**Before**

**UTTARAKHAND ELECTRICITY REGULATORY COMMISSION**

**Miscellaneous Application No. 28 of 2024**
**&**
**Miscellaneous Application No. 29 of 2024**

**In the Matter of:**

Investment Approval for Establishment of NABL Accredited Oil Test Laboratory with associated Office building and Transit hostel at 220 kV Substation, Ramnagar, Roorkee.

**and**

**In the Matter of:**

Investment Approval for Establishment of NABL Accredited Specialize Equipment Test laboratory (SETL) with associated Offices, Project Management and Monitoring Office buildings with Transit hostel at 132 kV Substation, Kathgodam (Haldwani).

And

**In the Matter of:**

Power Transmission Corporation of Uttarakhand Limited (PTCUL)

.....**Petitioner**

**Coram**

**Shri M.L. Prasad** **Member (Technical)/Chairman(I/c)**

**Date of Order:** **June 26, 2024**

**ORDER**

This Order relates to the Petitions filed by Power Transmission Corporation of Uttarakhand Ltd. (hereinafter referred to as "PTCUL" or "the Petitioner") vide letter No. 1141/MD/PTCUL/UERC dated 18.04.2024 seeking Investment Approval for "Establishment of NABL Accredited Oil Test Laboratory with associated Office building and Transit hostel at 220 kV Substation, Ramnagar, Roorkee" & "Establishment of NABL, Accredited Specialize Equipment Test laboratory (SETL) with associated Offices, Project Management and Monitoring Office buildings with Transit hostel at 132 kV Substation, Kathgodam (Haldwani)" under Para 11 of Transmission Licence. [Licence No. 1 of 2003].

## 1. Background

1.1. In the aforesaid Petitions, the Petitioner has submitted the proposal involving a capital investment of Rs. 34.78 Crores as per details given below:

| S. No. | Particulars | Project Cost including IDC as per DPR (Rs. Crore) |
|---|---|---|
| 1 | Establishment of NABL Accredited Oil Test Laboratory with associated Office building and Transit hostel at 220 kV Substation, Ramnagar, Roorkee. | 21.49 |
| 2 | Establishment of NABL Accredited Specialize Equipment Test laboratory (SETL) with associated Offices, Project Management and Monitoring Office buildings with Transit hostel at 132 kV Substation, Kathgodam (Haldwani). | 13.29 |
| **Total** | | **34.78** |

1.2. To justify the need for the aforesaid works proposed in the Petitions, the Petitioner has submitted that:

**A. Establishment of NABL Accredited Oil Test Laboratory with associated Office building and Transit hostel at 220 kV Substation, Ramnagar, Roorkee:**

The Petitioner stated that presently, it operates and maintains 03 nos. 400 kV Substation, 11 nos. 220 kV Substation, 30 nos. 132 kV Substation and 04 nos. 66 kV Substation and its associated transmission lines. PTCUL has to outsource competent testing agencies like Central Power Research Institute and Power Grid Corporation of India Ltd. to analyse the oil characteristics of existing EHV Transformers. Hence, a well-equipped NABL-accredited oil test lab and associated office building, transit hostel etc. is proposed which will cater huge demand to analyze oil characteristics of Transformers installed in the State, other northern State transmission utilities, UPCL, UJVN and other EHV/HT Industries. In view of projected load growth and running expenditure on regular oil testing outsourced from other NABL-accredited CPRI and PGCIL Labs, it is decided by PTCUL Management to set up an Oil Test Laboratory at 220 kV Substation, Ramnagar, Roorkee.

The yearly running expenditure on oil testing of PTCUL's Transformers from other competent agencies is approximately Rs. 25 Lakh (Twenty Five Lakh Rupees). Further, this Oil Test Laboratory may be utilised as a revenue source

by providing its facility to other STU, DISCOMs and EHV/HT Industries of Uttarakhand. Further, facilitating the Oil test laboratory at Uttarakhand under PTCUL shall be beneficial to PTCUL and Uttarakhand to contribute in the development and revenue growth of the State of Uttarakhand. Primarily, by setting up the Oil test Laboratory at PTCUL will save around Rs. 30 Lakh yearly and shall generate a yearly earning of at least One Crore rupees approximately. Further, extending this facility to State DISCOMs and other State Transmission Utilities along with access to industrial consumers of Uttarakhand will lead to substantial amount of Profit.

