six months	20,23,61,432		25,53,86,697	
		b) Debts Outstanding for a period not exceeding six months	13,97,12,230	34,20,73,662	8,29,05,109	33,82,91,806
	3	Cash balances in hand (including cheques/drafts, Imprest and Stamps)		4,47,339		3,98,652
	4	Deposits and Bank Balances:				
		a) Margin Money Deposits on RBO, SPON & Revenue	22,57,36,713		3,00,31,722	
		b) Margin Money Deposits on Grant account	2,39,58,90,650		1,63,87,49,708	
		c) Deposits earmarked for Superannuation Fund	45,00,00,000		80,00,00,000	
		d) Deposits earmarked for Depreciation Fund	35,11,08,314		28,72,62,999	
		f) Capital Bank Balance	56,91,06,707		13,11,92,180	
		g) Savings Accounts	78,28,27,168	4,77,46,69,752	50,43,76,840	3,39,15,13,449
	5	Deposits of Maintenance, Renewal & Obsolescence Reserve	4,00,00,000		3,40,00,000	
		Add: Savings Bank account of Maintenance, Renewal & Obsolescence Reserve	4,43,917		44,820	
		Add: Accrued Interest on MRO Fund & TDS Receivable, etc.,	18,47,515	4,22,91,432	56,84,036	3,97,28,856
B	1	Investments				
		a) Investment in Shares of Joint Venture Company, M/s National High Power Test Laboratory Pvt Ltd., New Delhi		35,63,62,500		30,40,00,000
		b) Long Term Deposits with Banks	41,77,89,279		23,75,96,201	
		Margin Money with Banks against BG	2,78,74,646		2,74,33,870	
		Short Term Deposits with Banks	77,88,82,038	122,45,45,963	52,55,15,628	79,05,45,699
C		LOANS, ADVANCES & OTHER ASSETS				
		a) i) Deposits with Govt.Depts & others	2,40,49,796		2,33,89,656	
		ii) Deposits with Revenue Authorities (Payment under Protest)	8,14,13,955		6,70,59,191	
		b) Advances to Employees	18,80,453		12,33,193	
		c) Prepaid Expences	4,85,804		4,36,992	
		d) Accrued Interest	16,94,93,229		19,82,16,786	
		e) TDS Receivables	-8,85,99,289		15,55,13,749	
		f) Claims Receivables	27,40,64,795		22,60,28,431	
		g) Capital Advances	2,42,89,937		10,05,34,169	
		h) Other Advances	1,70,42,086		1,82,48,607	
		i) Deposit to NHPTL	-	50,41,20,767	18,40,00,000	97,46,62,774
		TOTAL		724,57,11,027		584,02,12,055

Place : Bangalore
Date : 24-09-2025

CENTRAL POWER RESEARCH INSTITUTE, BANGALORE

Schedules forming part of Income & Expenditure
for the year ended 31st March 2025

(Amount in Rs.)

	SCHEDULE 9	Current Year	Previous Year
	INCOME FROM TEST FEE & CONSULTANCY		
a)	**Test Fee**	180,23,43,763	200,01,49,369
b)	**Consultancy Services Charges**	19,74,57,065	13,35,14,784
	TOTAL	**199,98,00,828**	**213,36,64,153**

Place : Bangalore,
Date : 24-09-2025

CENTRAL POWER RESEARCH INSTITUTE, BANGALORE

Schedules forming part of Income & Expenditure
for the year ended 31st March 2025

(Amount in Rs.)

	SCHEDULE 10	Current Year	Previous Year
	FEES		
a)	**Training Fee**	40,24,777	69,27,000
b)	**Seminar Fee**	39,42,354	68,67,608
	TOTAL	**79,67,131**	**1,37,94,608**

Place : Bangalore,
Date : 24-09-2025

CENTRAL POWER RESEARCH INSTITUTE, BANGALORE

Schedules forming part of Income & Expenditure
for the year ended 31st March 2025

(Amount in Rs.)

	SCHEDULE 11	Current Year	Previous Year
	INTEREST EARNED		
a)	**Interest on Term Deposits with Banks & Financial Institutions**	10,71,73,357	10,42,16,533
b)	**Interest on Deposit with Others**	3,86,320	(95,79,937)
c)	**Interest on Loans & Advances to Employees**	4,74,600	8,32,165
	TOTAL	**10,80,34,277**	**9,54,68,761**

Place : Bangalore,
Date : 24-09-2025

CENTRAL POWER RESEARCH INSTITUTE, BANGALORE

Schedules forming part of Income & Expenditure
for the year ended 31st March 2025

(Amount in Rs.)

		SCHEDULE 12	Current Year	Previous Year
		OTHER INCOME		
1)		**Fees for Miscellaneous Services**		
	a)	Sale of Publications	2,180	2,000
	b)	Library Receipts	300	100
2)		**Miscellaneous Income**		
	a)	Application fee on recruitment	3,500	39,66,106
	b)	Sale of Tender forms	5,000	59,600
	c)	Licence fees	19,81,148	21,53,803
	d)	Rent Receipts	27,29,159	23,42,329
	e)	Sale of Scrap	2,17,22,615	55,89,125
	f)	Others	5,78,760	74,31,094
	g)	Interest Received on Income Tax Refunds	7,43,04,392	77,81,230
	h)	Provision for Doubtful Debts Realised	-	-
		TOTAL	**10,13,27,054**	**2,93,25,387**

Place : Bangalore,
Date : 24-09-2025

CENTRAL POWER RESEARCH INSTITUTE, BANGALORE

Schedules forming part of Income & Expenditure
for the year ended 31st March 2025

(Amount in Rs.)

	SCHEDULE 13	Current Year	Previous Year
	RESEARCH ESTABLISHMENT EXPENSES		
a)	Salaries and Wages including Bonus	71,73,75,770	66,52,82,695
b)	Staff Welfare Expenses	1,79,41,998	1,53,16,730
c)	Expenses on Employee's Retirement and Terminal Benefits	45,00,00,000	80,00,00,000
d)	Expenses on Medical Facilities	1,18,49,657	2,00,87,556
	TOTAL	119,71,67,425	150,06,86,981

Place: Bangalore.
Date : 24-09-2025

CENTRAL POWER RESEARCH INSTITUTE, BANGALORE

Schedules forming part of Income & Expenditure
for the year ended 31st March 2025

(Amount in Rs.)

	SCHEDULE 14	Current Year	Previous Year
	RESEARCH ADMINISTRATIVE EXPENSES		
a)	Electricity and Power	8,70,34,511	9,72,03,033
b)	Water Charges	10,19,138	5,91,587
c)	Office Expenses	5,77,78,788	7,78,89,886
d)	Repairs and Maintenance		
	1. Repairs and Maintenane	23,00,23,119	16,67,48,083*
	2. Mission Project Expenses	1,07,37,873	1,04,74,549*
e)	Rent, Rates and Taxes	13,90,018	12,99,848
f)	Vehicles Running and Maintenance Expenses	3,73,247	6,80,345
g)	Postage, Telephone and Communication Charges	17,63,995	17,50,765
h)	Printing and Stationary	1,34,331	1,35,065
i)	Travelling and Conveyance Expenses -Inland	1,02,68,707	1,22,76,558
	Travelling and Conveyance Expenses -Foreign	19,46,640	9,74,912
j)	Expenses on Seminar & Workshops	14,78,977	19,51,313
k)	Subscription Expenses	39,969	4,61,325
l)	Expenses on Fees	2,40,437	2,44,800
m)	Auditors Remuneration	1,75,000	1,75,000
n)	Professional Charges	30,83,040	6,90,050
o)	Library Expenses	9,53,413	11,41,070
p)	Training Expences	5,54,014	15,91,117
q)	Publication Expenses	4,25,193	3,73,425
r)	Advertisement and Publicity	17,58,747	13,32,804
	TOTAL	**41,11,79,157**	**20,07,62,923**

* Figures have been restated for previous year to represent Repairs and Maintenance and Mission Project Expenses

Place: Bangalore,
Date : 24-09-2025

CENTRAL POWER RESEARCH INSTITUTE, BANGALORE

Schedules forming part of Income & Expenditure
for the year ended 31st March 2025

(Amount in Rs.)

	SCHEDULE 15	Current Year	Previous Year
	Depreciation & provision for doubtful debts		
a)	**Depreciation for the year**	35,11,08,314	28,72,62,999
b)	**Provision for doubtful debts**	-	2,00,00,000
	TOTAL	**35,11,08,314**	**30,72,62,999**