Presently, National Accreditation Board for Testing & Calibration Laboratories (NABL) Test Lab of Transformer oil is situated in Noida (U.P.), Jalandhar (Punjab) and Bhiwadi (Rajasthan). Setting up an Oil test laboratory in Uttarakhand will also help us to generate revenue from nearby areas of Uttarakhand such as Ponta Sahib, Saharanpur, Muzaffarnagar etc.

**B. Establishment of NABL Accredited Specialized Equipment Test laboratory (SETL) with associated Offices, Project Management and Monitoring Office buildings with Transit hostel at 132 kV Substation, Kathgodam (Haldwani):**

According to the Petitioner, it operates and maintains a substantial network comprising 03 nos. 400 kV Substations, 11 nos. 220 kV Substations, 30 nos. 132 kV Substations, and 04 nos. 66 kV Substations, along with their associated transmission lines. However, PTCUL faces the challenge of ensuring the accuracy and reliability of its equipment, including meters, relays, and other switchyard components. To address this need, PTCUL has been outsourcing testing and calibration services to competent agencies such as the Central Power Research Institute (CPRI), Electrical Research and Development Association (ERDA), and Power Grid Corporation of India Ltd (PGCIL). Despite the reliability of these external agencies, the process of outsourcing testing services can be time-consuming and costly. Recognizing the need for a more efficient and cost-effective solution, PTCUL has proposed the establishment of a well-equipped NABL-accredited test laboratory. This laboratory, along with associated office buildings and transit hostels, will not only streamline the testing and calibration processes but also ensure that PTCUL can maintain the highest standards of equipment accuracy and

reliability in-house. Moreover, the proposed laboratory will cater to the substantial demand not only from PTCUL but also from other northern State transmission utilities, Uttar Pradesh Power Corporation Limited (UPPCL), Uttarakhand Jal Vidyut Nigam Limited (UJVNL), and other high voltage industries in the region. By investing in its own testing lab, PTCUL aims to enhance its operational efficiency, reduce reliance on external agencies and ultimately improve the reliability and performance of its transmission network. Additionally, by offering testing services to external entities, PTCUL can generate additional revenue and contribute to the development of the power sector in the region. Overall, the establishment of the NABL-accredited test laboratory represents a strategic investment for PTCUL that aligns with its commitment to excellence and innovation in the field of power transmission and distribution.

The scope of work encompasses the comprehensive establishment of a NABL Accredited Specialized Equipment Test Laboratory (SETL) along with associated infrastructure at the 132 kV S/s Kathgodam (Haldwani). This entails not only the construction of the laboratory itself but also the development of accompanying facilities essential for its efficient operation. Alongside the SETL, the project includes the construction of office buildings dedicated to project management and monitoring, as well as a transit hostel to accommodate personnel involved in testing activities. Additionally, the scope extends to encompass various essential services required for the seamless functioning of the project. These services encompass firefighting installations, internal roads, drainage systems, water supply infrastructure, electrification arrangements, street lighting, sanitary and sewage systems, as well as the construction of a boundary wall and landscaping to ensure the security and aesthetic appeal of the premises. Furthermore, miscellaneous works necessary to facilitate the proper functioning of the project are also incorporated within the scope of work. By addressing these diverse aspects comprehensively, the project aims to establish a state-of-the-art testing facility while ensuring the provision of all necessary amenities and infrastructure for its effective operation.

1.3. Subsequent to the filing of the present Petitions, the Commission decided to conduct a hearing on the admittance in the matter on 17.05.2024.

1.4. On the scheduled date, the Commission heard the Petitioner on the admissibility of the Petitions in the matter and clubbed the miscellaneous applications for further proceedings. During the hearing, the Commission raised certain queries to the Petitioner on both the proposals filed through separate Petitions, mentioned herein below at Point A and B and issued a Daily Order dated 17.05.2024 directing the Petitioner to submit its reply latest by 24.05.2024:

**A. Establishment of NABL Accredited Oil Test Laboratory with associated Office building and Transit hostel at 220 kV Substation, Ramnagar, Roorkee:**

***Query 1:*** PTCUL has selected Roorkee as a central point for the oil test laboratory for Uttarakhand. PTCUL is required to justify the selection of this specific location as it caters majorly to the Garhwal region.

***Query 2:*** PTCUL to justify how this oil testing laboratory may generate yearly earnings of atleast Rs. 1 Crore approximately.

***Query 3:*** PTCUL in its Petition also proposed the cost of development of transit hostel and conference hall with the NABL lab. In this regard, PTCUL is required to justify the need of transit hostel and conference hall.

***Query 4:*** PTCUL to justify whether the adjacent States of Uttarakhand have set up there own oil laboratory. If yes name the States.