Place : Bangalore,
Date : 24-09-2025

CENTRAL POWER RESEARCH INSTITUTE

Schedule forming part of Income & Expenditure for the year ended 31st March 2025

SCHEDULE 15.1
DEPRECIATION

YEAR	GROSS BLOCK				DEPRECIATION							NET BLOCK	
	OB	Additions		TOTAL	%	OB not Charged to I&E	OB Charged to I&E	OB Accumulated Dep	For the Year	Total charged to I&E	Total	OB	CB
		Additions	Transfer from W-I-P to Assets										
1	2	3	4	5		6	7		8	9	10	11	12
				(2+3+4)						(7+8)	(6+9)	(2-6-7)	(5-10)
Land	6,96,84,860	-		6,96,84,860								6,96,84,860	6,96,84,860
Buildings	1,41,26,41,421		1,14,73,51,033	2,55,99,92,454	3.17	21,46,07,660	44,41,62,596	65,87,70,256	7,87,16,523	52,28,79,119	73,74,86,779	96,84,78,825	1,82,25,05,675
Buildings (ICICI)	42,79,967	-	-	42,79,967	3.17	3,58,374	20,35,124	23,93,498	1,35,675	21,70,799	25,29,173	22,44,843	17,50,794
Plant & Machinery	7,20,69,07,088	1,01,85,031	1,10,46,45,349	8,32,17,37,468	3.17	1,52,93,55,831	2,71,07,73,176	4,24,01,29,007	25,57,15,792	2,96,64,88,968	4,49,58,44,799	4,49,61,33,912	3,82,58,92,669
Plant & Machinery (ICICI)	4,47,14,841	-	-	4,47,14,841	3.17	55,59,645	2,12,50,138	2,68,09,783	14,17,460	2,26,67,599	2,82,27,243	2,34,64,703	1,64,87,598
Plant & Machinery (Spons)	40,45,17,756	2,07,24,588	-	42,52,42,344	3.17	2,73,85,799	10,12,24,650	12,86,10,449	1,36,02,068	11,48,26,718	14,22,12,517	30,32,93,106	28,30,29,827
Furniture & Fixtures	3,37,69,557	1,22,526	23,69,228	3,62,61,311	6.33	67,23,812	1,80,63,653	2,47,87,463	11,58,839	1,92,22,490	2,59,46,302	1,57,05,906	1,03,15,009
Vehicles	55,81,762	-	33,68,644	89,50,406	9.50	34,40,892	16,71,884	51,12,776	3,61,956	20,33,840	54,74,732	39,09,878	34,75,674
Library Books	2,47,99,260			2,47,99,260	95.00	-	2,35,59,297	2,35,59,297	-	2,35,59,297	2,35,59,297	12,39,963	12,39,963
Films (Documentry)	2,25,153	-	-	2,25,153	95.00	-	2,13,895	2,13,895	-	2,13,895	2,13,895	11,258	11,258
Sub Total	**9,20,71,21,665**	**3,10,32,145**	**2,25,77,34,254**	**11,49,58,88,064**		**1,78,74,32,013**	**3,32,29,54,410**		**35,11,08,314**	**3,67,40,62,724**	**5,46,14,94,738**	**5,88,41,67,255**	**5,03,43,93,326**

SCHEDULE 15.1 A
Work-in-Progress

Work-in-Progress	Opening WIP	Addition	Transfer to Assets	Closing WIP
Capital Works in Progress (M o P)	6,24,50,11,931	1,37,52,24,880	2,10,46,80,989	5,51,55,55,822
Capital W-I-P (CPRI)	15,34,03,523	5,03,06,868	15,30,53,265	5,06,57,126
Total (B)	6,39,84,15,454	1,43,15,31,748	2,25,77,34,254	5,57,22,12,948
TOTAL	15,60,55,37,119	1,45,25,53,893	2,25,77,34,254	17,05,81,01,012

Place: Bangalore
Date: 24.09.2025

Schedule – 16

Significant Accounting Policies attached to and forming part of Accounts for the year ended 31st March, 2025.

Background: - The Institute, an autonomous body under Govt. of India, Ministry of Power established through a resolution vide No.33 (14)/74-Policy: dated 21/10/1974 is totally focussed on Power Research. Ministry of Science & Technology as an S&T Institution has recognized the Institute. Government of India has further recognized the Institute as Scientific and Industrial Research Organization, Ministry of Science and Technology vide their letter No. 11/68/88-TU-V, dated 05/04/2017. The Institute as a legal entity is registered with the Registrar of Societies. The basic objectives of the Institute is to serve as a National Testing & Certification Authority and act as an apex body for initiating and coordinating Research and Development in the field of electric power. The Government of India is supporting the activities through grants. Additionally, the Institute is generating revenue for regular maintenance through test fees and professional services rendered to Government organizations/Electricity Boards/Commercial organizations etc.

1. **Method of Accounting:**
   The financial statements have been prepared to comply with the Generally Accepted Accounting Principles. The financial statements have been prepared under the historical cost convention on an accrual basis. The Institute has consistently applied the accounting policies. The Bonus paid to employees are accounted in the year of payment.

2. **Fixed Assets:**
   Fixed assets are stated at cost. Cost comprises the purchase price and any attributable cost of bringing the asset to its working condition for its intended use. Financing costs relating to acquisition of fixed assets are also included to the extent they relate to the period till such assets are ready to be put to use.

   The Grants are contribution by Govt. of India towards total capital outlay of Projects and no repayment of the same is ordinarily expected. Fixed assets acquired under Capital Projects, R & D Plan, Sponsored Schemes and loans are stated at their original cost of acquisition. The funds provided for acquisition of these Fixed Assets under Grant-in-Aid from Government of India / other Agencies are exhibited as Capital Reserve.

   Fixed Assets acquired out of Non Plan funds were being capitalized @ Rs.1-00 per asset and the balance amount charged to Income & Expenditure account from the financial year 2002-03 to 2014-15. From the financial year 2015-16, fixed assets acquired out of Non Plan funds are capitalized at full value and depreciation provided as applicable.