***Query 5:*** PTCUL to justify the need for transit hostels and conference rooms as it costs 60 % of the total project cost.

***Query 6:*** PTCUL is required to submit the number of manpower for the daily operation of the proposed laboratory and justify that, is existing manpower can handle the NABL laboratory. If new recruitment is required to be done, then tell the preparedness for the same.

**B. Establishment of NABL Accredited Specialize Equipment Test laboratory (SETL) with associated Office, Project Management and Monitoring Offices buildings with Transit hostel at 132 kV Substation, Kathgodam (Haldwani):**

***Query 1:*** PTCUL is required to provide the name of the types of equipment that will be tested in the proposed SETL lab and how setting up of this lab shall improve the working of PTCUL.

***Query 2:*** PTCUL is required to justify the need for a transit hostel and Conference hall as it costs 80% of the total project cost.

***Query 3:*** PTCUL is required to provide the details of SETL Laboratories setup by other state transmission utilities together with the revenue being generated by such SETL Labs for their STUs.

***Query 4:*** PTCUL is required to submit the number of employees required for the daily operation of the proposed laboratory and justify whether existing employees can handle the NABL laboratory. If new recruitment is required to be done, then the preparedness for the same.

1.5. In compliance to the direction, the Petitioner through its letter dated 24.05.2024 submitted the reply to the queries as follows:

**A. Establishment of NABL Accredited Oil Test Laboratory with associated Office building and Transit hostel at 220 kV Substation, Ramnagar, Roorkee.**

***Reply 1:*** (i) Selection of Roorkee as a central point for the oil test laboratory is justified as it has a huge transmission network including 02 nos. 220 kV substation, 06 nos. 132 kV Substation and its associated lines. Also, Roorkee is adjacent to Dehradun, Haridwar and Rishikesh regions and is equally distant from Garhwal & Kumaon hills.

(ii) Also, selected land is owned by PTCUL and very much suitable for establishing an oil test Lab.

***Reply 2:*** (i) PTCUL can better monitor the condition of transformers through its own oil testing lab by adopting best O&M practices.

*(ii)* PTCUL will earn revenue upto quantum of Rs. 1 Crore per year by extending oil test facilities to nearby State Transmission Utilities like HPVNL, PSTCL, UPPTCL, DTL etc. on concessional rates.

*(iii)* PTCUL can extend also oil testing facility to CPSU functioning in State of Uttarakhand like NHPC, NTPC, THDC, SJVN, BHEL etc. on concessional rates.

***Reply 3:*** (i) Oil testing lab will be established as commercial unit so it is required to have associated buildings for Executive Engineers, Assistant Engineers and staff working there.

(ii) Transit hostel and dormitory will be constructed in order to provide stay facility to clients.

***Reply 4:*** No information available with PTCUL except that UPPTCL has oil test facility at 765 kV Substation, Agra.

***Reply 5:*** Oil test lab would need buildings for lab, storage of samples, printing of reports and record keeping. Office buildings are also required for Executive Engineers, Assistant Engineers, Junior Engineers and staff. Oil test lab will be developed as State of Art Technology.

***Reply 6:*** PTCUL engineers and operating staff are conversant by witnessing on-site oil testing and taking oil samples. At present existing manpower can handle the NABL-accredited oil test lab. In case of future expansion, new recruitment will be required to be done.

**B. Establishment of NABL Accredited Specialize Equipment Test laboratory (SETL) with associated Office, Project Management and Monitoring Offices buildings with Transit hostel at 132 kV Substation, Kathgodam (Haldwani):**

*Reply 1:***Types of Equipment to be Tested in the SETL Lab**

1. **Circuit Breakers:** Tests such as timing tests, contact resistance tests, and insulation tests ensure that circuit breakers can safely interrupt fault currents.
2. **Current Transformers (CTs) and Potential Transformers (PTs):** Ratio, polarity and burden tests ensure accurate metering and protection.
3. **Insulators:** Testing mechanical and electrical properties to ensure they can withstand environmental and electrical stresses.
4. **Cables and Conductors:** Tests for insulation resistance, high voltage withstand, and partial discharge ensure cables and conductors are reliable and safe.

5. **Relays and Protection Systems:** Testing of settings and functionality to ensure accurate operation in fault conditions.
6. **Batteries and DC Systems:** Capacity testing and discharge testing to ensure backup power systems are reliable.
7. **Capacitors and Reactors:** Capacitance, inductance, and insulation tests ensure these components function correctly in power factor correction and filtering applications.
8. **Meters and Measurement Devices:** Calibration and accuracy tests to ensure correct energy measurement and billing.