   The Institute is a non-profit organization and therefore depreciation on assets capitalized was not provided in the accounts up to 2006-07. However, as per the decision of the Governing Council (G.C), the Depreciation was provided on the new Schemes from 2007-08 as per the rates provided in the Income Tax Rules, 1962 on written down value basis. Further, the G.C in its meeting held on 16th Nov 2009, instructed the Institute to provide depreciation from the financial year 2009-10 on all assets and the Government of India vide No.4/11/2009-T&R dated 30-03-2010 directed to provide depreciation every year by a charge to the Income & Expenditure Account on Straight line method basis.

Accordingly, the depreciation has been provided from 2009-10 on Straight line method as per the rates determined by the Management (based on the useful life of the assets) on all the assets and the total depreciation not provided for upto 31st March 2019 is of the order of Rs.245,21,89,649/- (for assets additions from 1981) as stated in the Annual Accounts upto 31-03-2019. The useful life was taken for Buildings at 28 years and Plant & Machinery at 20 years. A review of useful life of assets was made. As per the approved project proposals for creation of Capital Assets, the project period is taken at 30 years. Therefore for depreciation, the useful life of Buildings and Plant & Machinery is taken at 30 years and hence depreciation not provided worked out to Rs.1,78,74,32,013/-. Accordingly depreciation for the year 2019-20 is also charged at the revised rates.

There is a difference between the Capital Reserve and Fixed Asset Gross block to the tune of Rs.5.51 Crores. **1.** During the financial year 2010-11 an amount of Rs.482.34 lakhs being the proceeds of sale of assets at TRC, Koradi was received and fixed assets to the tune of Rs.482.34 lakhs was reduced in Fixed Asset schedule but not in Capital Reserve same rectified by reducing in capitalization and added to Grant Receipt during the year FY 2017-18. **2.** During the financial year 2009-10 an amount of Rs.9.81 lakhs being the proceeds of sale of assets was received and fixed assets to the tune of Rs.9.81 lakhs was reduced in Fixed Asset schedule but not in Capital Reserve same rectified by reducing in capitalization and added to Grant Receipt during the year FY 2017-18. **3.** Similarly an amount of Rs.495.00 lakhs was capitalized, but actual assets capitalized was Rs.489.95 lakhs, thus difference of Rs.5.05 lakhs was rectified by reducing in capitalization and added to General Reserve. **4.** Similarly the surplus on sale of Fixed Asset of Rs.54.13 lakhs as on 31-03-2017 has been added to the Capital reserve same was rectified by reducing in capitalization and added to Grant Receipt during the FY 2017-18.

Depreciation on Library Books & Films (Documentary) charged at 95% of Book Value.

Capital work-in-progress includes expenditure on Civil Works of projects, which have not been completed as at the end of the year.

3. **Depreciation Fund**:

As per direction from Governing Council, Depreciation fund is created as on 01-04-2019. The interest earned/accrued is added to the fund. Current year depreciation also was provided and added to fund.

4. **Investments:** Investments are shown at cost.

5. **Inventories:**

Inventories of stores and spares are shown at cost and cost includes expenses incurred for procuring the same wherever directly attributable. All consumables purchases are charged off at the time of procurement.

6. **Research and Development:**

Research expenditure on Research and Development is charged against the receipt of research grants. Capital expenditure on Research & Development is treated in the same manner as expenditure on other fixed assets.

7. **Foreign Currency Transaction:**

Transactions in Foreign Currency are recorded at a notional rate of exchange.

Realized gains and losses on Foreign Currency transactions are effected in the Income and Expenditure Account. The balances are recast at the end of the year based on the rate prevailing as On 31st March.

8. **Revenue Recognition:**

The Revenue in respect of Test Fees and Consultancy charges are accounted on completion of work /report. The policy of the Institute is to account the 'TDS Receivables 'on receipt of Form 16 from the client and also on the basis of 26 AS.

Interest income on deposits relating to CPRI with banks is recognized on time proportionate basis.

9. **Retirement Benefits:**

(i) Post – employment benefit plans:

(a) Defined Contribution Plan –
Contribution to New Pension Scheme is accrued in accordance with applicable statute and managed as per Government rules and regulations.

(b) Defined Benefit Plan
The liability towards retirement benefits like Pension, Gratuity and Leave Encashment are ascertained on the basis of Projected Unit Credit Method with actuarial valuation and provided in the books of accounts.

(ii) **Short term employment benefits:**

The undiscounted amount of short term employee benefits expected to be paid in exchange for services rendered by employees is recognized during the period when the employee renders services. These benefits include compensated absence and other incentives.

(iii) **Pension payments:**

Pension payments are accounted for April to March every year.

As per our report of even date
For **KARUNAKARA SHETTY & Co.,**
Chartered Accountants,
FRN :008474s

D. Sri Krishna
(Dittakavi Sri Krishna)
Chief Accounts Officer

(Asit Singh)
Director General

(Karunakara Shetty)
Partner
Membership No. 207776

UDIN: 25207776BMILXT8382

Place: Bangalore.
Date: 24-09-2025

Schedule – 17

Notes on Accounts & Contingent Liability attached to and forming part of Accounts for the year ended 31st March 2025.

1. **Fixed Assets and Depreciation:** -Upto 2002-03, the Institute capitalized all costs relating to the acquisition and installation of all fixed assets. From the year 2002-03 onwards, the Institute has changed its policy for accounting capital assets as under

   - ➔ All assets acquired under Capital Projects, R&D Plan, Sponsored Schemes, RSOP Schemes are capitalized with all costs relating to their acquisition.

   - ➔ All assets acquired-out of Non-Plan (Revenue) expenditure of the Institute were charged off to the Income & Expenditure account from the financial year 2002-03 to 2014-15. Total value of assets charged off from 2002-03 to 2014-15 is Rs.1691.00 lakhs. In the financial year 2015-16, the Institute started to capitalize 'at cost' all assets acquired out of Non-Plan (Revenue) expenditure and depreciation provided as applicable.

   - ➔ The Institute is maintaining a fund "Maintenance, Repairs and Obsolescence – Fund" by charging certain amount to the Income & Expenditure Account. The Institute is utilizing this fund towards revenue and certain capital expenses. As the charge is already provided to the Income & Expenditure account, depreciation is not provided on such assets acquired out of this fund. The value of such assets is NIL lakhs for 2024-25 (Nil for the previous year) and Rs.1699.76 lakhs up to 2024-25.

2. **Government Grant:** - Grant received from the Government of India and other organizations towards specific projects are shown as capital/sponsored grants. The Institute confirms compliance of all the conditions of the grant. The Institute consistently has followed the procedure of showing the assets procured from such grants under the Fixed Assets.

3. **Reserve for Capital Expenditure out of CPRI generated funds: -**
   (a) Ministry of Power, Government of India, vide letter No. 5/4/2013-T&R dated 25-02-2014 while conveying approval for the project 'Augmentation of New Facilities Projects' for Rs.105.90 Crores has directed C.P.R.I. to (i) bear 10% of the total outlay of the projects i.e., Rs.10.59 Crores and (ii) also bear additional funds, if any required over and above the approved outlay including any escalation of FE component of the project, from its internal resources. In the same way Ministry of Power, Government of India, vide letter No. 5/5/2014-T&R dated 05-01-2015 conveyed approval for the project 'Augmentation of High Power Short Circuit Test facilitiesand establishment New Facilities Projects' for Rs.996.10 Crores. The same was revised to Rs.979.00 crores vide Ministry of Power letter No.4/1/2020-T&R dt.14-01-2022 has directed C.P.R.I. to (i) bear 10% of the total outlay of the projects i.e., Rs.97.90 Crores and (ii) also bear additional funds, if any required over and above the approved outlay including any escalation of FE component of the project, from its internal resources.

   The total amount to be contributed by C.P.R.I. on account of above mentioned projects is Rs.108.49 Crores (10.59+97.90) to meet the above expenditures, C.P.R.I. has created a reserve by name "Reserve for Capital Expenditure out of CPRI generated funds" and the credit balance under this reserve as on 31-03-2025 is Rs.76.37 crores.

(c) National High Power Test Laboratory Pvt. Ltd. is a Joint Venture Company of NTPC, NHPC, Power Grid, DVC and CPRI. The total equity of NHPTL was Rs.152.00 Crores in FY 2023-24 contributed equally by JV Partners of Rs.30.40 Cr each. With the completion of Revival Plan activities, the paid up Share Capital of NHPTL was also increased to Rs. 285.09 Crores in FY 2024-25.

CPRI had contributed the amount by obtaining Plan Grant of Rs. 24.00 Crores from MoP and the balance of Rs. 6.40 Crores was contributed from Internal Resources. paid by CPRI to NHPTL on 15.07.2021 vide MoP letter No.31-4/1/2018-T&R.

In accordance with the approval of Government of India, Ministry of Power vide letter No. 5/18/2007- T&R dated 16-01-2012, an amount of Rs.2,390.00 lakhs has been paid towards initial equity contribution in M/s National High Power Test Laboratory Pvt Ltd., New Delhi, (M/s NHPTL) a Joint Venture Company of 5 equity partners viz., NTPC, NHPC, POWERGRID , DVC & C.P.R.I. The total equity share of C.P.R.I. was Rs.2,400.00 lakhs being 1/5th equal share of the total equity capital of Rs.12,000.00 lakhs, equally shared by all the 5 equity partners.