**Setting Up the SETL Lab Will Improve PTCUL's Working**

1. **Enhanced Reliability and Safety:** Regular testing of critical equipment ensures early detection of potential faults, preventing failures and ensuring a more reliable power supply.
2. **Compliance with Standards:** The lab ensures all equipment meets national and international standards, enhancing the overall quality of the power transmission network.
3. **Reduced Downtime:** Predictive and preventive maintenance facilitated by regular testing reduces unplanned outages, ensuring continuous power supply.
4. **Cost Savings:** Early detection of issues and preventive maintenance can reduce repair costs and extend the lifespan of equipment.
5. **Improved Efficiency:** Ensuring all equipment operates within optimal parameters improves the efficiency of the power transmission system.
6. **Technical Expertise:** The lab will foster technical expertise within PTCUL, enhancing the skill set of its workforce and enabling better management of the power network.
7. **Research and Development** The lab can serve as a centre for research and development, fostering innovation in power transmission technologies and methodologies.

8. **Regulatory Compliance:** Meeting regulatory requirements for testing and certification can prevent legal issues and fines, ensuring smooth operations.
9. **Customer Satisfaction:** Reliable power supply and accurate metering contribute to higher customer satisfaction and trust in PTCUL.

***Reply 2:*** The transit hostel and conference hall are essential components of this project. They provide significant operational benefits, including improved staff efficiency, cost savings, enhanced training and development, and better emergency preparedness. Although they represent a substantial portion of the project cost, the long-term advantages make this investment a strategic decision for the sustainable growth and efficiency of PTCUL.

***Reply 3:*** One example of such a laboratory is the SETL lab setup by Power Grid Corporation of India Limited (PGCIL). PGCIL's SETL lab is equipped with state-of-the-art facilities for conducting tests and calibration of protection relays and other electrical equipment situated in Manesar Gurgaon. The lab is also accredited by NABL and is capable of providing high - quality testing services to various clients in the region.

In terms of revenue generation, PGCIL's SETL lab has been successful in generating revenue for the corporation. The lab offers testing services to various clients including other utilities, industries, and government agencies, and has been able to generate revenue through service charges. PGCIL's SETL lab has been involved in several research projects related to protection relay testing and calibration. The lab has developed several new testing techniques that have been recognized by various organizations in the industry. By sharing its expertise and knowledge, PGCIL's SETL lab has been able to provide consultation services to other state utilities and industries in the region, generating revenue in the process. PTCUL is also a client of PGCIL and has sought consultancy services from them for various projects, including the construction of the 400 kV Kashipur project.

***Reply 4:*** At present, PTCUL's existing manpower can handle the daily operation of proposed laboratory. In case of future expansion new recruitment to be done.

## 2. Commission's Observations, Views and Directions:

2.1. Based on the submissions made in the Petitions and subsequent submissions of the Petitioner during the hearing and vide its reply dated 24.05.2024, the Commission observed that:

2.1.1 In accordance with the Licence No. 1 of 2003 issued to Petitioner on 20th June 2003, under the Electricity Act, 2003, the Petitioner is the sole Transmission Licensee in the State and Section 40 of the Electricity Act, 2003 specifies the duty of the Transmission Licensee to build, maintain and operate an efficient, coordinated and economical intra-State transmission system or intra- State transmission system.

The Petitioner in the instant Petitions has proposed to establish its own NABL Accredited Oil Test Laboratory as it has to outsource tests/analysis of Oil characteristics of its existing EHV Transformers through the competent testing agencies namely Central Power Research Institute (CPRI) and Power Grid Corporation of India Ltd. (PGCIL) etc. The Petitioner further submitted that towards establishing a well-equipped NABL-accredited oil test lab it would require additional basic infrastructure viz. associated office building, transit hostel etc. and the same has also been proposed in the instant Petitions.

Further, the Petitioner has stated that it faces challenges in testing of its various equipment as periodical testing is required for ensuring the accuracy and reliability of its equipment including meters, relays, and other switchyard components. Therefore, to address this need, the Petitioner in the instant Petitions has also proposed to establish its own NABL Specialized Equipment Testing Laboratory (SETL). The Petitioner has submitted that at present the testing and calibration of equipment is been done through the outsourced agencies namely CPRI, PGCIL and Electrical Research and Development Association (ERDA).