2,39,00,000 shares of Rs.10.00 each for total amount of Rs.2,390.00 lakhs were allotted and Share Certificates issued to C.P.R.I. M/s N.H.P.T.L, called for allotment of 1,00,000 shares of Rs.10.00 each during February 2017 and the same was paid to M/s N.H.P.T.L.

M/s N.H.P.T.L. has decided to increase its Equity capital. Hence it asked C.P.R.I. to pay an amount of Rs.640.00 lakhs, towards allotment of 64,00,000 shares of Rs.10.00 each. Ministry of Power, Government of India, has asked C.P.R.I. to make this investment of Rs.640.00 lakhs out of its own Funds / Reserve and accordingly the amount of Rs.640.00 lakhs was paid to M/s N.H.P.T.L. during February 2017. The shares were allotted to CPRI and the share certificate for Rs.650.00 lakhs has been received.

M/s. N.H.P.T.L. requested to provide temporary loan of Rs.6.00 Crores from each JV Partner vide letter no.NHPTL/JVs/1643 dated 21.03.2018 towards repayment of loans to M/s. Power Finance Corporation. The same was paid on 28.03.2018 from CPRI General Reserve with the approval of Ministry of Power vide letter no.31-4/1/2018-T&R dated 27.03.2018 for a period of 3 months. Later on as NHPTL had requested for extension of the temporary loan for another 3 months as they were in the process of negotiating larger loan from Banks and Financial Institutions vide their letter No. NHPTL_F&A/019 dated 14.06.2018. The extension of period for temporary loan was obtained from MoP vide letter no. 31-4/1/2018- T&R dated 26.06.2018. An additional unsecured loan of Rs. 12.40 Crores was paid by CPRI to NHPTL on vide MoP letter No.31-4/1/2018-T&R dated 15.07.2021.

The total CPRI loan stood at Rs.18.40 Crores in the FY 23-24. Based on the implementation of the revival Plan of NHPTL and the Supplementary Joint Venture Agreement No. 3, the loan of Rs.18.40 Crores was converted into Equity. As on 31.03.2025, CPRI holds 3,56,36,250 shares in NHPTL which is 12.5% of the total Share Capital.

4. **Retirement Benefits:** - The Governing Council at its meeting held on 17.10.2007, directed CPRI to provide for the liability from internal resources/charging to Income & Expenditure Account. Monthly pension and retirement benefits are to be met out of Interest received on the invested fund. In case of shortage same have to be charged to Income & Expenditure A/c.

The liability on account of Pension, Gratuity etc., was evaluated as on 31.03.2025 through M/s LIC of India and the liability has been estimated at Rs.82,551.00 lakhs. (Estimation received from M/s Transvalue is Rs.1,14,480.00 lakhs). The opening fund balance was Rs.80,618.24 lakhs. During the year 24-25 Rs.4500.00 lakhs was allocated out of the surplus of the institute.

Interest earned on Superannuation Fund Investment over and above utilization was added to fund since beginning. The same is re stated as Additional Interest on Superannuation Fund and disclosed separately from FY 2022-23 and stands at Rs.11,341.36 lakhs. The additional interest earned during FY 24-25 is Rs.1,984.09 lakhs and balance stood at Rs.14,791.35 lakhs. Additional interest was also added to corpus totalling upto Rs.99,947.83 lakhs as on 31.03.2025.

5. **Income Tax Cases :--**

The CBDT vide Notification No.27/2016 (F.No. 203/32/2015/ITA-II) dated 07-04-2016 has notified C.P.R.I. in the category of 'Scientific Research Association' under Section 35 and sub section (i) and (ii) of Income tax Act 1961 from Assessment Year 2003-2004 onwards and consequently C.P.R.I. has become eligible for exemption from Income Tax under section 10 (21) of the Income Tax Act 1961. This exemption has since been renewed vide CBDT Notification No.07/2025 (F. No.203/20/2024/ITA-II) dated 14th January 2025 which has notified C.P.R.I. in the category of "Scientific Research Association" under Section 35 and sub section (i) and (ii) of Income tax Act 1961 from Assessment Year 2025-26.

C.P.R.I. has applied for refund of TDS of Rs.25.43 lakhs for AY 2006-07 and for AY 2014-15 there is an outstanding TDS to the tune of Rs.901.07 lakhs.

Sl. No.	A.Y.	Issue and status of the of the cases as on 31.03.2021
1	2011-12 2012-13 2013-14 2014-15	Appeal was filed with ITAT, "C" Bench regarding taxability of Quarters occupation under perquisites and the appeal was partly allowed vide order dated 13.10.2017. The case is pending with Income Tax Department.
2	2014-15	Refund received.