It is known that the proposed labs are needed to be accredited by NABL periodically and such accreditation/calibration of equipment would require

annual recurring expenditures. Besides this, for operation and maintenance of these labs, proficient and highly skilled manpower would be required to carry out/conduct the precision testing under the day-to-day activities. Merely witnessing on-site oil testing and taking oil samples would not be sufficient for handling the proposed works by the existing employees.

Further, as submitted in the Petitions, the testing of oil and equipment for Transmission Licensees is mostly done by CPRI and which is an autonomous body/specialized institution with more than 50 years of sole experience in the field of Testing of Power equipment and has developed expertise in testing of various equipment in Transmission and Distribution Systems viz. Short Circuit Testing, Ultra High Voltage Testing, Testing of Power Capacitors, Power Cables and Accessories, Solar and LED lighting Systems, Energy Metering, Energy Auditing, Transmission Line Tower Design, Conductor Vibration Studies, Seismic Testing, Transformer Oil Reclamation & Testing, Diagnostic & Condition Monitoring, Estimation of Remaining Life of Equipment, New Materials for Power System Application and other related fields.

Further, it would be difficult for a new entrant to establish itself in the field of testing in comparison to the already established, competent and time tested labs viz. CPRI, which caters for most of demand of testing requirement of the Power utilities across the country through its labs located at different regions. Hence, the aforesaid proposals of the Petitioner for setting up testing laboratories and operate the same looks to be overambitious under present scenario/state of affairs (lack of specialized staff, performance of PTCUL towards its core duties/activities, financial health) within PTCUL.

2.1.2 Further, in response to the query of the Commission regarding manpower requirement for the aforesaid labs, Petitioner submitted that it could handle the operation of labs with existing manpower. However, in recent years of Tariff petitions of the Petitioner, it has been observed that the Petitioner always flagged the issue of shortage of staff in its organization, due to which the Petitioner expressed its limitation in carrying out day-to-day duties/obligatory functions. Hence, the statement made by the Petitioner on

engaging the staff from existing manpower for labs is contradictory to what it has been repeatedly submitted in its Tariff Petitions.

Therefore, the limited submission do not inspire any confidence, hence the Commission feels that the Operation and Maintenance of the proposed labs with existing manpower appears challenging considering the skills and competency required for the proposed Specialized Labs and the actual position of the manpower of the Petitioner which may have substantial impact on the performance of core business of PTCUL.

2.1.3 Furthermore, on the query raised by the Commission for providing the details of other State Licensees having NABL-accredited labs of a similar nature, the Petitioner has submitted that it does not have any information in this regard, which shows that inspite of the Commission's specific query, the Petitioner did not even explore the status in other similar placed Utilities. Considering this, the Commission is of the strong view that if it was as profitable as has been projected by Petitioner then certainly other transmission utilities would have also gone for setting up such laboratories. Hence, the Commission feels that these labs will only add to the liabilities for the Petitioner as it would also contribute in incurring recurring expenses toward the maintenance of such infrastructure.

2.1.4 The Commission also raised queries and asked the Petitioner to clarify as to how it will generate revenue by conducting tests for other Power Utilities and HT/EHT Industries. In response to which, Petitioner made a vague submission, which is totally based on the assumptions and without having proper documentary evidences. Moreover, Petitioner has not even submitted the cost benefit analysis of the proposed investment, which demonstrate that no such exercise has been conducted, which itself questions the viability. Thus, the Commission finds that Petitioner is unable to justify the need or reason towards viability of the proposed investment.

From the above, the Commission is of the view that incurring such huge expenses on an activity, which is entirely different from the nature of works being carried out by the Petitioner would not be appropriate. Besides this, the Commission is also of the view, that alongwith other constraints, there would be substantial recurring expenses in operations and maintenance of the proposed infrastructure, renewal of

certification/licenses/accreditations and on highly skilled/competent additional manpower, that too without assured business (speculated by Petitioner) would not be appropriate or justified.

Also, for the past many years, the Commission has seen the working of the Petitioner and observed that the Petitioner for different reasons could not complete its Core Competency works in time. Hence, in case the above proposals are approved, the same would hamper the main stream works of the Petitioner, further, such proposals need specialized skill sets for operation & maintenance and incase of any slackness the same would become liability/encumbrance for the Petitioner.

Therefore, in light of the above observations/views, the Commission at this point of time with such pleadings is not finding the proposals fit for admissibility and further consideration. Hence, the Petitions are hereby rejected.

Ordered accordingly.

**(M.L. Prasad)**
**Member (Technical)/Chairman(I/c)**