6. **Service Tax Cases:-**

A) As per order no. 35/Commr/ST/ADJ/BPL-I/2014 dated 31.01.14, the Commissioner, Central Excise & Service Tax, Bhopal has raised a demand of Rs. 8,09,51,984/- (Service Tax, Interest and Penalty) alleging non-payment of Service Tax on Advance Payment received during the period July 2005 to June 2011. An appeal is filed against the said order with the CESTAT, New Delhi on 24.4.2014 which is pending for adjudication. The Hon'ble Tribunal Bench of CESTAT vide its Order dated 07-10-2015 has ordered for a deposit of Rs.5,67,91,862/- . The Institute complied with the Order and deposited Rs.5,67,91,862/- being the demand of Service Tax along with Interest. An appeal has been filed on 22.11.2017 in the Hon'ble High Court of M.P Jabalpur and the case is pending.

B) The Asst. Commissioner of Service Tax Service Tax Division II, Bangalore vide Order No.28/2013, dated 24.06.2013 has raised a demand of Rs.52,952/- as Interest on belated payment of Service Tax on Advance Deposits. The Institute has filed an appeal before the commissioner of central excise against the Adj. Order on 14-09-2013.

C) A Show Cause Notice No.C.No.IV/01/51/2013 ST Divn.II/1973/13, Dt 09/05.2013 issued, demanding Rs.2,06,712/- being ineligible cenvat credit claimed on "Hiring of Vehicles" and "Catering Services" during the year 2011-12. A reply was given to this Show Cause Notice vide letter dated 30.08.2013. On receipt of reply from CPRI, a demand for Rs.1,13,410/- towards CENVAT on catering services was allowed vide Order No. 32/2015 dated 27-11-2015. The authorities disallowed CENVAT credit of Rs.93,302/- on 'rent-a-cab' for which CPRI has filed an appeal for availing CENVAT credit.

D) The audit team of Service Tax department audited the accounts for the period from October 2013 to March 2015. In the Audit Report, they demanded to pay a sum of Rs.25,46,328/- , out of which an amount of Rs.2,79,494/- was remitted. CPRI filed an appeal for remaining amount of Rs.22,66,834/- and the case is pending.

7. **Other Cases :-**

a) CPRI had received a request for refund of unutilized test charges of Rs.4,10,900/- from M/s. Jabshetty Transformers, Gulburga during the month of May 2016 through their representative, Shri B Puttaraju who was a regular visitor to the Institute on behalf of M/s. Jabshetty Transformers. For transferring the amount, CPRI had requested M/s. Jabshetty Transformers for RTGS details which they provided through an email. Based on the RTGS details given by them, CPRI transferred Rs.4,10,900/- to the account as provided ie. M/s. M&CDCC Bank Ltd., Mysore

On informing M/s. Jabshetty Transformers through email about the transfer of the above amount, they informed back that they did not ask for refund/transfer and also no money had reached to their account. On enquiry it was found that Shri B Puttaraju, the representative of the M/s.Jabshetty had fictitiously created another account in the name of M/s.Jabashetty Transformers in M&CDCC Bank Ltd., Mysore.

M/s.Jabshetty Transformers has sent legal notice for refunding the amount which was transferred to M/s. Jabashetty Transformers Account. This is being defended by our Legal Advisers, Ravi, Suri & Sunitha, Malleswaram, Bangalore. A case was also filed in this regard, in the Sadashivanagar Police Station on 20th Oct. 2016. The matter is still pending.

b) There is an arbitration case going on between CPRI and Purushottama Raju in Hon'ble High Court of Karnataka for Civil Works of EMI/EMC building construction vide case No.COMAP No.224/2022. The party has claimed Rs.4,84,08,273/- along with interest till the case is settled. The matter is still pending. Rs.1,00,00,000/- paid as Arbitration Deposit to City Civil Court, Karnataka.

8. **Contingent Liabilities**: -

a) On account of Letter of Credit opened and remaining to be honored – NIL (excepting Letter of Credits with 100% margin) (NIL for 2024-25).
b) Estimated amount of liability on account of capital contracts - Rs.2,263.22 lakhs. (Rs.8,962.87 lakhs for 2023-24).
c) Claims not acknowledged as debts by the Institute – NIL
d) Bank Guarantees furnished to various clients by the Institute is of the value of Rs.274.34 lakhs as on 31.03.2025 backed by deposits to the full extent.
e) The total amount of Demand received from Service Tax Department (as provided in para 6 above) is Rs.836.44 Lakhs.
f) The liability towards remittance of NPS Employer contribution to Shri. N Murugesan Former DG is Rs.17,86,025/- for the period from 22nd March, 2010 to 31st July, 2024 including interest which has been paid on 26.05.2025.

9. **Sponsored Projects :-**

The Institute is engaged in core research activity funded by Government Grants. Apart from this, research activity for Government, Semi-Government and private agencies are also carried out on Sponsored basis. The cost of such research is fully funded by such agencies. The element of service if any in such activity is separately identified and charged.

10. The Institute has a system of Internal Audit conducted by a firm of Chartered Accountants.

11. The grant balances shown at Schedule–4 are exclusive of Margin Money Deposits for LC establishment towards the import of equipments. The margin money deposits as on 31.03.2025 are Rs.23,958.91 lakhs (Rs.16,387.50 lakhs as on 31.03.2024).

12. Accrued Interest on Investments made in Public Sector Undertakings is accounted based on accrued interest statement received from the bank.

13. Figures for the previous year have been regrouped wherever necessary to conform to the presentation of the current year.

As per our report of even date
For **KARUNAKARA SHETTY & Co.,**
Chartered Accountants,
FRN :008474s

(Dittakavi Sri Krishna)
Chief Accounts Officer

(Asit Singh)
Director General

(Karunakara Shetty)
Partner
Membership No. 207776

UDIN:-25207776BMILXT2382

Place: Bangalore.
Date: 24-09-2025

केन्द्रीय विद्युत अनुसंधान संस्थान
(भारत सरकार, विद्युत मंत्रालय)
प्रो.सर.सी.वी.रामन रोड, सदाशिवनगर डाक घर, पो.बा.सं.8066,
बेंगलूरू - 560 080, कर्नाटक, भारत
CENTRAL POWER RESEARCH INSTITUTE
(Govt. of India, Ministry of Power)
Prof. Sir C.V. Raman Road, Sadashivanagar Post Office, P.B.No. 8066,
Bengaluru - 560 080, Karnataka, India
वेबसाइट website : www.cpri.res.in

Reply to the Independent Auditor's Report
on audit of Accounts of F.Y. 2024-25.

Observations	Reply
a)CPRI has invested Superannuation fund with M/s LIC of India to the extent of Rs 996.90 crores for the year ended 31.03.2025 with the current year earmarked deposit of Rs 45.00 crores. CPRI has received Two Actuarial Valuation reports as follows:- i) Estimation received from M/s Transvalue Consultants is Rs 1144.59 crores ii) Estimation received from M/s LIC of India is Rs 774.63 crores Hence considering the Valuation report of M/s Transvalue Consultants, the surplus for the year has been overstated and liability is understated by Rs. 147.69 crores. And considering the Valuation report of M/s LIC of India, the surplus for the year has been understated and liability overstated by Rs.222.27 Crores.	Investment to Superannuation Fund in 2024-25 = Rs. 996.9 Crores. i) Estimation received from M/s Transvalue Consultants is Rs 1144.59 crores ii) Estimation received from M/s LIC of India is Rs 774.63 crores LIC's estimation of Rs. 774.63 Crores did not include the provision for post-retirement medical benefits. If the value for same is taken from the M/s Transvalue, the LIC's value will become Rs. 825.51 Crores (774.63 + 50.88) . Whereas the CPRI's SAF investment is Rs.996.9 Crores. It is clear that the Superannuation Fund is not maintained at low value. The question of under estimate based on M/s Transvalue will not arise, as it's report is not considered. For the coming years, budget proposals are being prepared in such a way that majority of surplus revenue collections may be utilized towards procurement of various capital assets, in addition to proposed capital exp from depreciation fund, development fund . Such Estimates submitted in RE 25-26 , BE 26-27 are @ Rs.5 Crores, Rs.10 Crores respectively. The new pay revision (8th CPC) (w.e.f 01.01.2026) may also lead to making higher provisions for gratuity, leave encashment etc. Due to these changes, the future earnings/surpluses may not be sufficient to make required contribution to Superannuation Fund. The existing SAF investments will take care of these changes in the coming years. In view of this, an amount of Rs.45 Crores was set aside for Superannuation Fund, for the F/Y 2024-25, to the extent of surplus available.

D. Sri Lakshmi
मुख्य लेखा अधिकारी
Chief Accounts Officer
सी.पी.आर.आई., बेंगलूरु- 80
C.P.R.I., Bengaluru-80

b)The balance in fixed deposits with Banks and Security Deposits ledger accounts as on 31.03.2025 are subject to confirmation.	Majority of the confirmations for balances of fixed deposits have been received from the respective banks and only few are yet to be received. The same will be completed in due course. However, the interests are being regularly credited to respective bank deposits, which is a primafacie evidence of existence of bank deposit. Regarding confirmation of security deposits, these are mostly with State Electricity Departments etc. Inspite of repeated reminders, these State Govt depts are not responding. However, efforts will be made to obtain confirmation in the due course.

D. Sri Krishna

Chief Accounts Officer
(Dittakavi Sri Krishna)

मुख्य लेखा अधिकारी
Chief Accounts Officer
सी.पी.आर.आई., बेंगलूरु- 80
C.P.R.I., Bengaluru-80

Place: Bengaluru
Date: 10.10.2025

Inauguration of 40kA
Temperature Rise Test Facility

View of the inaugurated Dynamic Laboratory

CENTRAL POWER RESEARCH INSTITUTE

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